**A Case For Telemedicine**

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Plan for ITAS

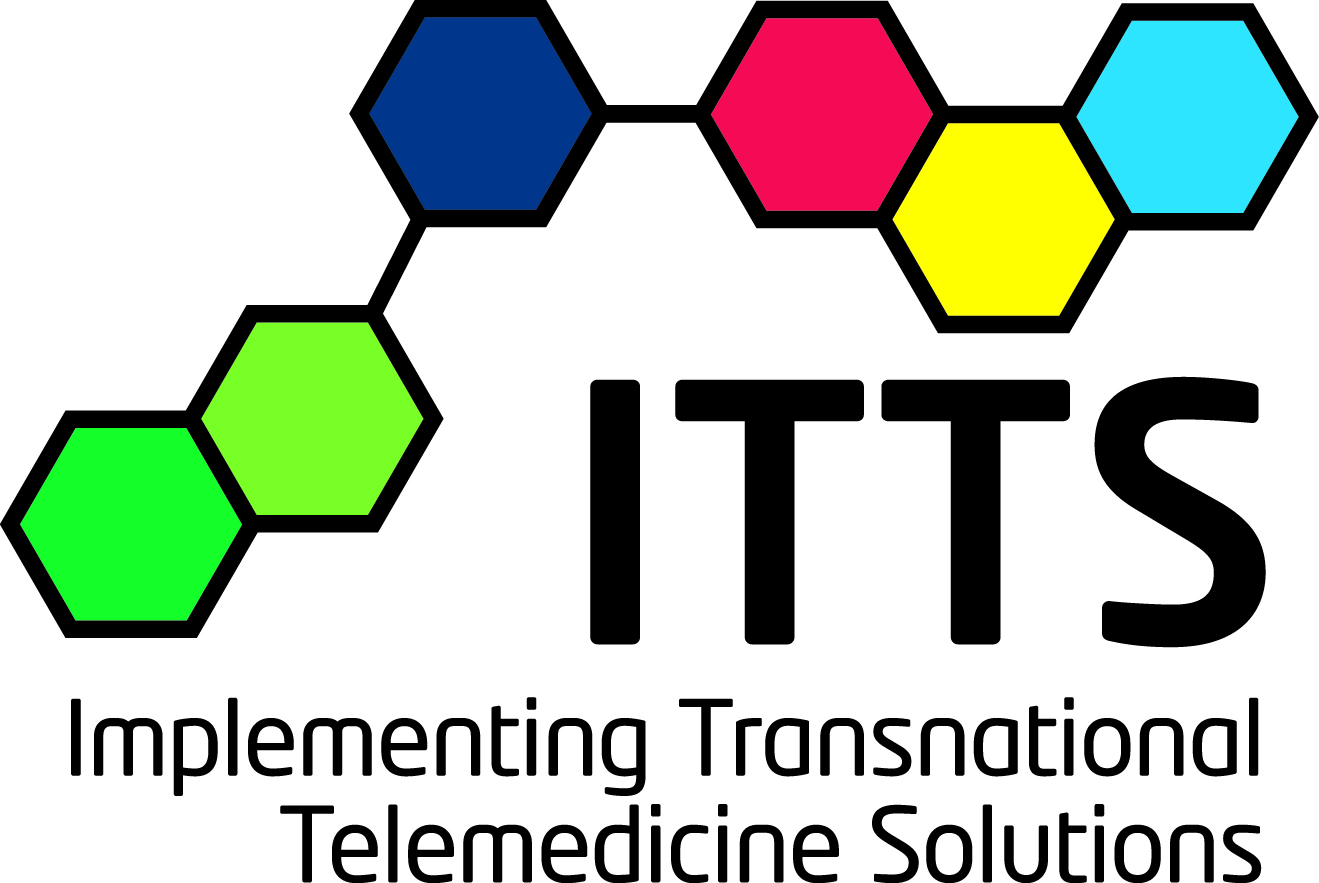
Plan for Evaluation

This document is an element of the Implementing Transnational Telemedicine Solutions (ITTS) project funded by the Northern Periphery Programme. It brings together all the business cases for the ten demonstrator projects in ITTS. This should be seen as a **working** document, and is provided to those who will be interested in the plans made for each project, and within that for each country. It is unlikely that the whole document will be of interest, and we don’t recommend printing the whole 305 pages, as it has been drawn up from a number of sources and there may be formatting issues. Each of the business cases was to be ratified by the International Telemedicine Advisory Service (ITAS). One of the ten business cases was rejected by ITAS, and that project was subsequently redesigned as a transnational knowledge exchange event, with secretariat approval. As with any business case, the actual implementation varied from the plan to some degree. However, these documents are useful in demonstrating the preparation required for introduction of new services, and are testimony to the work undertaken by project staff, and local service providers in ensuring that implementation was successful.

David Heaney

Project Director

Project 1 VC links for speech therapy services

**PROJECT 1: Speech Language Therapy**

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**BUSINESS CASE**

**SECTION 1**

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| **LIST THE EXPORTING COUNTRIES** |
| Sweden and Scotland |
| **LIST THE COUNTRIES IMPLEMENTING OR EXPANDING THIS SERVICE** |
| To be implemented in Ireland and Northern Ireland and expanding in Sweden and Scotland |
| **SUMMARY OF SERVICE** |
| Sweden  This service uses videoconferencing to bridge the distance between speech therapists and patients in or near their homes. The overall aim is to enable equal access to speech pathology in rural areas. The service will also meet needed reduction of costs for public patient transportation services as well as introduce the use of telemedicine services within ENT clinic.  The service has been implemented since 2007 and will now expand both to new patient groups and to in-home therapy.  Mobile broadband network will be used if the patients’ don’t have internet access. Estimated total amount of patients is 75 and video sessions will increase with about 75-100%  Costs for public patient transportation service by taxi will be essentially reduced. The ITTS project will supply  three transportable VC units for the in-home therapy and two web cameras and Jabber clients for the  SLT clinic. The estimated total cost for ITTS is15 210 Euro.  Scotland  The North Highland Community Health Partnership (CHP) subdivision of NHS Highland extending across Caithness and Sutherland in Scotland has used video conferencing technology to deliver Speech -Language Therapy for 2 years. This was implemented as there was a clear need to improve quantity and quality of service by reducing time spent on staff travel.  The ITTS project with NHS Highland will further develop the use of videoconferencing to meet the continuing challenges of delivering SLT in remote and rural areas. The expanding service will build on the demonstrated success in SLT by utilising the growing network of VC units installed by NHS Highland. By demonstrating improvements in SLT service and where cost savings can be made, NHS Highland can use this evidence in the promotion of VC for use in other clinical applications across Highland ensuring maximum return for publicly  funded equipment and improved access to services for those living remotely.  Ireland  will implement the service in the County of Galway which is part of the HSE West Healthcare Region. The main aim is to reach patients in remote areas particularly on Inis Mor in the Aran Islands where there is no road connection to the mainland. The service will reach all patient groups common in SLT clinics but will focus on children, frail elderly and other housebound patients, who today cannot receive needed therapy. Using videoconferencing will also ensure that block therapy is more accessible. The service will reduce therapists travel time by about 3 hours per day and that time will be used to reduce the existing and unacceptably long waiting lists. The ITTS project will supply some of the required equipment.  While also using suitable existing VC infrastructure.  Nothern Ireland  Will implement the service in the stroke team and the VC links will be used not only by Speech Language  Therapists but also the other rehabilitation professions in the team.  The main aim of this service is to provide more therapy to patients in their own home setting and at the same time reducing the Therapists travel time and mileage. In only 5-10% of cases the patients attends clinic.  This project will therefore use the Health Centre based approach as a viable alternative to some patients having the home based solution installed. The outcome will be evaluated in terms of effectiveness, cost etc |

**SECTION 2 – Sweden and Scotland**

**EXPORTING PARTNER(S) COMPLETE SECTION 2 ONLY**

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| PLEASE DESCRIBE THE SERVICE CURRENTLY IN EXISTENCE (this can be taken from ‘services in existence’ document ITTS-0004 |
| Sweden  The patient goes to their nearest health care center where the VC room is booked for the session. The Speech Therapist leads the session from the studio at the SLT clinic in Umeå or Skellefteå or Lycksele. All therapists in the three hospitals have experience of therapy by video. The number of distance sessions have been about 300 per year  *Intervention offered:*   * •Patients with aphasia and/or dysarthria in remote parts of Västerbotten can have continued   contact by video for therapy and/or follow ups.   * •Voice patients in remote areas can have follow ups after therapy. * •Speech and language development in three or four year old children living in remote areas can be preliminary assessed in a structured play session and advice can be given to the parents * If the child needs further assessment or therapy they go to their SLT clinic. * •Cleft palate children can have speech controls and their parents /and or staff from school can be given   advice and/or training instructions.   * •Schoolchildren with stuttering can have therapy and their parents can have counseling sessions. * •Information about test results can be given to parents and staff at remote schools after assessing schoolchildren at the SLT clinic.   A few patients with Parkinson’s receive Lee Silverman Voice Therapy LSVT, in their homes.  This therapy is given one full hour four days a week for a period of four weeks. The VC equipment for this service is a prototype that was developed in the EU project 2005 -2007. It is functional but difficult to transport and has to be installed by a technician which costs about  190 Euro for each patient  Scotland The North Highland Community Health Partnership (NCHP), a subdivision of NHS Highland extending across Caithness and Sutherland in Scotland, has used video conferencing technology to deliver Speech and Language Therapy (SLT) for 2 years. This is a large geographical area with very few urban settlements. There are 2 SLT bases in the area both located on the more populated East coast and these can now be linked by VC. These bases can also link with other SLT services across Highland and more recently with 4 small health centres in the remote north and west. There is only one dedicated SLT VC facility but therapists access other available units when required.The clinical use of VC for SLT was investigated and developed in response to the significant challenge of delivering an effective, efficient and equitable service to those living in the remotest areas of the Scottish Highlands but it has taken time to establish a small network of VC units which patients can access in the remoter areas and these have only recently become available. As a result, over the past two years we have concentrated our efforts on:   * using the existing VC network on the East coast to improve the service we can offer patients e.g. by offering access to specialist SLT services and to develop our skills and expertise in the clinical use of VC * promoting and supporting the clinical use of VC by neighbouring SLTs and other disciplines to address the challenges of improving the available network and its economic viability * Since January 2012 we have begun to use the expanding network in the remoter north and west (our initial target area) to offer therapy for patients in some of the more remote areas e.g. a stroke patient living 2 hours form the SLT clinic   The North highland CHP supported the implementation of VC in SLT services and appreciated the potential to encourage remote service delivery in a variety of other fields. |

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| BENEFITS TO PATIENTS |
| Sweden:  Generally increased access to Speech Language therapy and less traveling to the hospital clinics  for patients in rural areas.  Patients don’t have to cancel appointed therapy sessions for travelling, time or family reasons  Elderly patients are less tired from travelling when they come for therapy at the Healthcare center and  they can be more alert during therapy.  Possibility to have in-home therapy for some patients  Scotland:  Patients have benefited by improved access to the local SLT service and by improved access to specialist SLT services  Access to local service   * More frequent appointments as clinically appropriate * Less travel time to see therapist * Increased clinical options e.g. intensive therapy where indicated e.g. for stroke patients or those with Parkinson’s which would not otherwise be possible * Increased options in date and time of appointment i.e. not restricted to the day or time the therapist travels to remote area. * Reduced waiting time for first appointment and between appointments * Increased continuity of care e.g. Patient transferring between hospitals had link session with new and existing SLT * Access to service when no local service available e.g. due to sick leave   Access to specialist SLT service   * Access to specialist SLT services within and outwith the area more easily available * Less travel time to see therapist |

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| BENEFITS TO HEALTHCARE STAFF |
| Sweden:   * Less travel to man the smaller hospital meaning 25% SLT resources back to the clinic * Fewer cancelled sessions * Possibility to offer intensive/block therapy to patients in remote areas * Less stressed and more alert patients * Professional satisfaction when patients can be offered and receive needed therapy regardless of   where they live. |

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| BENEFITS TO HEALTHCARE STAFF continued |
| Scotland  Efficiency and safety   * Reduction in travel which releases clinical time and reduces stress and risks associated with driving long distances * Increased efficiency * Flexibility in using skills within team both in relation to making available specialist skills within team but also in using support workers more effectively (e.g. a joint VC session with patient and SLT support worker at the remote end, support worker was then able to continue work locally) * Flexibility in deploying services to accommodate changes in demand e.g. managing waiting lists; staff shortage; fluctuating caseload   Quality   * Increased therapy options, particularly given emerging evidence base e.g. need of intensive therapy * Improved clinical outcomes resulting from increased clinical options; access to specialist support; increased frequency of appointments; more focused patients and therapists * Greater professional satisfaction and confidence * Increased Continuous Professional Development opportunities. E.g. shared clinical session with specialist SLT for patient with a stammer  The use of VC is also a greener alternative. |

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| TECHNICAL REQUIREMENTS (broadband) Hardware requirements  Software requirements |
| Sweden  International standard for videoconferencing H.323 is preferred  Broadband capacity for in home sessions should be at least 512 kbit in each direction if ADSL is used.  Fiber-optic connections demands 768 kbit.  SLT clinics:  “Studio” for sessions over video. VC systems with HD quality, zoom function and ability to control the camera at  the far end. Screen size 37” -42”.  Document camera, computer and a digital tape recorder  For LSVT an adapted decibel measurer  Good acoustics and light  Health Care centres:  VC systems with HD quality and zoom function. Screen size at least 20”  Good acoustics and light. |

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| TECHNICAL REQUIREMENTS (broadband) Continued Hardware requirements  Software requirements |
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| Scotland  Therapist site:   * CISCO Room based system (Tandberg Edge 95 MXP) * Trolley mounted * Samsung television – hotel mode * Lumens document camera * Lap top * Access to NHS Internal VC network – via N3 connection * Adequate broadband speed   Patient sites require:   * CISCO Room based system * Trolley mounted * Samsung television – hotel mode * Access to NHS Internal VC network – via N3 connection * Adequate broadband speed |
| STAFFING REQUIREMENTS |
| SwedenTechnical support from IT/MT units must be available especially when less experienced therapists. A person to accompany elderly patients or patients with severe aphasia is necessary. A family  member is preferred but also social staff or a volunteer from the local patient organisation have been  involved for patient support.    Scotland  Varying level of support required at remote end depending on needs of patient.   * May be to reassure at start of first session for unfamiliar user or to be present throughout session * Minimum requirement: reception staff to meet patient and ensure VC connection   Maximum requirement: support worker/carer to facilitate session at remote site   * Administrative support to manage bookings |

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| PROBLEMS / ISSUES ENCOUNTERED |
| Sweden and Scotland Technical infrastructure is a main issue that must be addressed   * Local availability of VC units * Broadband availability in remote areas   Where home units are to be used   * Broadband capacity in patients’ homes might not be sufficient * Transportation and installation of the home units   Some therapists may be reluctant to give therapy by videoconference |

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| EVALUATION DATA (include details and results of any evaluation undertaken) |
| From the Swedish EU project 2005-2007Number of patients194 patients incl. 36 in home received 779 sessions incl. 219 in home.EffectivenessBefore the project the number of sessions for patients over 80 years with aphasia and/or dysarthriain densely built up areas was *twice as many as* for the equivalent group in thinly built-up areas.After the project the average number of sessions has been levelled between these two groups without reducing the average total number of sessions for the group as a whole. Fewer cancellations 2% versus normally 10-15%  Patient satisfaction  94% answers ”yes” to the question:  ”Did you get good contact with the therapist?”  94% answers ”yes” to the question:  ”Would you recommend others to meet a speech pathologist via this technic?”  Environmental aspects  “Saved” km counted from home addresses to SLT dep. at hospital in Umeå (exkl inhome- patients)  154 842 km ( ca 15 500 Swedish miles)  Estimated savings for public transport  80% of patients in thinly built-up areas go by taxi. If all patients had accepted therapy at hospital clinic the costs for transportation would have been about 1 300 000 Skr = 148 000 Euro.  Quality  Dysarthria assessment in a video setting compared to face to face showed a correspondence of 100 % within ±2 points |

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| References: |
| * Mashima P and Doarn C   Overview of telehealth activities in speech-language pathology. *Telemedicine Journal & E-Health* 14.10 (2008): 1101-17.   * Palsbo S   Equivalence of functional communication assessment in speech pathology using videoconferencing. *Journal of Telemedicine & Telecare* 13.1 (2007): 40-3.   * Reynolds A, Vick J and Haak N   Telehealth applications in speech-language pathology: a modified narrative review*. Journal of Telemedicine & Telecare* 15.6 (2009): 310-6.  Competitive Health Services in Sparsely Populated Areas – ehealth Applications across the Urban-Rural Dimension – Report on Scotland pilots – teledialysis, remote speech therapy, March 2011 – Mary Wakeling, David Heaney |

**SECTION 3 - Sweden**

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| IMPORTING COUNTRIES |
| Sweden will expand the existing service |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| County Council of Västerbotten at the SLT dep. of all three hospitals and in the patients’ homes and for some patients the health care centres |
| ISSUES FACING THE SERVICE CURRENT: |
| * Lack of SLT specialists in the smaller hospital of Lycksele * Patients oral/laryngeal tumors within the Head and Neck team living in rural areas have low access to SLT both for speech problems and dysphagia * Difficult to organize intensive verbal therapy over several weeks for children of families in rural areas * The VC rooms at the Health care centres are often booked and it is difficult to plan regular sessions and book the room several weeks ahead for a normal therapy period. * Many patients with aphasia who have long distance to their healthcare centre and decline continued contact with the SLT would benefit from using a home unit for needed therapy * The amount of video sessions for Speech language therapy has decreased during the last two years; one reason is the costs for installation of home units another no VC unit at the SLT clinic in Lycksele Hospital. * The SLT department in Umeå and Lycksele hospital needs and a webcamera and a Jabber client to enable more video sessions * Administration time for staff to plan the transportation * The existing home units, prototypes from a former EU project, must be delivered and installed by an external technician paid by the clinic, about 2500 SKR (180 Euro) per patient and therefore only seldom used. |

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| CLINICAL NEED |
| SLT in the H&N team at the ENT clinic of Umeå University Hospital  Mutual learning within the team  Continued support to the patients with oral/laryngeal tumours  Information sharing with district nurse at the health care centre  Evidence based Therapy (LSVT) for Parkinson’s disease for all patients in the county  Home based intensive therapy for children with verbal dyspraxia in rural areas  Home based therapy for patients with aphasia who cannot have regular therapy at the Healthcare centre  Easier and cheaper model for delivery of VC units to patients homes  New model for delivery of VC units to patients homes:  ENT clinic leasing car will be used  VC technician from MT dept will be responsible for the delivery |

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| BENEFITS TO PATIENTS |
| Increased access to the specialists in the Head&Neck team for outpatients with oral/laryngeal tumors  Equal access to evidence based SLT for patients with Parkinson’s in the whole county.  Less tiresome travels especially for elderly and/or disabled patients  Patients with aphasia can accept offered therapy even if they have difficulties travelling to their health care centre.  Children with verbal dyspraxia who live in rural areas can have intensive articulation training |
| BENEFITS TO HEALTHCARE STAFF |
| Mutual learning between SLT and ENT nurses in the H& N teamStronger Head& Neck team at University Hospital will also gain patients in the northern Healthcare region Satisfaction with level of care for patients in rural areas  Reduced administration for transportation of home unites  Reduced cost for transportation and installation of home units  Higher productivity in the clinics by means of more video sessions |

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| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| For the SLT clinics  Two web cameras + Jabber clients in the SLT department placed at the hospitals in Umeå and Lycksele.  For in home therapy:  A portable easy to handle VC unit with HD quality. Screen size not smaller than 20”. Zoom function is necessary  for all kinds of therapy. For voice therapy remote control of the camera is needed.  Three home VC units with possibility to share presentations/pictures and with zooming function(aphasia and verbal dyspraxia)  A decibel measurer for feedback to the patient (Parkinson’s´)  Transport cases  Mobile broadband  Routers and subscription for in home therapy where patients have no broadband. |

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| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| All Health care centers have VC systems and the SLT clinics at the University Hospital in Umeå  and the County Hospital in Skellefteå have their own VC studio adapted for therapy over video. The studios have a document camera for showing objects, a computer to share pictures, texts and computerized training programs and a DAT recorder for speech /voice recordings.  The SL therapists at the County Hospital in Lycksele use a common VC room not specially adapted.  All infrastructure needed for safe communication is in place.  Infrastructure and license for Jabber clients exist  Easy access to technical support from SLT engineer  New VC unit installed in ENT clinic at Umeå Hospital  One of the existing home units can easily be transformed to stationary use within the ENT clinic in Lycksele  The therapy method LSVT for Parkinson’s is tried with good results over video  Most of the therapists are familiar with giving therapy in a “virtual room”.  Reduced costs and easier routines for transportation and installation of home units. |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| Patients at a Health Care centre:  About 30 oral and/or laryngeal tumor patients  Patients who receive therapy in their home:  18 patients /year with aphasia  20 children/ year with verbal dyspraxia  5 patients / year with Parkinson’s  (the number of patients is estimated from statistics year 2011)  Estimated total number of video sessions is at least 300.  *NOTE Since the whole implementation WP is delayed about three months the number of patients might be reduced*. |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| Medical secretary for booking and planning for home patients  Regular SLT for the Head& Neck team and time for mutual learning with ENT nurse  SLT for adapting methods and materials for verbal dyspraxia therapy over video and introducing and supporting colleagues to work over video  SLT for introduction and training for SLTs working with children  Technical support Time for technician to adapt the decibel measurer to the home unit |
| Staff REQUIREMENTS |
| Regular secretary  25% SLT  Regular SLT technician |

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| TRAINING REQUIREMENTS |
| Knowledge exchange for staff including new SLT in the Head & Neck team at the ENT clinic  Learning seminars for therapists who work with these new target groups twice during the project time. |

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| Timescale for implementation (Please include equipment procurement, training etc) | | | | | |
| No time for procurement, existing contract can be used. Web cameras and Jabber clients can be delivered within a few weeks  VC systems for home patients are delivered after four to six weeks  The transportation cases will be built and delivered a few weeks after the VC systems  Introduction to the H& N team and specialist nurse can start anytime  Adapting methods is done continuously during the project  Seminars will be held during the project time | | | | | |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them | | | | | |
| No | | | | | |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them | | | | | |
| No personal data is open to the public Internet. | | | | | |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them | | | | | |
| No extra expenses for home therapy compared to regular sessions, children have free health care in Sweden | | | | | |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them | | | | | |
| No | | | | | |
| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) | | | | | |
| Description of cost |  | Estimated cost | | Who will pay? | |
| Three (3) units CTS-EX60-K9 | EX60 - NPP, Touch UI | | 12 471 Euro | | ITTS |
| EX 60 service | Partner Core-Bridge NBD 1 year | | 651 Euro | | ITTS |
| Three (3) transport cases | EX60/90 | | 1 818 Euro | | ITTS |
| One (1)routers for mobile broadband | Model not decided | | 170 Euro | | ITTS |
| One (1) subscription mobile broadband | Telia 12 months | | 409 Euro | | ITTS |
| One (1)routers for mobile broadband | Model not decided | | 170 Euro | | VCC |
| One (1) subscription mobile broadband | Telia 12 months | | 409 Euro | | VCC |
| Transportation of home units | 30 patients costs Euro each | | 2 400 Euro | | VCC |
| Two Webcameras and Jabber clients | Placed in the SLT clinic | | 212 Euro | | ITTS |

# SWAT ANALYSIS

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| **Strengths** | **Weaknesses** |
| The Healthcare board in Västerbotten recommend increased use of telemedicine  Motivated Speech Therapist  Technical support at short notice  Costs for transportation of the home units will be reduced and no external technician needed.  Experiences from former projects show that most patients accept to have a VC equipment in their home for some weeks  VC rooms at the healthcare centres will only be used  for ENT patients  No rest values for the SLT clinics. Costs are within  the investment limits. | Lack of coverage of broadband in the sparsely populated remote areas  Some patients have no broadband connection in their home. This will be addressed by using mobile network and a router in the patient’s home.  The need for a technician to install the VC units in patients’ homes is still needed. However not as expensive as before.  This implementation does not cover the needs of all patients in rural areas |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| Teambuilding with the Head&Neck tumor team in the ENT clinic  Patients with Parkinson´s disease can be offered an evidence based therapy (LSVT)  Speech therapy by video also for children  Increased use of telemedicine at the Dep of SLT  will enable future research and evaluations about the method | Healthcare centres have so far been open to telemedicine but with increased amount of telemedicine patients at the healthcare centres discussions about costs ant patient fees have come up. This might affect the willingness to implement more telemedicine services.  The VC rooms at the healthcare centres are often occupied because of  increased use of VC meetings in the County, there might be conflicts about priorities for using the facilities.  This is one strong reason to find solutions for in home therapy. |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

**SECTION 3 SCOTLAND**

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| IMPORTING COUNTRIES |
| Scotland – Highland will expand the existing service |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| The use of VC in the Speech and Language Therapy service will continue to be developed across the NHS Highland area but the critical mass in each location is very small. The current aim is to maximise use of existing VC units and help promote the clinical use of VC by other disciplines in order to develop an economically viable multi-professional clinical network of VC facilities. (The ultimate aim would be to have a dedicated VC studio within existing out patient departments e.g. in Raigmore; Wick; Golspie; Invergordon; Fort William; Skye and satellite VC facilities in remote health *centres. However, this is an NHS Highland decision. ITTS will provide an* evaluation of SLT VC services that can help inform NHS Highland of the need or otherwise for such facilities)  **ITTS priorities will be:**   1. Increase use of VC to provide SLT in remote areas of Highland    * Double the number of SLTs using VC for clinical purposes (currently 4)    * Double the number of patients in remote areas using VC    * Increase the clinical use of existing SLT unit    * Increase the number of client groups/SLT conditions using VC to access SLT services. To date it has been used for stroke, voice and dysfluent patients we would plan to extend this for paediatrics; head and neck; Parkinsons; and Dysphagia    * Develop SLT use of new VC facilities units in remote locations e.g. Kinlochbervie; Durness; Bettyhill; 2. Increase the use of VC to access specialist SLT services for patients living in Caithness and Sutherland  * Double the number of specialist SLTs using VC for clinical purposes e.g. Stroke specialist in Inverness  1. Promote the development of economically viable VC infrastructure across the area for clinical purposes  * Map locations of VC units across the region and match these to clinical need and infrastructure capability. * Promote the clinical use of existing, under-used remote VC units * Take advantage of VC units being used in other projects e.g Care Homes project in Ballachullish to develop clinical use of VC for SLT as appropriate * Promote and facilitate clinical use of VC by other disciplines * Circulate clinical use of VC handbook * Participate in supporting and training other clinicians in clinical use of VC * Participate in knowledge network and disseminate best practice guidlines     An indirect output from the work of the SLT activities will be:  Successful VC development and implementation in SLT will help NHS Highland further promote use of VC for clinical purposes. Clinicians who may be reluctant to use VC will now have evidence of best practice, access to practical guidance, details of cost and time savings and examples of improvements in access to specialist care for patients. This will subsequently increase the number of disciplines in NHS Highland using VC for clinical purposes |

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| ISSUES FACING THE SERVICE CURRENT |
| Remote SLT   * Travel time for SLTs and patients can be considerable * Equity in service provision: Some clinical options limited by geography e.g. intensive therapy or group therapy * VC facilities aren’t always where the patients are e.g. 2 patients with reduced mobility and stamina living 20 miles from the clinic who required intensive therapy. Stroke patient in remote area on west coast * Broadband availability * Location of VC not always ideal for clinical purposes. E.g. in nurses office or a room with poor acoustics * No dedicated VC consultation rooms available mean therapists have to carry lap tops and document cameras between locations and spend significant amounts of time setting them up and packing them away. (This is generally for one patient at a time) * Clinician scepticism * Patients who find it difficult to access service due to mobility or stamina * Difficulty offering and accessing intensive therapy * Difficulty offering and accessing group therapy   Specialist SLT   * Travel time for SLTs and patients can be considerable * Specialist SLT is not available equitably across Highland * Clinician scepticism   Economic Viability   * Small numbers of SLT patients at many dispersed locations cannot on its own justify necessary expansion of VC infrastructure to meet service needs * Clinical use of VC is not universal across Highland neither within SLT nor within other disciplines. * Clinician scepticism within other disciplines * Existing culture for out patient clinics (Clinician travels to rural clinic or patient travels to Raigmore Hospital)   An indirect output from the work of the SLT activities will be:  Successful VC development and implementation in SLT will help NHS Highland further promote use of VC for clinical purposes. Clinicians who may be reluctant to use VC will now have evidence of best practice, access to practical guidance, details of cost and time savings and examples of improvements in access to specialist care for patients. This will subsequently increase the number of disciplines in NHS Highland using VC for clinical purposes. |
| CLINICAL NEED |
| Remote   * Equitable access to services for all patients regardless of location * Access to evidenced based therapeutic interventions (e.g. LSVT for patients with Parkinsons which needs to be delivered four times per week for 4 weeks to be effective – currently only able to offer this to a small number of patients who live near SLT bases) * Access to group therapy e.g participating in carer’s group for relatives of stroke patients currently only available to those living in or near Inverness   Specialist   * Access to specialist SLT services with a minimum amount of travel for patient or therapist e.g. laryngectomy patients can be more than 30 miles and in some cases more than 70 miles away from specialist SLT in Inverness |

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| BENEFITS TO PATIENTS |
| Remote  * Reduced travel time to see therapist * Reduced waiting times due to released clinical time * Increased options in date, time and frequency of appointment i.e. not restricted to the day or time the therapist travels to remote area or justifying a 3hour trip for a 10 minute appointment * Reduced waiting time for first appointment and between appointments * Increased clinical options e.g. intensive therapy where clinically indicated e.g. for stroke patients or those with Parkinsons which would not otherwise be possible * More frequent appointments as clinically appropriate * Access to specialist SLTs and specialist services within and outwith the area * Access to training/support for carers e.g. as carers group described above or training carers in Makaton (sign language) * Increased continuity of care e.g. Patient transferring between hospitals had link session with new and existing SLT * Improved outcomes * Less time off needed to be taken off work/school * Greener option   Specialist   * Reduced travel time to see therapist * Access to specialist SLTs and specialist services within and outwith the area * Improved outcomes   Indirect benefit  Being able to use VC as an option in delivering SLT services has provided increased options for patients not living in the remoter areas   * Access to service when no local service available e.g. due to sick leave (Patient was able to have therapy via VC 2 or 3 times a week with therapist from other the other SLT base) * Using resources more flexibly e.g. Voice patients were offered therapy within 2 weeks via VC 60 miles where there was no waiting list or waiting 8 weeks to be seen by local therapist |

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| Benefits for Healthcare staff |
| Increased efficiency and safety   * Reduction in travel which releases clinical time and reduces stress and risks associated with driving long distances (e.g. Therapy for one voice patient in Lochinver: Savings over 10 sessions = 30 hours [4 working days] clinicians time, £747 travel costs, 397 kg CO2 emissions) * Improved clinical governance by addressing issues associated with lone working * Increased flexibility in caseload management to address fluctuating needs * Greener option   Improved quality   * Increased therapeutic options to optimise interventions particularly given emerging evidence base e.g. possible to offer intensive therapy; frequent short sessions; group therapy where previously restricted to individual appointments at least two weeks apart * Improved clinical outcomes resulting from increased clinical options; access to specialist support; increased frequency of appointments; * Therapist and patient more focused resulting in improved outcomes and reduced therapy time * Access to specialist services not available within area e.g laryngectomy due to low critical mass or level of expertise * Preservation of skills by linking directly with specialist therapists * Mutual learning and knowledge exchange with other SLTs . (Child with a stammer and his Mum was seen jointly by the local therapist and a specialist therapist 4 hours away) * Increased opportunities for Continuing Personal Development (CPD) through access to training, access to specialists not based in Highland e.g. shared clinical sessions with specialist SLT for patient and to take part in case discussions * Greater professional satisfaction and confidence in managing patients in remote areas * Flexibility in using and developing skills within team, not restricted by geography and low critical mass. E.g. therapist developing specialist skills able to offer service to a greater number of patients * Flexibility in deploying services to accommodate changes in demand e.g. managing waiting lists; staff shortage; fluctuating caseload |

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| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| Each therapist site requires:   * CISCO Room based system * Trolley mounted * Samsung television – hotel mode * Document camera * Lap top * Access to NHS Internal VC network * Adequate broadband speed   Patient sites require:   * CISCO Room based system * Trolley mounted * Samsung television – hotel mode * Access to NHS Internal VC network * Adequate broadband speed |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used?  * The aim would be to use the existing network of VC units and to promote the development of a viable network of VC for clinical use e.g. out-patient departments, remote health centres, stroke unit, care homes * VC units are currently available in some of the remote health centres * A quality check will be done on the units in North West Sutherland to ensure the broadband capacity is suitable for clinical use before attempting to implement the SLT VC service * Additional document cameras may be required in the following clinic bases. Stroke unit, Inverness; SLT Invergordon; Belford Hospital, Fort William: and Portree Hospital, Skye. |

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| 9. HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| Remote   * Given the nature of the problem numbers are not large and are prone to significant fluctuations * The project will aim to double the number of patients accessing their local SLT services via VC in Highland (From January 2011 – January 2012 N= 8 ) * Each patient would normally receive from 1 to 16 sessions during an episode of therapy   Specialist   * It will aim to increase the number of patients accessing specialist SLT services via VC. (From January 2011 – 2012 N= 3) * It will aim to increase the number of Highland-wide specialist SLTs using VC as a regular part of service delivery (Currently 1 Highland-wide specialist SLT is using VC to provide a service to one patient)   Other Disciplines  The ITTS project will help in the promotion of the use of VC and thus NHS Highland should realise increasing patient numbers with other clinical needs being seen via VC. Examples could be patients with dietetics appointments; pain management However, this ITTS project will not quantify this number. |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on VC equipments) |
| No additional staff will be required for the current development of SLT service. However, existing job descriptions may need to be negotiated and modified at the remote locations to administer telehealth bookings and to support patients if required.  (The SLT service is currently being changed as part of a wider integration between the Highland Council and NHS Highland. All children’s services will now be delivered by the Highland Council as the lead agency and adult services will be delivered by NHS Highland as the lead agency. Paediatric SLT services will now be provided by the council with those SLTs becoming council employees. The impact of this for ITTS is unknown) |
| TRAINING REQUIREMENTS |
| VC training will be required for clinical and admin staff. Staff will have access to the following training:   * NHS highland 1.5 hour VC training course * The ITTS project SLT experts can host a seminar/workshop for new VC users. * Staff will also have access to the educational SLT network and to the SLT VC Clinical Manual. |
| Timescale for implementation (Please include equipment procurement, training etc) |
| Remote:  June 2012 - Obtain agreement for VC facility in new OP dept in Golspie  October 2012 - Trialled VC units in all 4 remote health centres  Increase SLT use of VCs in remote health centres  Identified one other SLT base in Highland to implement clinical use of VC  December 2012 - Increase the number of Highland SLTs offering VC as normal part of service delivery ( currently 2)  Specialist:  July 2012 - Investigated and promoted possible use of VC within Stroke unit in General hospital in Inverness  December 2012 - Increased use of VC by Highland wide specialist SLTs (currently 1)  Increased number of patients receiving specialist SLT via VC (Currently 1)  Engaging other disciplines:  July 2012 - Supported pain management and other services in implementing clinical use of VC  April 2013 - Increased number of disciplines accessing clinical VC unit in Golspie (currently just SLT) e.g. dietetics |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| No |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| No |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| Patient context must be considered. It may be that patients are happy, and indeed want, to travel to see their SLT rather than use VC closer to home. Highland currently give patients the choice where it is possible. If a patient requests a face to face session the patient will pay for their travel unless they are on benefits. |

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| Description of costs | | |
| Description of cost | estimated cost | Who will pay for this?  ITTS project /  healthservice / other |
| Document camera Lumens DC120 \*5 | £1 500 | ITTS |

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| SWOT ANALYSES | |
| **Strengths** | **Weaknesses** |
| * Increasing network of VC units in remote health centres * Growing evidence base: we know what works and what doesn’t * Access to specialist services * Confidence in existing users in dealing with certain client groups * VC in SLT services has already been demonstrated to work in Highland. Wider implementation increases use of Highland already made investment in VC units * Patient and clinician satisfaction rates * Senior management promoting clinical use of VC * A few very motivated clinicians in Highland * Support workers available * Reduces travel for clinician and patients * Good technical support * National e-health policies and strategies * e-hit run | * Quality of broadband coverage across all of Highland is variable * Not all clinicians are confident in using VC * Lack of take up by all clinicians – address this by hosting educational seminars/workshops, sharing of knowledge across therapists, providing support * Patients are used to therapists travelling to them (VC could be viewed as a lesser service) – reorganisation of services in Highland provides an opportunity to educate patients on changes to the delivery of services * Administration and booking of units – no Highland wide system in place * Some units are poorly sited –use creating VC facilities in OP as learning opportunities * Set up time for each session can be considerable as VC units and room layouts are changed for other room uses – develop VC facilities in OP depts * Perceived continued erosion of fragile rural communities and services available |

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| **Opportunities** | **Threats** What threats could harm the project, finances / it infrastructure / staffing? |
| * Need for increased efficiency in use of resource: no increase in resource and therefore open to creative solutions * Use units for education, meetings, etc as well us therapy * Mobile VC – such as using tablet technology or home based VC for those at a distance from health centre or with reduced mobility * Fits well with the green agenda and reducing carbon emissions * Provision of intensive therapy * Provision of therapy tailored to patient needs e.g shorter and more frequent sessions * Re-structuring and reviewing services * Use of VC in Highland Council e.g. education * Use of VC in paediatrics * Development of stroke services * Make use of VC facilities attached to other projects e.g. Care Homes * Widen clinical uptake of VC through sharing of positive experiences. Maximise return on investment. | * Time for superfast broad band roll out may leave some of the region behind * Integration of health and social care and associated re-organisation * Highland council VC infrastructure/ access to VC (impact child SLT service) * Unknown agenda in paediatrics * Access to units and the impact of increasing demand * Perceived risk by some in relation to security |

**PROJECT 1: Speech Language Therapy**

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**BUSINESS CASE**

**SECTION 3 IRELAND**

**IMPORTING PARTNER(S) COMPLETE SECTION 3 ONLY**

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| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| Near Side Sites, both located at the National University of Ireland, Galway:   * Clinical Science Institute (University College Hospital) * Aras Moyola (University Department of Speech Therapy)   Far Side Site:   * Clifden District Hospital in Galway * Aras Ronan Health Centre on Inis Mor Island in Galway   This is where the project will begin, however, depending on budget restrictions, a network of Videoconferencing units will then be developed to broaden the geographical access to services that may be delivered to these remote areas. |

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| ISSUES FACING THE SERVICE CURRENT, |
| The Speech and Language Therapy Network in the Galway region consists of a large disadvantaged population with a high proportion of elderly clients spread over many remote geographical locations including several permanent and very isolated island communities. Inis Mor, Inis Meain, Inis Oírr and Inishbofin are offshore islands without a road connection. Therefore there is limited access for patients relying on ferries/flights which are weather dependent. Often the lifeboat has to be used to transport in onerous conditions. Many people do not receive the required therapy as travel is tedious, expensive and weather dependent. There are many remote areas that are not receiving adequate care as the travel distance reduces available time that could be spent with patients.  There is also a significant language barrier affecting access to speech therapy services. In many areas in this region there are “Gaelteacht” communities in which Irish is the mother tongue. There are only 4 fluent Irish speaking Speech and Language Therapists that are available to deliver therapy in Irish. The Speech Therapy Clinic in Clifden is a journey of 1.5 hours each way from the main Clinic in Galway City. |

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| Another difficulty is in the delivery of multidisciplinary care which involves connecting with the Maxillofacial Team which are based 2-300 km away in Dublin. This project will facilitate the efficient use of therapist time to overcome all these challenges. The percentage of time travelling during the year will be reduced which will mean more time administering therapy and reduced fuel and mileage costs for both the patients and therapists. The initial outlay of equipment costs will therefore be recouped by conducting speech therapy using videoconferencing units and decreasing travel time and cost which will also reduce the carbon footprint.  Case Load Numbers for Adults: 55  In the region outlined above, there are many adults awaiting therapy with acquired communication and swallowing disorders such as aphasia, dysarthria, apraxia of speech and voice disorders following stroke, head injury, progressive neurological conditions and head and neck cancer.  Case Load Numbers for Children is even more significant(see table):   |  |  | | --- | --- | | ***Location*** | ***Number*** | | Clifden | 68 | | Carroroe/Carna | 96 | | Lettermore | 91 | | Tully Ballinahoun | 153 | | Oughterard | 200 | | Barna/Moycullen | 170 |   Early Intervention child cases aged 0 to 6 years old with complex needs in the area in Galway designated Network 1 total 53. |
| CLINICAL NEED |
| The case load numbers outlined above and the existing long waiting lists for therapy in the community across all patient groups is clear evidence of the well established clinical need in this region. In addition, international best practice dictates that the Gold Standard Program for patients with Parkinsons Disease is the Lee Silverman Voice Therapy Program which must be delivered as block treatments of 4 daily treatments per week for 4 weeks. Elderly patients who must travel long distances are exhausted upon arrival to the clinic and therefore are unable to fully benefit from this intensive therapy. In reality outside urban areas, very few patients who require this therapy are able to come to the clinic to avail of this program.  There are children with aphasia and other speech disorders from both the island populations and the more remote areas of Galway who do not currently receive the required speech therapy due to the commitment which would be required to bring them to the clinics. A day would be lost weekly from school and for the parents from work therefore this is a major impediment to accessing the clinics for the patient’s family. The use of videoconferencing would provide these children with the benefit of early assessment and intervention to correct their speech. |

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| BENEFITS TO PATIENTS |
| Patient outcomes through increased access to care:   * + Patients in remote areas would receive the therapy they are not able to access currently due to travel distance.   + Working people who cannot be absent from their occupations to either attend themselves as patients or transport children or elderly family members to SLT. * Irish speaking patients would receive therapy in their primary language. * Reduced out-of-pocket patient expenses through reduced travel, accommodation, and time input costs |
| BENEFITS TO HEALTHCARE STAFF |
| The healthcare staff will:   * be able to deliver therapy in a more timely and efficient fashion * be able to allocate their additional time to increase the case load to include patients not able to be facilitated and on long waiting lists * be able to deliver therapy to more Irish speakers in their primary language * deliver blocks of therapy to patients who cannot attend clinics with the required frequency * be part of leading edge therapy with the latest technology for e-health delivery * the students at NUI Galway will receive training in the delivery of speech and language therapy by Videoconferencing * the Irish speech and language therapist will be able to create links with Scotland to work on the development of the Gaelic aspect of therapy. The tests for speech and language therapy are all in English at present. Catherine Flynn, a Galway based Speech and Language Therapist, is developing Irish language tests for the patients. The sounds, sentence structure and grammar are different in Irish, therefore this impacts on the care delivered. With the VC units in place, Catherine and Beatrice in Scotland will be able to collaborate on this project to further improve the care administered to Irish speaking patients. * professional satisfaction |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| * Wall mounted VC units x 1 for CSI * VC unit on trolleys x 3 for Inis Mor in the Aran Islands, Aras Moyola and Clifden * Document cameras x 4 * Tape recorders x 4 * Sound level meters x 4 |

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| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| There are existing VC units in NUI Galway in various locations, however these are not ideal for speech therapy which requires high resolution. They would be adequate to teach family members how to assist with speech therapy exercises for the patients.  The National Cleft Palate Specialist at Temple St Hospital in Dublin, who trained at the International Conference in Galway with Kate and Beatrice in March, will facilitate a multidisciplinary maxillofacial team-based approach to management of more complex cases of children with cleft palate in the Galway region via Videoconference.  The VC units located at the National University of Ireland, Galway are subject to booking, are in demand for meetings and regular teaching purposes to other universities and are not of the standard required for speech therapy. For the speech therapy there must be a high resolution and the desk must be placed directly in front of the screen which is not the case in the university facilities. Also document cameras are required as well as various other equipment and supplies. Therefore, a setup specifically designed with the appropriate lighting, comfortable seating, storage for materials and supplies, curtains to muffle sound and the document cameras left in position is essential. The room is available to dedicate to this service and once the equipment is purchased the service can be administered.  No VC units are available in Clifden.  In Inis Mor, Aran Islands, the equipment which was used for videoconferencing up to 10 years ago is outdated and no longer functional, therefore modern high quality VC units are required here.  A modern health center constructed 8 years ago is the ideal location with rooms available for the VC unit and for a waiting room. In our site assessment on Inis Mor, the need to use videoconferencing for multiple disciplinary care was expressed by the local family doctor Dr Marion Broderick and her health care team. The services that would benefit from VC consultations in addition to speech and language therapy that would be essential to the island population include podiatry, dermatology, rheumatology, vascular (particularly for specialist assessment of skin ulcers), diabetes, dietician, inflammatory bowel disease, neurology, optometry, psychiatry, child clinical psychology, counseling and occupational therapy. Dr Broderick has previous experience with videoconferencing effectively for consultation with various specialists.  There are secure broadband facilities under the Health Services Executive Network from the mainland. The cost of purchasing the equipment will be more than justified by the reduction in travel costs and the increased delivery of care. |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| *Children* - In Clifden and Inis Mor, a minimum of 52 children with speech and language impairments have been identified that would benefit from receiving therapy by videoconferencing. This would also be very beneficial for parental training of children with complex needs in the Early Intervention Programme, where parents could access the speech therapist by VC locally to receive guidance on the management of their child. Often in these cases, parents are seen more than the children in order to learn how to help their child. Currently Spidall is the Early Intervention Centre for Network 1which means that if you live in Clifden you have to travel to Spidall or into Galway City or alternatively the therapist has to travel to the home for one or two appointments for these parents and children. The distance from Spidall to Clifden or Spiddal to Galway City is 160 km round trip.  *Adults* - 45 adult patients have been identified that would benefit from receiving therapy by Videoconferencing. These are entered in the table below. Currently, some of the patients who live more distantly receive fewer than optimal sessions due to difficulty travelling.   |  |  |  | | --- | --- | --- | | ***Medical diagnosis*** | ***SLT diagnosis*** | ***Number*** | | CVA | Dysphasia | 12 | | CVA | Dysarthria | 2 | | CVA | Dyspraxia | 1 | | Head & Neck Cancer | Dysphagia | 4 | | Head & Neck Cancer | Voice / Dysarthria | 2 | | Traumatic Brain Injury | Cognitive / communication | 3 | | Parkinsons Disease | Dysphagia / Voice | 3 | | PSP | Dysphagia / Dysarthria | 1 | | Multiple Sclerosis | Dysarthria | 1 | | Dementia | Dysphagia / Communication | 6 | | Myasthenia Gravis | Dysphagia / Dysarthria | 1 | | Huntington’s | Dysphagia / Dysarthria | 1 | | Muscular dystrophy | Dysphagia / Dysarthria | 1 | | Hypoglossal nerve damage | Dysphagia / Dysarthria | 1 | | Other | Dysphagia / Dysarthria | 6 | |

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| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| There are staff members in Aras Ronan Health Centre on Inis Mor Island in Aran and in Clifden who will be able to manage appointments, escort the clients in and out, and turn the VC unit on and off. The home unit will be delivered by the speech therapist who will instruct the patient in its use.  There are technical support staff at the National University of Ireland, Galway to assist with any equipment issues. The staffing requirement will be met by redeploying existing employees. |
| TRAINING REQUIREMENTS |
| The staff training was conducted at the International Conference in Galway by Kate Alrutz and Beatrice Wood and therefore the therapists are ready to proceed and very enthusiastic. The Speech and Language Therapy students at the National University of Ireland, Galway will be trained to assist by the Speech and Language Therapists. |

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| Timescale for implementation (Please include equipment procurement, training etc) |
| The Speech therapists are ready to proceed and have identified the clients who will benefit from the VC therapy. The sites have all been identified. We are ready to purchase the equipment. |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| No |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| No, we will be using the HSE intranet |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| None |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
|  |
| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWAT ANALYSIS

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| **Strengths** | **Weaknesses** |
| We have a dedicated room with the VC with no booking required.  Less travel so the time travelling resource will increase time to administer therapy. Speech and Language Therapists spend approximately 10% of their 35 hour working week and this varies upward depending on client location in the situations where home visits are required. | This implementation does not cover the needs of all patients in rural areas  Lack of coverage of broadband net in the sparsely populated remote areas  Some patients have not broadband connection in their home  This will be addressed by trying mobile network units  Broadband strength will have to be increased.  So spread out may have to buy more units and will have to choose patients carefully for the small number of units. |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| Ability to deliver block therapy more readily.  Availability in Aran for more extensive speech therapy and  other services to the people.  Potential to expand to other sites once the system is working.  Rena Lyons, Head of Speech Therapy in the National  University of Ireland, Galway is one of our clinicians. She will supervise the training of Speech and Language Therapy  students in the methods of delivery of therapy via videoconferencing units.  To promote delivery of health care via VC units to other professions and clinicians.  Increase the level of clinical use for all other aspects of healthcare. | Broadband will have to have increased capacity.  The service can be boosted by the broadband service provider. |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

**SECTION 3 NORTHERN IRELAND**

|  |  |
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| IMPORTING COUNTRIES | |
| Northern Ireland | |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) | |
| This service will focus on the provision of video consultation (VC) links for Speech & Language Therapy services for the rehabilitation of post stroke patients. It is the Trusts intention to spread this service to core speech & language therapy.  The service will be implemented in 2 ways in the Southern Trust area as follows:   1. **Kilkeel Health Centre, Southern Health and Social Care Trust** - The patient will attend a VC facility at Kilkeel Health Centre which is in a rural location within the Southern Health & Social Care Trust (the Trust) area. The Speech & Language Therapist will provide the session remotely from the office base or from any Trust accommodation which has VC facilities. It is anticipated that initially this service will be offered to 3 patients at any one time. 2. **Within patient’s home** – The pilot will be undertaken on 3 patients at any one time, however it is envisaged that over the period of the pilot 15-18 patients will have benefited from the service.   The decision to implement the service in 2 ways is based on the fact that:   * 90-95% of Post stroke patients already receive a home based service. The main aim of this service is to provide more therapy to patients in their own home setting and at the same time reducing the Therapists travel time and mileage. * In only 5-10% of cases the patients attends clinic. This project will therefore assess the Health Centre based approach as a viable alternative to some patients having the home based solution installed (in terms of effectiveness, cost etc). | |
| ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) | |
| There are many issues facing current service both at a strategic level and operationally:  Strategic Direction  **‘Transforming Your Care’ – A Review of Health and Social Care in Northern Ireland, 2011**, examined all aspects of health and social care services and brought forward recommendations for the future shape of services. The Review identified 12 major principles for change which include:   * Placing the individual at the centre of any model by promoting a better outcome for the service user, carer and their family. * Using outcomes and quality evidence to shape services. * A focus on tackling inequalities. * Maximising the use of Technology.   The Northern Ireland Executive’s **‘Programme for Government’** for the next 3 years advises that for patients with chronic conditions there should be “full application of remote telemedicine and innovative application of connected health”.  The **National Clinical Guideline for Stroke, July 2008** states that any patient with aphasia persisting for more than two weeks should be considered for early intensive (2-8 hours per week) speech & language therapy. In addition the **Northern Ireland Stroke Strategy 2008** places a major focus on supported discharge services which will include initial high levels of speech & language therapy input.  Current Service Provision  Speech & language therapy is a limited resource within the Trust. The table below sets out the staffing allocation for the Trusts Community Stroke Rehabilitation Team as 2.5wte Speech & Language Therapists and 0.33 Speech & Language Rehabilitation Workers.   |  |  |  | | --- | --- | --- | | **Locality** | **S&L Therapist (wte)** | **Rehab Workers (wte)** | | Armagh & Dungannon | 1.0 | 0 | | Craigavon & Banbridge | 1.0 | 0 | | Newry & Mourne | 0.5 | 0.33 (specifically for S&LT) | | **Total** | **2.5** | **0.33** |   Each Therapists caseload can fluctuate on a weekly basis, with the average caseload being 10 patients per Therapist i.e. 30 patients on the Trust Speech & Language Therapy caseload at any one time.  Currently 90-95% of patients with Stroke have their S&L therapy delivered from their home. This places major pressure on the Speech & Language Therapist to deliver an efficient and effective service to all patients. Whilst the Speech & Language Therapists strife to have no waiting lists, patients may have to wait for 1-2 weeks for therapy due to the lack of annual leave cover when they are on leave.  Clients also wait longer up to nine (9) weeks for transition appointments by SLT for ongoing therapy in the community. Timely review is essential to maintain communication improvements.  The Therapists report difficulties providing intensive therapy to post stroke patients being discharged from hospital due to the travel times to rural areas. As the Trust area is largely rural the one Therapist can spend up to 15 hours per week travelling (65 hours per month). | |
| CLINICAL NEED | |
| From a clinical perspective S&LT is crucial in the rehabilitation of stroke patients. Patient experience has indicated that there are better outcomes if patients have access to high intensive therapy immediately upon discharge from hospital.  Best practice would suggest that patients being discharged from hospital following a stroke should have 8.8 hours of intensive speech & language therapy per week. At present each patient receives approximately 5 hours of intervention per week (1 hour/1 hour 30mins per session) which is made up of direct S&L therapy input coupled with sessions provided by the Rehab workers.  **What is going to be tested**   * number of sessions each patient can receive per week, workload management, effect of travel time, patients experience/views and staff experience/views * actual versus prescribed therapy   Selection criteria will be developed but will focus on the provision of services in the most rural localities within the Trust area and initially for patients being discharged from hospital post stroke. Following agreement of the selection criteria the patients will be identified and consent sought to progress with the pilot. The Trust plan to target stroke patients being discharged from hospital requiring intensive speech & language therapy for both the above options.  Other sectors of the SLT Service will be appropriate for extending the system of SLT over VC eg clients with Parkinson’s Disease, Voice and fluency disorders.  There are currently:   * 19 clients waiting for assessment for ENT related disorders; * 8 clients waiting for outpatient SLT which have a variety of disorders- mostly progressive neurological; * 96 waiting for domicilary SLT (whilst the majority will be fore swallowing disorders which we believe not be relevant to SLT over VC, a percentage of those will be for dysarthria, and clients with Alternative and Augmentative Communication needs which could be very relevant for this form of therapy) | |
| BENEFITS TO PATIENTS |
| * More equitable speech & language service provision across the Trust area as patients in the rural areas will have equal access to the services that urban patients have particularly in periods of adverse weather conditions as remote areas are often inaccessible. * S&L Therapists will have the opportunity to modify their service model and will be able to offer shorter more frequent sessions * More efficient use of resources and increased caseloads as would be easier to cover each other’s annual leave and take on more patients at any one time. * More timely intervention - Shorter sessions regularly will reduce the impact of fatigue which can occur with 1-2 long sessions per week. * More patient centred care plan can be developed * Specific to the Health Centre Model – additional benefit of seeing other practitioners at the one visit and the Dietitian for example can attend the session with the patient thus providing a 3 way discussion with Therapist Dietitian and patient. |
| BENEFITS TO HEALTHCARE STAFF |
| * Opportunity to provide quick response. * Less travel time from base to patient’s homes which would release Therapist time to invest further into existing patients and to increase caseload. * Patient experience has indicated that in some cases the provision of several short sessions is more effective than 1 long session due to the patient’s condition * The model can be transferable to core SLT provision * The model can be used by other related healthcare professionals such as Allied Health Professionals (Physiotherapist, Dietician, etc...) * Specific to the Health Centre Model – additional benefit of health care professionals at the centred being able to communicate with the Speech & Language therapists and the patient at the one time. * Opportunities for information sharing with the entire multi-disciplinary team * Alleviates workload pressure particularly in times of annual and sick leave * Ability to target those most in need and develop a tailored personalised plan |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| For Patients attending Kilkeel Health Centre  * VC system with HD quality and zoom function (for patient to use) * VC system with HD quality, zoom function and ability for camera to move in various directions. Document camera, computer, digital tape recorder and a decibel measurer (for Therapist/Rehab staff) * High level acoustics and light   In home   * VC software to operate the webcam in patients home or a portable VC unit with HD quality   Software  Software compatibility – the hardware equipment needs to be able to operate using the existing VC software currently being used by the Trust. It is envisaged this will be stipulated in the requirements for the VC equipment.  Communication  Installation of broadband links in patient’s home if required. |
| Procurement Issues  Commissioning and decommissioning, training and maintenance of the equipment – there is currently no capacity for IT staff to commission/decommission (deliver, install/uninstall and test) the VC equipment in the patients home; train the patients in the use of the VC equipment as well as carry out required maintenance. It is envisaged that this service will be procured as part of a “Managed Service”.  Hardware coasts and depreciation – for the service to start up, it is envisaged that the costs of buying equipment may be quite prohibitive and may not allow the project to scale to the desired numbers of patients within the required timeframe. It is envisaged the lease/rent of the equipment is an option and may be procured as part of a “Managed Service”. It also means that the Trust does not have to manage the depreciation, obsolesce and disposal of the equipment when it reaches the end of the equipment lifecycle. In the unlikely event of the project being discontinued this contract for the Managed Service can be easily terminated.  Buying solutions website – Buying Solutions is a UK government procurement services organisation with various service frameworks that are pre-tendered and fully EU-compliant.  Early investigation show that there are a number of service frameworks under the Telehealth that provide Managed Service frameworks that are capable of delivering to the service required within Northern Ireland.  There is a EU-compliant process for carrying out the procurement on the website www.buyingsolutions.gov.uk which will enable all suppliers with the frameworks to respond to a required set of requirements.  Due to security and firewall issues there will be a longer implementation time to commence services to patients within their own home. In addition, the current HSC VC infrastructure is not built for VC patient use due to capacity and reliability limitations. Hence the decision to procure the service under a “Managed Service” will include procuring of a secure VC infrastructure. |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| See above for leasing/rental of equipment and the Managed Service approach.  There are currently 23 VC facilities spread across the entire Trust area. Each Speech & Language Therapist will have access to a VC facility within their own building or on the same site i.e. no travel distance. There is currently no VC facility at Kilkeel Health Centre.  With buying the service we hope to leverage on existing external VC infrastructure that will allow patients to interact with professionals in a secure manner as waiting for the HSC infrastructure to become fit-for-purpose will take some time and could possibly delay our project. |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| 6 patients at any one time (3 attending at the Health Centre and 3 Home based service provision) will be included in this project. It is envisaged that each set of 3 patients will receive approximately 8 weeks of intensive speech & language therapy which potentially allows for 18 patients to have benefited from the service in the first 6 months.  This project will commence on a small scale initially to test its viability and to instil confidence in VC as a viable means of providing Speech & Language therapy to patients post stroke. Coupled with this is the limited availability of funding to proceed at scale at this stage.  As part of ‘spread’ it is envisaged that the numbers will significantly increase as other patients requiring core speech & language therapy are referred for remote service provision. |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| No increased therapist staffing is required as the use of VC will reduce travelling time and this time can then be reallocated to patient training. May require an element of rehab workers time to provide the service from a Health Centre setting.  In addition there may be a requirement for an element of technical support at the Health Centre. |
| TRAINING REQUIREMENTS |
| Staff training on the use of VC equipment – as outlined in the procurement section.  Staff training at the Health Centre |
| TRAINING REQUIREMENTS |
| As above |

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| Timescale for implementation (Please include equipment procurement, training etc) |
| Indicative timescales are as follows:  Procurement – 1.5 months (June-mid August 2012)  Protect planning and testing – 1 month (mid-August – mid September 2012)  1st patient on project/project commencement – end September 2012  Service operational – 6 months October 2012 – March 2013 |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| Yes, patient consent will need to be considered especially if any video recording is required either for patient notes or for evaluation/audit purposes.  In addition there may be a home insurance issue to be considered for equipment in patient’s home. |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| No as patient information cannot be accessed (secured network) |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| Patients may feel that they are not receiving the same level of service through the use of VC. Through the evaluation process patients will be asked their views on the duration of the therapy and any perceived benefits. |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| As above |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets)Lease the equipment as a managed services - 70-150 per month per patient same for professional (equipment, training, maintenance, installation) |

***Double click to access the excel spreadsheet below***

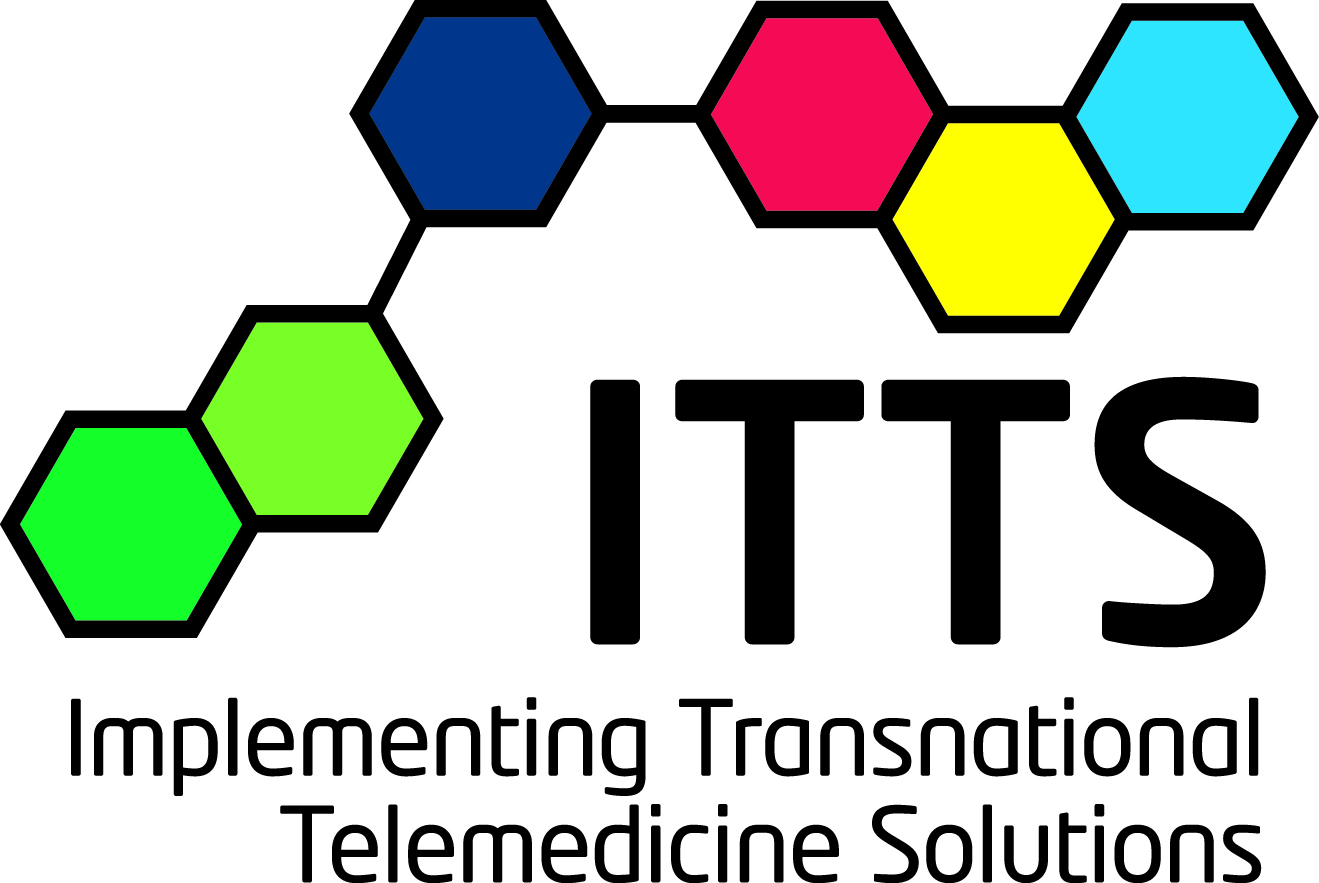


# SWAT ANALYSIS

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| **Strengths** | **Weaknesses** |
| * Trust has commenced clinical engagement and project has been received positively. * Trust has identified a Champion for this project * Senior management and practitioner buy in * Project can reduce costs and deliver improved clinical benefits to patients. * Reduction in carbon admission as less reliance on staff transport to patients’ homes or for patients to travel to clinics. * Reduced risk for traffic accidents for staff | * Patient may not respond well/dislikes medium of service provision * Staff may not respond well/dislikes medium of service provision * These issues can be resolved by information and introduction strategies * Lack of coverage for broadband in rural areas |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * Recommendations set out in ‘Transforming Your Care’ * Available EU-compliant procurement service frameworks to start at a low   cost basis.   * To communicate with the rest of the multi-disciplinary team * Other members of the multi-disciplinary team can also use the same equipment. * To be able to extend to core S&L therapy services | * Patients do not buy in to the new service * Technology doesn’t deliver and causes problems * Model does not work and therefore not sustainable * Relays on additional staff to manage the remote site. |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

Project 2 VC links for renal services

**PROJECT 2: VC link for renal services**

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**BUSINESS CASE**

**SECTION 1**

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| **LIST THE EXPORTING COUNTRIES** |
| Norway, Scotland |
| **LIST THE COUNTRIES IMPLEMENTING OR EXPANDING THIS SERVICE** |
| To be implemented in Northern Ireland and expanded in Sweden and Scotland |
| **SUMMARY OF SERVICE** |
| This service uses videoconference to bridge the distance between specialists and patients in or near patients’ homes. The overall aim is to enable equal access to dialysis treatment in rural areas and to reduce specialists travel time in order to free resources. The service will also meet needed reduction of costs for public patient transportation services and maximise the use of existing VC units. Main target groups are adult PD and HHD patients.  NORWAY  The service has been implemented since 2002, where the renal department at the main hospital (University Hospital North Norway, UNN) is linked by means of VC with six remote satellite dialysis units without nephrologists. This routine service of today will now be expanded to the patient’s home and primary care setting, making advantage of the valuable experience with the existing service. North Norway is already implementing equipment in the homes of two PD patients and recruiting one HHD patient. The next steps planned are to set up a plan for the organization of the service. The homedialysis project with VC links will continue throughout the ITTS project period and aims to face and sort out the challenges (see section 2, 1) with implementing this service and exchange experiences with the ITTS partners during the process and completion of the project.  SCOTLAND NHS HIGHLAND  NHS Highland have developed significant expertise in the use of Video Conferencing (VC) within their Renal Services. This was first established in February 2010 between 2 renal centres and has received positive endorsement from staff and patients. Significantly fewer outpatients now travel the 165km to Inverness as capacity in Wick clinics has increased without incurring additional travel for consultants.  VC is used in the current renal service for:   * Tele dialysis * Weekly staff meetings between Caithness Hospital, Wick and Dunbar Hospital, Fort William dialysis units and the main Inverness unit in Raigmore Hospital. * Weekly staff education and training via VC to the peripheral units * Bi monthly haemodialysis reviews with Wick dialysis unit by doctors * Ad hoc consultations with haemodialysis (HD) patients by doctors and allied health professionals * Ad hoc use for local and national meeting video conferencing   The renal service will build on the success of this VC link to cover other areas across Highland, out to the Western Isles and into patient’s homes. The ITTS project will expand the use of VC in NHS Highland renal service to:   * Caithness General Hospital for out-patient (OP) work * Portree Hospital, Isle of Skye for OP work * Kyle of Lochalsh Health Centre * Patients home for peritoneal and home haemodialysis * Western Isles Hospital for HD patient review plus or minus clinics * Western Isles Hospital for weekly staff updates and education * Expand the use of VC to allied health professionals (AHPs) - especially pharmacist, dieticians and physiotherapist in consulting with haemodialysis patients   SWEDEN  *Sweden will import teledialysis from Norway and Scotland,* implementing VC links in the City of Umeå,  University Hospital of Northern Sweden in order to serve to sites - City of Skellefteå, Skellefteå County  Hospital; and City of Lycksele, Lycksele County Hospital.  The needs are:   * Continuous training and professional consultations for all team members. * Increased access to renal specialist for staff at Lycksele and Skellefteå Hospital. * Possibility to show patient, bedside, in real time to specialist in Umeå * Possibility for staff in Umeå Hospital to have real time care conferences with receiving staff before the patient leaves the specialist clinic * ”Renal- school” for all patients in the county   NORTHERN IRELAND Belfast City Hospital Renal unit was set up in 1985 as a regional nephrology unit. It commenced home haemodialysis for patients across Northern Ireland in 2003. Home Haemodialysis is being promoted UK wide and more specifically by the Northern Ireland’s Dept of Health and Social Service as it produces benefits both in economic terms and health of the patient. We aim to have 70 patients self treating at home within the next 3 years.   The proposed service will be implemented in patients’ homes in Northern Ireland who fall within the Northern Periphery Programme area, commencing with those patients most remote from the Belfast City Hospital site.   It is proposed that the service will phase the introduction of VC reviews which would save travel time for the professionals and reduce carbon emission. Patients will also benefit from having access and quicker response time from specialist nursing staff via video in the event of machine or access problems at home especially when it is urgent. |

**SECTION 2**

**EXPORTING PARTNER – SERVICE IN EXISTENCE**

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| PLEASE DESCRIBE THE SERVICE CURRENTLY IN EXISTENCE (this can be taken from ‘services in existence’ document ITTS-00040) |
| **Norway**  The patient goes to their nearest health care center where he/she receives dialysis treatment provided by special trained nurses. The VC equipment is placed in the room containing several beds and dialysis units. Since there are no nephrologists at the local health care center, the nurses get support from the nephrology department at the University Hospital of North Norway (UNN). In case of complications during the dialysis treatment and if there is a need for advice, the local nurses connect by VC to the nurses  at UNN. If the problem is more serious the nurse at UNN gets hold of the nephrologists. At UNN the VK equipment is located in a room close to the nursing station. The local nurses use the camera for zooming in - then it is easier to provide guidance and advice. This backup provides support and a feeling of security. If the patient suffers serious complications or the VC consultation is not providing sufficient information the patients are being transported to UNN.  The videoconferences are scheduled, every second week to the established satellites, once a week to the  new satellites – all together six satellites (Alta, Hammerfest, Finnsnes, Narvik, Kirkenes, Vadsø). At UNN  there is one responsible nurse for each video-conferencing session.  The nurses at UNN are divided into two groups and each group has the responsibility for 3 satellites. In 2011  98 VC conferences were carried out. The number of dialysis treatment in 2011 at UNN was 2200, and 6200 including the satellites. The 98 VC conferences constituted 39 hours in total. Each conference lasts about 15  to 30 minutes. If the medical doctor is participating, the conference lasts about one hour.  *Content of the VC- meetings*   * The patient’s access: The nurses have often question about it, there may be changes that have occurred with the access.   It is important to observe changes in an early stage.   * The acess cannulation, such as the buttonhole technique or the nurses at UNN give other advice/ tips related to the cannulation. * If there are any problems with the dialyses catheter. * Other medical issues like blood pressure and evaluating of the ultrafiltration to their patients. * Information to the local nurses on new procedures for example new infection procedures or other relevant information regarding renal failure. * Discussions about patients who need a hospital stay at UNN. This may be related to their planned transplantation or other medical problems. Many of the patients have more than one disease and they have to travel to Tromsø quite often. * Doctor visit   *Experiences with equipment and use*  Today there are seldom technical problems. The quality of the videoconferences has improved significantly  over the last two years. UNN invested in new equipment in 2011. But no picture or sound (audio and picture problems) still happens occasionally. If for some reason the nurses at UNN forget one planned conference  the local nurses send a reminder to UNN.  *Homedialysis with VC*  The UNN renal department is expanding the satellite service to the patients’ home and primary care setting. Homedialysis with VC links represents according to the UNN department a significant potential, which they  are investigating through a pilot which started in 2011.  At these days there is a favorable situation for kidney failure patients in Norway in general and North Norway situation is described as follows. While the department can take up to 15 patients only 8 HD patients receive dialysis at UNN. One reason for this low number is that there is a satellite nearby UNN and patients are offered PD if it is possible for medical reasons. Occasionally, patients from the satellites have emergency stays of shorter duration. Today there is also a short waiting time for transplantation in Norway. There are about 1000 patients in HD and about 220 in PD. Norway has only one hospital which conducts the transplants. In 2010 it was performed 262 renal transplants at Rikshospitalet University Hospital in Oslo.’ And 2975 people are living with transplant. The waiting time for transplantation is approximately one year. Despite of today’s favorable situation for kidney failure patients the UNN department decided to look into the possibilities for providing telemedicine solutions at the patients’ homes.  In a need assessment conducted by NST in 2009 on kidney failure patients’ future needs, the use of telemedicine home to the patients has been studied[[1]](#footnote-1). Besides the fact that patients are willing to test and use the application at home, the study suggested that the service would improve the patients’ quality of life: better control of their lives, less travelling, spending less time at the hospital, normalization of daily life and feeling healthier.  Former studies have also found that telemedicine at home is a means of providing better control of blood pressure and higher options for survival. For the health care system this could imply cost savings. Dialysis at the hospital is a very expensive alternative. Former studies have also found that home dialysis reduces the need for patient travel and provides more frequent and continuous treatment.  *Description of types of dialysis treatment:*  The patient performs PD either in his/her own at home or it is performed at a municipal institution. The treatment can be performed in two ways:   1. Through manually skift of the bag (CAPD),. This is the most common method. The force of gravity is used for emptying utilized fluid from the abdominal cavity and replaces this with new fluid. This is performed during daytime with shift of 3-5 times a day. 2. When performing Authomatic Peritonealdialysis (APD) an engine is used for conducting the shift of the bag at night while the patient is sleeping.   On HHD the patient connects and disconnects with the HD-engine by himself and to a high degree takes over the function of the HD-nurse. This treatment demands a lot of the patient’s involvement and a precondition is the investment of resources for training and installation of equipment in the patient’s home.  *Experiences with testing homedialysis with VC links:*   * In 2011 the renal department UNN and NST conducted a project aimed to implement and test the service in two patients’ homes; * The project provided valuable results. Besides the issues described in the following paragraphs the issues like Infrastructure and technology, datasecurity, legal aspects and economic aspects are investigated.   *Challenges*  *Recruitment of patients*: The intention was to recruit one PD patient and one HD patient. During the project period, it was not possible to recruit a suitable patient for hemodialysis. One patient rejected to participate and the other one had some medical and social issues that made it difficult.  Further challenges:   * HHD requires a capable patient. He/she need to know how to setup the dialysis machine, to cannulate to the dialyzer and to connect to the machine. * HHD is only suitable for stable dialysis patients.   *Organisational challenges that needs to be solved– collaboration between secondary and primary care:*   * Establish a close collaboration with community care nurses * The personnel in the nursing service need to often lack formal nursing training. The nursing service needs continuous information and practical training especially prior to the homedialysis setup.   Both the nursing service and the nurses at UNN should log and register the VC sessions  It’s challenging that patients with APD do their treatment at night, when there is no PD nurses at work.  The homedialysis project with VC links will continue throughout the ITTS project period and aims to face and sort out the challenges with implementing this service and exchange experiences with the ITTS partners during the process and completion of the project. |
| BENEFITS TO PATIENTS |
| ***Satellite dialysis***   * Increase of the level of care that could safely be provided at the satellite units for patients undergoing haemodialysis. (Patients receive follow up consultations remotely by videoconference, interspersed   with face to face consultation by visiting specialists)   * A possible twin effect: Reducing the need for patients to travel to the university hospital for regular checks, and increasing the intervals between consultant visits to the outlying units. * Possibility to use VC to other medical specialists (cardiology) * It possible avoids difficulties of travelling in severe winter conditions. * Time and cost savings for patients.   ***Home dialysis***  PD patient   1. VC can be used to control the set up from the dialysis machine 2. Help in case of alarms and troubleshooting 3. Help if suspicion of infection (assessment of color of the fluid) 4. Guidance in case of catheter problems 5. Assessment of general conditions, fluid balance, depression etc   HHD patient   1. Increases confidence and security when health care personnel is accessible during the treatment 2. VC can be used to control the setup of the dialysis machine before the treatment starts 3. Guidance during canulling or connection of a dialysis catheter 4. Guidance in case of alarms 5. Guidance regarding medical questions, for example change of blood pressure (ultrafiltration, water intake) 6. Contributes to patients confidence and security on own assessment. Empowerment and competence may increase. |
| BENEFITS TO HEALTHCARE STAFF |
| ***Satellite dialysis***   * Possible time and cost savings for the health service * Regular VC meetings also serve to counter professional isolation among the remote staff, and allow decisions on patient care to be shared. * The staff at the satellite feel more security when receiving advisory from the hospital * Transmission of competence from the hospital to satellites * The hospital staff feel more secure regarding the advisory they give, due to seeing the patient and getting an adequate overview of the situation. * Big difference perceived by the satellite health care staff between telephone and VC communication. VC provides the feeling of proximity and higher relevance regarding the information exchanged than through telephone. * The possibility for education and training provided to nurses at the main site is relayed to the satellites over the video link, contributing to ongoing development of skills and confidence in the local management of dialysis patients.   ***Home dialysis***   * Time and cost savings for the health service * Regular VC meetings also serve to counter professional isolation among the remote staff (primary care nurses), and allow decisions on patient care to be shared. * The primary care nurses feel more security when receiving advisory, education and training from the hospital by means of VC * Transmission of competence from the hospital to primary care * The hospital staff feel more secure regarding the advisory they give, due to seeing the patient and getting an adequate overview of the situation. * Big difference perceived by the primary care nurses between telephone and VC communication. VC provides the feeling of proximity and higher relevance regarding the information exchanged than through telephone. |
| TECHNICAL REQUIREMENTS (broadband) ***Satellite dialysis***  Hardware:  The VC equipment at hospitals PD department   * TANDBERG Edge 95, Base mod, HD kamera, 2Mbit IP * Philips 40" LED-TV, Full-HD, 100Hz, Pixel Plus HD   No medicine technical equipment is used.  The costs are approx 90.000 – 100.000 Norwegian kroner.  ***Home dialysis***  Hardware:  VC equipment, which will be implemented at the patients home:   * Cisco, model C20 with HD-camera with 4xzoom. The equipment is installed on a 24” PC-screen. It constitutes one unit * Total cost is approx. 60.000 Norwegian Kroner.   The broadband capacity: a VDSL-connection 25Mb/5Mb |
|  |
| STAFFING REQUIREMENTS |
| ***Satellite dialysis***   * Minimum of 1 person on each site. * The requirements are very much depended on how the service is organized in the specific setting. * The hospital (UNN) connects with the satellite twice each month. When new satellites are established the connection is once a week in the beginning until it is not regarded as necessary any more. The number of connections must be adapted to the number of patients. * Set up a schedule (time slot) for VC for who is responsible for each VC as part of the routine of the department   ***Home dialysis***  It depends on how much help the patient needs for performing the dialysis.  Minimum of 1 person on each site. (patient-health personnel at the hospital, patient and primary care nurse – health personnel at the hospital) |
| |  | | --- | | TRAINING REQUIREMENTS | | ***Home dialysis***   * Training in use of VC both at home and at the hospital |  |  |  | | --- | --- | | Timescale for implementation (Please include equipment procurement, training etc) | | | ***Home dialysis***  May 2012: training of two patients  Awaiting recruitment of third patient. Timescale insecure at this stage. | | | JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? | | | ***Home dialysis***  YES  There are VC units for two patients and we are purchasing one more unit when the patient is recruited. | |  |  | | --- | | ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them | | ***Home dialysis***  YES  We have applied and were in these days confirmed funding to investigate legal, ethical and data security issues | | ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them See above | | ***Home dialysis***  YES see above | | ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them | | ***Home dialysis***  YES  To succeed in implementing a new telemedicine service, there must be a strong focus on how the service should be organized. As the patient was receiving home care by the primary care service it is also important to establish procedures for communication and interaction between the patient and the primary care service, as well as between the primary care service and the Dialysis Unit at the hospital. | |
| PROBLEMS / ISSUES ENCOUNTERED |
| ***Satellite dialysis***   * Organisation is a success criterion for the service. It is always a challenge in a clinic how you organize the new way of delivering the service. * An appropriate amount of time has to be allocated to preparations and performance of the VC service, as well as complementary work. |
| EVALUATION DATA (include details and results of any evaluation undertaken) |
| ***Satellite dialysis***   * With the additional VC support, tests and checkups can be carried out at the satellite   units which had previously required inpatient stays at the University Hospital four times  per year.   * Emergency access to nephrologists via the video link prevent hospitalisation of patients   (on five occasions during the fifteen month pilot study).   * A cost-minimisation analysis demonstrated that the number of patients being seen via VC would   need to increase if the service were to prove cost-effective over a longer period. Based on the evaluation findings, it was decided that the additional elements of ultrasound scanner, electronic stethoscope and monitoring software had not proved sufficiently useful to justify their continuing use.  Reports and articles NST’s report experience with the teledialysis service in North Norway from 2002 to 2007 [[2]](#footnote-2)Telemedicine in haemodialysis: a University Department and two remote satellites linked together as one common workplace». Journal of Telemed and Telecare 2005; 11: 251-255 ***Home dialysis***   * A former preliminary study was conducted in order to map kidney failure patients’ need for home telemedicine solutions[[3]](#footnote-3). One of the conclusions was that there is in fact a need to test an appropriate and organisational solution for videoconference (VC) between homedialysis patients and hospital.   Articles and reports:   * Kartlegge behov for nye telemedisinske løsninger hjem til nyresviktpasienter (InnoMed rapport, januar 2009) * Choosing to live with home dialysis - patients' experiences and potential for telemedicine support: a qualitative study, Ellen Rygh, Eli Arild, Elin Johnsen and Markus Rumpsfeld BMC Nephrology 2012, **13**:13, Link: <http://www.biomedcentral.com/1471-2369/13/13/abstract> * Nye telemedisinske tjenester til hjemmedialysepasienter – NyTTeHjem (NST report, March 2012) |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) ***Home dialysis*** |

***Double click to access the excel spreadsheet below***

# SWAT ANALYSIS – *For homedialysis*

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| **Strengths** | **Weaknesses** |
| * VC links help to overcome lack of nephrologists * Transmission of competence to primary care * An adequate health care service independent of time and place – adapted to the patients remote residence * Empowerment | * Staffing at the hospital: lack of organisation of for example vacation   time sick leave, vacation time etc   * Problems with recruitment of the third patients |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * Since the VC link service is an already existing service provided by the hospital it constitutes a huge opportunity to offer this service to all homedialysis patients, who feel they will benefit from that. | * Internett connection drops down * Takes long time to establish broadband in the remote remote patients’ homes * Legal and datasecurity aspects for treatment at home must be investigated. At this stage we are lacking funding for providing this. * Patients may withdraw from their participation in the project |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

**SECTION 2**

**EXPORTING PARTNER(S) COMPLETE SECTION 2 ONLY**

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| PLEASE DESCRIBE THE SERVICE CURRENTLY IN EXISTENCE (this can be taken from ‘services in existence’ document ITTS-00040) |
| Scotland - NHS Highland VC is used in the renal service for:   * Tele dialysis * Weekly staff meetings between Wick, Fort William Dialysis units and the main Inverness unit. * Staff education and training via VC to the peripheral units * Bi monthly haemodialysis reviews with Wick dialysis unit by doctors * Ad hoc consultations with haemodialysis patients by doctors and allied health professionals * Ad hoc use for local and national meeting video conferencing |
| BENEFITS TO PATIENTS |
| * This service has allowed the Highland renal service to increase the number of out-patient slots available in Wick, enabling patients to be seen closer to their homes thus saving on their travel time (a five hour round trip to Inverness) and 2.5 tonnes of CO2  per year * Patients can be seen on an ad hoc basis via VC again saving on their travel to Inverness |
| BENEFITS TO HEALTHCARE STAFF |
| * The staff education and training has allowed the staff from these dialysis units to keep up to date where previously this was more challenging because of travel times * Freed up many hours of staff time * Allows units to cut their carbon footprint- >2.5 tonnes CO2 per year * The regular weekly planned interaction is helpful to staff at all sites, addressing any issues that arise well before they come to a head, reduces impact of geographic isolation on professionals * Promotes the staff autonomy knowing that they have ready access to help advice by VC * Much improved and more frequent communication between the main unit and peripheries has greatly enhanced the team dynamics |
| TECHNICAL REQUIREMENTS (broadband) Hardware requirements  Software requirements |
| * Tandberg Edge 95 MXP x 3 * Samsung monitor x 3 * Mobile stand x 3 * NHS Scotland internal VC network * Wireless network in Inverness to simplify use of VC equipment within the department * Natural presenter package for education |
| STAFFING REQUIREMENTS |
| NHS Highland staff:   * Renal unit clinical staff – no additional resource required however did contribute significantly from their substantive hours * Video conferencing specialists – site surveys, equipment purchase, commissioning, installation, training and ongoing support as required   Centre for Rural Health staff (through npp project: Competitive Health):   * Project Coordinator – assisted with project implementation |
| PROBLEMS / ISSUES ENCOUNTERED |
| * Occasional problems with bandwidth and picture quality but generally functions very well * Clinical activity/staffing problems has occasionally restricted staff joining in the education/training and the weekly updates |
| EVALUATION DATA (include details and results of any evaluation undertaken) |
| Competitive Health Services in Sparsely Populated Areas – eHealth Applications across the Urban-Rural Dimension – Report on Scotland pilots – teledialysis, remote speech therapy, March 2011 – Mary Wakeling, David Heaney |

**SECTION 3**

**IMPORTING PARTNER(S) COMPLETE SECTION 3 ONLY**

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| IMPORTING COUNTRIES |
| Scotland - NHS Highland |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| Raigmore Hospital, Inverness VC link to.  * Caithness General Hospital for out-patient (OP) work * Portree Hospital (Isle of Skye) for OP work * Kyle of Lochalsh Health Centre * Patients home for peritoneal and home haemodialysis * Western Isles Hospital for HD patient review plus or minus clinics * Western Isles Hospital for weekly staff updates and education * Expand the use of VC to allied health professionals- especially pharmacist, dieticians and physiotherapist in consulting with haemodialysis patients |
| ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) |
| Travel time is significant and subsequent Out Patient clinic times are limited. Freeing up travel time would enable more patients to be seen in outpatient appointments. Indicative travel times: 6 hour return journey to Portree5 hour return journey to Wick 3 hour return journey to Fort William  4 hour return journey to Kyle of Lochalsh  2 hour travel including 50 minute flight to Stornoway   * Clinical staff frequently require overnight stays to see all patients needing review in the Western Isles * Small home therapies team often have staff tied up travelling to more remote patients, and therefore not able to input to other patients or aspects of the service * Bad weather can force clinic cancellations * Insufficient staffing levels of pharmacist, dieticians and physiotherapists to allow for regular travel to peripheral sites |
| CLINICAL NEED |
| * Reducing patient travel times * Greater flexibility in timing of reviews * A non weather dependent system * Timely support for home therapy patients |

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| BENEFITS TO PATIENTS |
| Out Patients, and satellite dialysis patients   * Reduces risk of travelling to be seen * Reduces patient time spent travelling by hours per appointment * Reduces fatigue caused by long journeys * Increases the input they receive from allied health professionals   Home therapies   * They get better transition from training to flying solo * Reassuring for patients * Allows staff to assist with troubleshooting * Improved back up from main centre * Allows greater flexibility for reviews * Visual interaction rather than verbal only |
| BENEFITS TO HEALTHCARE STAFF |
| Reduces travel time, and hazard of travelling in poor weather  * Reduces overnight stays away from home * Increase input into home therapy patients * Provided a more flexible service * Visual interaction rather than verbal only |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| Hospital/ heath centre based VC:Access to N3 NHS VC network of adequate quality (band width and reliability)  * Appropriate VC equipment in peripheral centres * One additional unit for Raigmore for offices * Suitably placed network sockets so VC units can be sited in a number of locations   Home based VC (each home requires):   * Cisco hardware-based VC unit * VPN Broadband connection |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| * VC units are available for use in Caithness, Portree and Kyle of Lochalsh (VC quality needs to be tested in this latter case as it uses an ISDN line) * Western Isles (WI) Hospital has 3 VC units that could be accessed. The diabetes centre has one of these VC units and is adjacent to the renal unit. This would be the preferred option. * Equipment for patient homes is required as this is a new service for Highland. * One additional room based system for staff use is required. Current VC units are based in the main hospital and are difficult to access for staff use. They also cannot be moved to the staff offices as these are outside of the main hospital. It is recommended that a VC unit is purchased for staff use. |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| * 17 PD and 6 home haemodialysis patients and growing * 20 outpatients plus per month for VC review * Up to 12 haemodialysis patients in Western Isles at present |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on and test VC equipment) |
| No additional clinical staffing will be required for this expansion of the service. Health service staff who will implement this service are:  * Staff Nurses for HD review in Western Isles already present, and Health Care Assistant / Staff Nurse for OP clinics * Existing admin staff will organise the clinics by VC as they do for the face to face consultations and also for telephone clinics * VC professionals for advice, implementation and ongoing support   In addition the following is required to assist in the process:   * ITTS project development Worker - support implementation and business case progression |
| TRAINING REQUIREMENTS |
| * In house VC training for some staff – particularly in outpatient areas * Patient training for home therapies patients |
| Timescale for implementation (Please include equipment procurement, training etc) |
| On approval of the business case the renal stakeholder will meet to prioritise the expansion activities. The following is approximate timelines:  2012 activities:   * Caithness General Hospital for out-patient work * Portree Hospital for OP work * Kyle of Lochalsh Health Centre * Western Isles Hospital for HD patient review plus or minus clinics * Expand the use of VC to allied health professionals- especially pharmacist, dieticians in consulting with haemodialysis patients * Patients home for peritoneal and home haemodialysis – 1 patient   2013 activities:   * Patients home for peritoneal and home haemodialysis – additional 3-5 patients by Dec 2013 |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| NO.  Health and Safety considerations:  NHS haemodialysis equipment is currently in use in the patients homes selected for the home VC service. Renal staff are already proficient at assessing homes, installing equipment in patients homes, using patients utilities and making sure equipment is sited safely. With e-health support VC installation is expected to add a minimal amount of extra work in installation and presents no additional risk to patients. |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| * Getting patients to accept the use of this technology * Getting staff used to the idea of VC as an alternative to face to face consultations * Trying to get buy in from the units where we don’t line manage staff is a challenge * Get staff to accept the flexibility and improved services that can result from embracing the technology   The renal service already has experience in dealing with these social issues. They will use the knowledge gained in establishing the Wick service to help in the project implementation in the new sites. It is recognised that communication of change is the key to success. |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |



# SWOT ANALYSIS

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| **Strengths** | **Weaknesses** |
| * VC in renal services already been demonstrated to work in well in highland * A few very motivated clinicians in Highland using VC * VC units and infrastructure in place in some locations * Reduced travel for both patients and clinicians | * Not all clinicians are confident in using VC * Quality of broadband coverage across all of Highland is variable |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * Further extend renal services across all of Highland, Western and Northern   Isles.   * Home based services become standard practice * Knowledge gained from home based   VC can be transferred to other health areas | * Funding for home based service * Ensuring ongoing funding for recurring costs from NHS Highland |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

**SECTION 3**

**IMPORTING PARTNER(S) COMPLETE SECTION 3 ONLY**

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| IMPORTING COUNTRIES |
| Sweden |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| Sweden City of Umeå, University Hospital of Northern Sweden  City of Skellefteå, Skellefteå County Hospital  City of Lycksele. Lycksele County Hospital  The distance between the hospitals is 120 -140 km one way. (The cities form a triangle) |
| ISSUES FACING THE SERVICE CURRENT: |
| Today 12 patients in Lycksele district and 22 patients in Skellefteå district go to their hospital for regular hemo dialyses.There is no vascular surgeon at the county hospitals in Lycksele and Skellefteå .  * There is no renal/dialysis specialist in Lycksele Hospital. Instead the specialist nurse turns to a general medical specialist within the hospital and/or calls a specialist at the renal department in the University Hospital in Umeå for guidance on telephone. When the least uncertainty the patient is transported to Umeå for specialist assessment. * Patients from Lycksele- and Skellefteå districts with acute vascular/access problem travels for specialist care to the University Hospital in Umeå and that cause increased burden at the renal clinic. The number of acute patients vary from 1-2 /week. * All patients go for planned controls to the specialist team in Umeå. Intervals can be from once a month up to every six months. * Regular travelling once a month for staff at the three hospitals for joint workplace meetings, clinical rounds etc takes time from clinical work and generates travel costs for the clinic and for the county´s   car pool.   * “Pre-renal” patients have long travels to hospital for the “renal- school” that they are offered before starting the dialysis. This means two return travels for the patients. Some patients don´t take part because of long tiresome travels. The team has to inform and train them separately. |
| CLINICAL NEED |
| * Continuous training and professional consultations for all team members at the three hospitals. * Reduced number of patients from the smaller hospitals at University hospital I Umeå. (50 patients have regular dialyse at the Hospital in Umeå) * Increased access to renal specialist for staff at Lycksele and Skellefteå Hospital. * Possibility for the teams at Lycksele and Skelleftå hospital to show patients bedside in real time to specialist in Umeå * Possibility to have clinical rounds bedside at the ward in Umeå with staff at the local hospital before the patient leaves. * ”Renal- school” for all patients in the county |

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| BENEFITS TO PATIENTS |
| Reduced travelling to University Hospital in Umeå, both in acute situations and planned control visits to the nephrologists. All travels cannot be avoided but each patient will save on average 6-8 travels per year.  Some patients can be taken care of at the cottage hospital connected to the healthcare centre instead of being referred and taken in for care at the University Hospital.    Equal and safe care regardless of distance to the University Hospital in Umeå  Possibility to remain close to your nearest hospital  Equal access to “ the renal school” for all patients in the county |
| BENEFITS TO HEALTHCARE STAFF |
| * Mutual exchange of knowledge andprofessional development * Possibilities to join staff meetings and seminars for professional education for all staff. * Increased patient safety when staff in the smaller hospitals is able to consult a specialist in Umeå bedside both for outpatients and patients at the cottage hospital. * Reduced number of acute and not planned patients coming to the specialist clinic at Univ Hospital in Umeå * When a patient from Lycksele or Skellefteå is at the specialist clinic in Umeå the specialist can have   a bedside round with staff at the smaller hospital   * More patients joining “the renal-school” results in knowledgeable and less insecure patients and families. * All medical specialists and specialist nurses can meet and discuss vascular issues in the so called “Access rounds” four times per year without time consuming travelling. * Reduced use of the car pool and reduced risk for traffic accidents |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| **Umeå:** One VC system for use in clinical settings type ”VX Cinical Assistant (Cisco/ Tandberg)  Camera with good optics for showing wounds etc  Two web cameras + Movi/Jabber clients for the specialists to use when consulted.  **Skellefteå:** One VC system for use in clinical settings type ”VX Cinical Assistant (Cisco/ Tandberg)  Camera with good optics for showing wounds etc  **Lycksele:** One VC system for use in clinical settings type ”VX Cinical Assistant (Cisco/ Tandberg)  Camera with good optics for showing wounds etc |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| The dialyse units at the renal clinics do not have VC systems  The VC systems, available for all clinics at the hospitals, are frequently used and fully booked most of the time and not suitable for this kind of patients  The VX Clinial Assistant system is CE-approved according to MDD and fulfils IEC 601-1  With Movi/Jabber the doctors in Umeå can easily take video consultations from the smaller hospitals at their office  Good infrastructure and technical support |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| 100-120 patients in our county Västerbotten, PD and HD ???? |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| Excisting nurses |
| TRAINING REQUIREMENTS |
| Introducing staff to the equipment, and hands on” workshop  Seminar to learn about how to meet patients through VC. |
| TRAINING REQUIREMENTS |
| Existing training centre for staff. Only a few hours required. |
| Timescale for implementation (Please include equipment procurement, training etc) |
| Possible delivery times: Web camera and Movi/Jabber, - 2 weeks  Cisco Clinical assistant - 2-3 months  Possible start of training:  Technical introduction and workshop middle of September  Possible start of implementation:  Implementation of staff meetings can start end of September 2012  Implementation of work with patients at the dialyse wards can start in October |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| Medical technical security regulations for patients undergoing dialyse state that no equipment that can generate current leakage may be placed closer than 1,5 meters from the patient to avoid his/her touching it.  This is the reason for the choice of a VC system that is CE-approved according to MDD and fulfils IEC 601-1 |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| No |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| No costs for patients |
| 16 b Sustainability This project will be implemented directly into the on-going care process, which means that the staff will have a lot of experience by the end of the ITTS project. |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets)3 CTS-CA-P240V-K9 Cisco Clinical Assistant with C20, NPP, 4x PHDCam, mic 80800 242400 = 27.545 Euro3 CTS-PHD1080P4XS1 PrecisionHD 1080p Camera w 4x zoom 13000 39000 = 4 432 EuroOne (1) year service includedTotal sum281400 SKR = 31 978 Euro All costs paid by ITTS Two (2) web cameras 1800 SKR = 204 Euro paid VLL  Two (2) licences Movi/Jabber clients ???? paid by VLL |

# SWAT ANALYSIS

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| **Strengths** | **Weaknesses** |
| The Health care board in Västerbotten recommend increased use of telemedicine  Motivated staff  Experiences from former projects show that most patients accept seeing doctors and therapists  by video  Infrastructure and technical support in place  The proposed VC units meet the high standards  for medical technical equipment in “close to the patient” clinical settings. | All doctors who will be directly involved have not taken part in the planning  The doctors who will be consulted have long distance within the hospital to the dialyses ward. (Umeå)  This will be addressed by installing web cameras and Movi/Jabber clients in the office computers for the  doctors involved  Choice of the extra camera for close pictures of  wounds etc. is still under discussion from  the perspective of current leakage and how close to  the patient the equipment can be placed.  The prises noted are only estimated because this equipment is not included in the existing procurement contract. Also the costs for camera solution may make  the equipment even more expensive. Our local expert  group is aware of this.  The procurement process and delivery may take time  because of the summer holidays. This will be addressed by making as much as possible in advance while  waiting for ITAS approval |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| Increased cooperation between the three dialyse  units as well as between the medical clinics in hospitals of the county  When not in use for a dialyse patient the equipment can be cleaned according to routines and be used  for other clinical purposes  Create new work models with the use of tele-  medicine in the medical clinics, e. i. home dialyses | There is a risk for a residual value of the invested  VX Clinical Assistants some years after the project  And that will affect the budgets of the dialyse units. |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

**SECTION 3**

**IMPORTING PARTNER(S) COMPLETE SECTION 3 ONLY**

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| IMPORTING COUNTRIES |
| **Northern Ireland** |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| Belfast City Hospital Renal dialysis unit provides a regional home haemodialysis across Northern Ireland. The proposed service will be implemented in patients’ homes in Northern Ireland who fall within the Northern Periphery Programme area. It is proposed that the service will phase the introduction of VC reviews, commencing with those patients most remote from the Belfast City Hospital site. |
| ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) |
| **Strategic Overview**  Home Haemodialysis is being promoted UK wide and more specifically by the Northern Ireland’s Dept of Health and Social Service as it produces benefits both in economic terms and health of the patient. We aim to have 70 patients self treating at home within the next 3 years.  The use of technology to monitor patients at home is established within various disciplines including cardiology and diabetes. The Northern Ireland Executive’s Programme for Government [[4]](#footnote-4)for the next 3 years advises that for patients with chronic conditions there should be “full application of remote telemedicine and innovative application of connected health”.  Similarly the Health and Social Care Board’s review document entitled “Transforming Your Care”[[5]](#footnote-5) published in February 2012, outlines a clear commitment to maximizing the technological potential to service provision. The document also indicates that telemedicine can be used to provide care closer to home such that the patient does not need to be in a hospital to receive care.  **Benefits of Home Haemodialysis**  There are a number of benefits for patients to be on Home Haemodialysis (HHD).  HHD is available to all patients and does not exclude patients who are incapacitated. Some patients may require assistance from family members/carers. For those who are functionally very capable HHD is used to facilitate continued working or return to work and/or travel limitations. This in turn contributes to the wider economy and the independence of the patients.  HHD allows increased flexibility for patients to dialyse when it suits them. There is no travelling to/from hospital for treatment.  **Cost Benefit Analysis**  Currently there are 35 patients undergoing home haemodialysis and 80 using peritoneal dialysis in the whole of Northern Ireland. 25 of these patients are reviewed at home on a monthly basis by BHSCT HHD team. Each HHD patient requires one visit per month with each visit lasting up to 1 hour. Return travelling time to the patients’ home ranges between 30 minutes and 3.5 hours.  The current HHD team comprises of 3 nurses and due to the long travelling time, are not able to increase the number of patients they each have to visit and making it difficult to the target of 70 patients.  There is currently a waiting list of patients who are hoping to avail of home haemodialysis and the current average wait is 6 months to commence home training.  Calculations show it costs £1200 per month to review all 25 patients on a monthly basis.  For every new patient, it costs £490 per patient to review them in the first month post training if they live very far and £184 per patient if they lived nearer to the Trust.  For those ad-hoc visits to deal with AVF/CVC issues, machine troubleshooting and at times retraining for using the machne, it costs £1120 per patient if they live very far and £384 per patient if they lived nearer to the Trust.  Therefore on average it would cost between £616 to £1680 (travelling and staff costs) per month depending on the patient’s place of residence for post training support.  It is anticipated that the commissioning of a VC service will circa £300 - £750 and a monthly running costs of approximately £300 per patient. Therefore over a course of 6 months period say, there is potential for substantial savings to be derived from the use of VC irrespective of the location of the patient.  See Appendix I for costs breakdown and basis for calculations. |
| CLINICAL NEED |
| Patients currently undertaking self dialysis at home self treat between 3 and 6 times per week. Each session requires the patient to set up a very technical piece of equipment, access his/her bloodstream and connect to the artificial kidney for between 3 and 8 hours. Each patient undergoes a period of intensive training for between 4 and 8 weeks in order to be competent at carrying out all aspects of their care.  On occasion problems arise with the equipment or access that requires intervention by nursing staff. At present this means a nurse will travel from Belfast City Hospital to the patients home to rectify the problem. Many of these issues are minor and could be dealt with by direct visualisation of the patient’s access or machine through the use of VC.  All patients are also reviewed each month by a nurse from Belfast City Hospital. This entails driving to the patient’s home, completing the review and driving back to base. Return travelling time to the patients’ home ranges between 30 minutes and 3.5 hours |

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| BENEFITS TO PATIENTS |
| Patients will benefit from having access to specialist nursing staff via video in the event of machine or access problems at home.  They will be able to receive a quicker response time to problems especially urgent ones. At present these patients have to wait to commence treatment or in some cases discontinue treatment because of minor problems that may be resolvable during a VC call.  Through the VC there will be opportunities to reinforce training and patient education previously conducted and this alongside the VC access would increase patient’s confidence in their dialysis, their condition and in the renal service overall.  The reduction of travel time would in turn be more environmentally friendly and enable a reduction of CO2 emissions.  The scheduling of the review visits could also be more flexible and be held at times that suits the patient.  Where this is applicable and appropriate review appointments with other healthcare professionals may also be held over a VC call thus reducing the need for the patient to travel to the hospital sites. |
| BENEFITS TO HEALTHCARE STAFF |
| On the whole, calls from patients tend to be for support when a problem occurs with the dialysis machine or patient’s access. On occasion numerous phone calls are required back and forth to the patient to ensure that the problem is rectified prior to connection onto HHD.  The HHD team call/get calls from the patients via mobile phone approx 80 times per month.  VC would allow quicker/easier visualisation of the dialysis machine/patient’s access and give the staff greater confidence in the appropriate advice required to resolve the problem.  Staff can provide a quicker response time to problem solving due to elimination of need to travel if the problem could be discussed and viewed over the VC call especially if the issue is minor.  VC will also facilitate assessment of the patient’s access (CVC/AVF) if it is problematic. The nurse can review the access flows and based on clinical judgement decide whether a referral to the MO is required at this stage. Again this will reduce the patients to the hospital and/or the nurse travelling to the patient unnecessarily.  During the VC review other members of the MDT could speak to the patients if required. VC would help reiteration of dietary advice, ordering of pharmacy items etc if necessary. The use of video conferencing would release nursing time previously spent driving to patient houses to invest in training new patients. It is estimated that a total of 50 working hours per month of driving time could be saved.  The release of the nursing time will in turn increase the availability of face-to-face training time for new patients. This in turn will help increase the number of patients availing of HHD.  Similarly it will enable the nursing team to complete more reviews in less time and enhances the ability to achieve targets. From an organizational perspective this also reduces the costs for staff travel and reduces CO2 emissions. |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| **Hardware requirements**  Patient unit webcam   * The patient webcam needs to be of sufficient quality and resolution in order for the renal nurse to review the patients remotely. It should also have zooming capability in order to obtain an enhanced view of the various dialysis lines on the patients machine as well as being able to show any clinical signs of fluid overload.   Patient display unit   * The patients display unit should be of sufficient quality so as to enable good communication with the renal team. * If possible, options for connecting to the television unit should be explored as majority of patients have a TV in the room where they use for their dialysis due to the amount of time spent in dialysing. * This may reduce setup and running costs.   Renal nurse webcam   * The renal nurse’s webcam should be of sufficient quality so as to enable good communication with the patient.   Renal nurse display unit   * The renal nurses display unit needs to be of sufficient quality and resolution in order to view the video transmitted by the patient’s webcam.   **Software**  Software compatibility - the hardware equipment needs to be able to operate using the existing VC software currently being used by the Belfast Health and Social Care Trust. It is envisaged this will be stipulated in the requirements for the VC equipment.  **Communication**  Installation of broadband links in patients’ home.  **Procurement issues**  Commissioning and decommissioning, training and maintenance of the equipment – there is currently no capacity for IT staff to commission/decommission (deliver, install/uninstall and test) the VC equipment in the patient’s home; train the patients in the use of the VC equipment as well as carry out required maintenance. It is envisaged that this service will be procured as part of a “Managed Service”.  Hardware costs and depreciation – for the service to start up, it is envisaged that the costs of buying equipment may be quite prohibitive and may not allow the project to scale to the desired numbers of patients within the required timeframe. It is envisaged the lease/rent of the equipment is an option and may be procured as part of a “Managed Service”. It also means that the organisation does not have to manage the depreciation, obsolesce and disposal of the equipment when it has reached the end of the equipment lifecycle. In the unlikely event of the project being discontinued this contract for the Managed Service can be easily terminated.  Buying solutions website – Buying Solutions is a UK government procurement services organisation with various service frameworks that are pre-tendered and fully EU-compliant.  Early investigations show that there are a number of service frameworks under the Telehealth that provide Managed Service frameworks that are capable of delivering to the service required within Northern Ireland.  There is a EU-compliant process for carrying out the procurement on the website [www.buyingsolutions.gov.uk](http://www.buyingsolutions.gov.uk) which will enable all suppliers with the frameworks to respond to a required set of requirements. |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| See above for leasing/rental of equipment and the Managed Service approach.  The renal team have a video conferencing suite with high-quality equipment which is currently being used for multi-disciplinary team meetings and case conferences with other renal professionals across the region. |
| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| Currently there are 35 patients undergoing home haemodialysis and 80 using peritoneal dialysis in the whole of Northern Ireland. The aim is to increase the number of patients on home haemodialysis to 70 by 2016.  The number of patients to be included in this project will depend on the cost for the lease and the associated services required; as well as the budget allocated for the project. |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| No increased staffing is required as the use of VC will reduce travelling time and the time released can then be allocated to training new patients. |
| TRAINING REQUIREMENTS |
| Staff and patient training on the use of VC equipment – as outlined in the procurement section. |
| TRAINING REQUIREMENTS |
| As above |

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| Timescale for implementation (Please include equipment procurement, training etc) |
| Indicative timescale are as follows:Procurement – 1.5 months (July – mid-Aug 2012)Project Planning and testing – 1 month (mid-Aug – mid-Sept 2012)1st patient on project/project commencement – end Sept 2012Service operational – 6 months - Sept – Mar 2013 |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
|  |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
|  |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| Patients may feel that they are not receiving the same level of service through the use of VC – it is envisaged that the review visit using VC will alternate with a face-to-face visit and patient’s feedback to be sought on the new service. |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWOT ANALYSIS

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| **Strengths** | **Weaknesses** |
| * Current support and buy-in from clinicians and professionals * Project can reduce costs and deliver improved clinical benefit to patients. | * Lack of staff resources to commit to project |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * Current Department of Health support for “innovative” approaches, use of connected health and new ways of working * Available EU-compliant procurement service frameworks to start at a low cost basis | * Patients do not buy into the new service * Technology doesn’t deliver and causes problems * Insufficient funding |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

Appendix I

The costs of carrying out monthly review visits for 25 patients are:

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| Costs | Basis for calculation |
| £600 for 25 patient monthly reviews | An average of 1200 miles review all these patients at 50p/mile staff travel expenses |
| £600 for HHD team travelling time | An average 30 hours of travelling time at an hourly rate of £20/hour for the HHD team |
| £1200 per month = £7200 for 6 months |  |

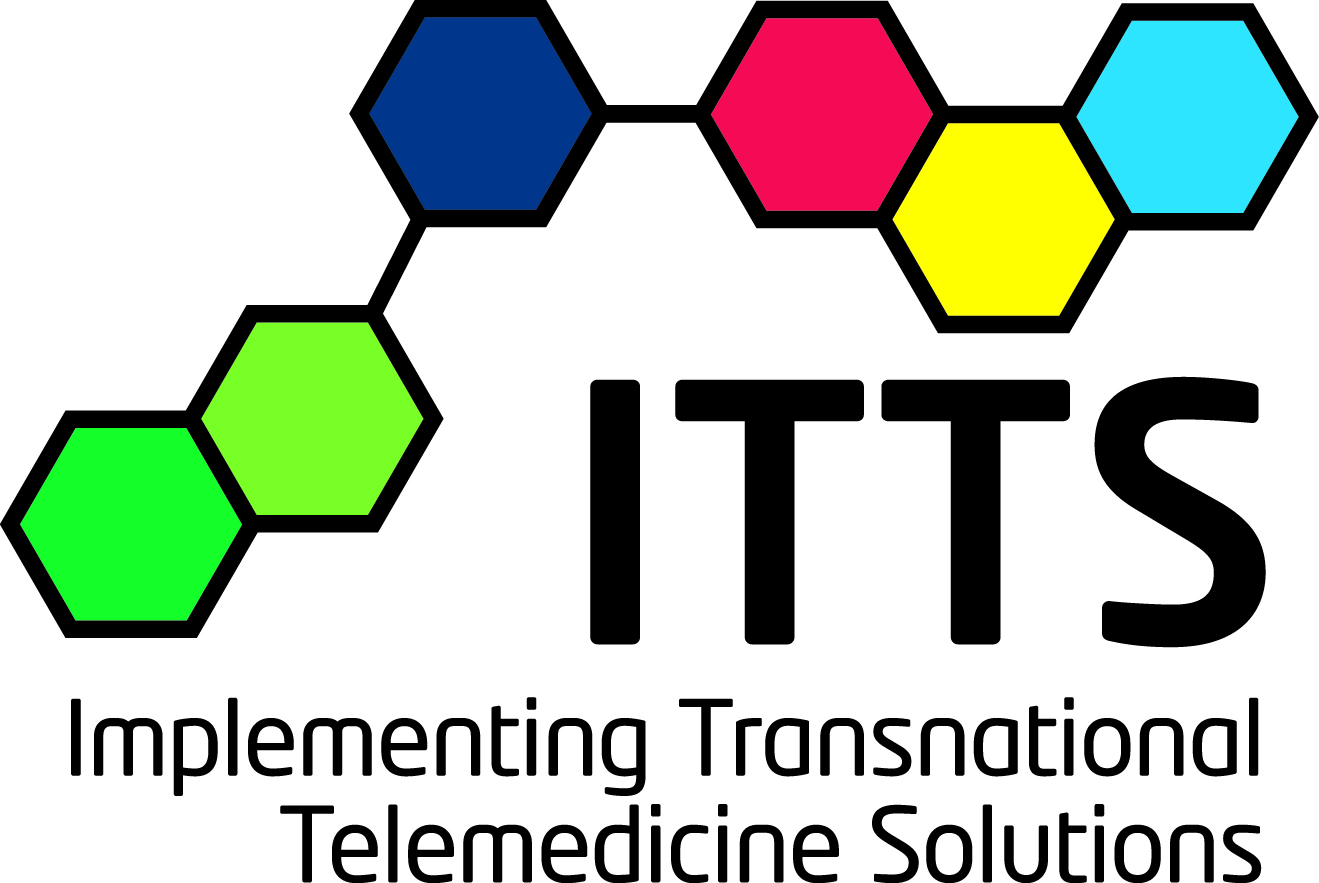
The costs of carrying out ad-hoc visits for 25 patients are:

Visits carried out in the first month immediately post training

|  |  |
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| Costs | Basis for calculation |
| £420 per new patient | 140 miles return mileage to the furthest patient away from BCH  Receive 6 visits post training  An average of 840 miles at 50p/mile staff travel expenses |
| £70 for HHD team travelling time per new patient | An average 3.5 hours of travelling time at an hourly rate of £20/hour for the HHD team |
| £490 per patient |  |
| £7860 | 16 new patients per year (4 per quarter) |

|  |  |
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| Costs | Basis for calculation |
| £144 per new patient | 48 miles return mileage to the average patient living away from BCH  Receive 6 visits in 1st month immediately post training  An average of 288 miles at 50p/mile staff travel expenses |
| £40 for HHD team travelling time per new patient | An average 2 hours of travelling time at an hourly rate of £20/hour for the HHD team |
| £184 per patient |  |
| £2944 | 16 new patients per year (4 per quarter) |

Project 3 VC links for emergency psychiatry services

**PROJECT 3 – VC links for Emergency Psychiatry Services**

CONTACT: Undine Knarvik

**BUSINESS CASE**

**SECTION 1**

**TO BE COMPLETED BY THE DEMONSTRATOR PROJECT TEAM LEADER**

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| **LIST THE EXPORTING COUNTRIES** |
| **Norway** |
| **LIST THE COUNTRIES IMPLEMENTING OR EXPANDING THIS SERVICE** |
| **Scotland, Sweden** |
| **SUMMARY OF SERVICE** |
| The countries participating in this psychiatry project aim to meet and solve challenges in the delivery of psychiatry services to remote areas. One of the challenges is to secure recruitment of psychiatrist to these areas. A decentralized on-call cooperation via videoconferencing for adult mental health is presented as a possible way of meeting this challenge, through creating a robust on-call system to ensure access to specialist 24/7 to remote psychiatry centres. Establishing VC systems for serving decentralized mental health clinics for children and adolescents is regarded as another way of meeting the challenges. The need of psychiatric service for children and adolescents widely exceed what the health system can provide today. The services mentioned above use videoconference to bridge the distance between specialists, primary care and patients. Norway, Scotland and Sweden are exchanging knowledge based on the countries’ experiences with existing technology, the implementation of VC links in the above mentioned settings and country specific needs. Norway is exporting its services to Scotland and Sweden.  Norway  North Norway provides a decentralized on-call service via videoconferencing for adults with mental  health Norwegian. It has been running as a project since 2009 and has become a service in  existence. A researcher at NST will evaluate the service during the next three years. North Norway is further expanding this service into child psychiatry, leaning on the knowledge gathered from the service  in existence. It has developed and started to implement a virtual system, where specialists perform treatment and evaluation with videoconference as a tool, in order to ensure cooperation between all  levels of care related to a child/adolescent.  Scotland  Patients attend Accident & Emergency (A and E) departments who present with mental health symptoms not manageable by the local clinical staff. Currently clinical support is provided by telephone to a Junior Psychiatrist Doctor on call who in turn can seek further assistance from the on call Consultant Psychiatrist. The provision of videoconferencing (VC) would enhance the degree to which remote doctors could assess the patient with a view to a reduction in the number of hospital admissions. The doctor will have the flexibility to use VC from home or the base they use when on call. This will be implemented in the Argyll and Bute region (A and B) within the NHS Highland catchment.    Sweden  The Swedish County clinic for children and adolescents psychiatry BUP has responsibility to provide mental health service in a huge but sparsely populated area. The county clinic has three day units located at the hospitals in Umeå, Skellefteå and Umeå. The University hospital in Umeå also has a 24 hour unit with 6 beds. The situation is as follows. There is no child psychiatry specialist in Skellefteå Hospital yet but one doctor is specializing. There is no psychiatric specialist in Lycksele hospital and there are no plans to recruit. In order to meet the challenges the Swedish partner will implement VC systems at BUP in the three hospitals and serve patients mainly from the remote /rural areas. Two sets equipment placed at BUP in Umeå and Skellefteå for the specialist on stand to bring home. The healthcare centers in these areas will be involved. |

**SECTION 2**

**EXPORTING PARTNER – SERVICE IN EXISTENCE**

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| PLEASE DESCRIBE THE SERVICE CURRENTLY IN EXISTENCE (this can be taken from ‘services in existence’ document ITTS-00040) |
| **Norway**  *“Decentralized on-call cooperation via videoconferencing for adult mental health”*  The telepsychiatry service consists of psychiatrists on call through videoconferencing or cell phone for three regional psychiatric centres distributed over a large geographic area. The psychiatry department at the University Hospital North Norway (UNN) has psychiatric services in four of the largest, but still small cities in the northern part of Norway. For many years it has been challenging to recruit enough psychiatrists at the regional psychiatric centres to create robust on-call systems to ensure access to psychiatrist at all times. On this background the UNN established the “decentralized on-call system using videoconferencing”. They started up the 5th of September 2011, and has recently had a 6 (7) month evaluation of the system. Through this system it is ensured that patients and the professionals working at the regional psychiatric departments have access to specialist in psychiatry 24/7. The psychiatrists can participate in patient consultations through videoconference. This enables the psychiatrists to give patients proper examination and treatment close to their homes. Many patients get their psychiatric service at regional psychiatric centres now, instead of being transported 300 km to the central hospital.  It is important to underline that the system consists of more than psychiatrist’s on-call through videoconferencing. There were also established ambulant psychiatric teams at each of the regional psychiatric centres that do the initial assessment of the patients. They work close together with the local psychiatric wards and the psychiatrist’s on-call to make good clinical evaluation of the patients.  *Description of the service*  3 VC studios are located in the regional psychiatric centres Sør Troms (city: Harstad), Ofoten (city: Narvik) and Midt Troms (city: Silsand). In addition there are studios in the homes of 4 psychiatrists who are spread throughout the geographical area. These psychiatrists provide the on-call service. The VC calls are usually initiated either at the primary health care level, GP, ambulant psychiatric teams or by the local psychiatric ward. When there are enquiries from the local psychiatric wards it is related to the already admitted patients at the regional psychiatry centres. A VC call is usually attended by one or two psychiatry nurses from the ambulant psychiatric team. The patient is always present during the VC calls, which is contributing to increase empowerment of the patient. The doctor/psychiatrist is visible on the VC screen at the moment the patient enters the VC studio.  *Experiences*  So far the people working within this system are very satisfied. The local psychiatric health workers report that the psychiatrist’s on-call gives them more confidence to give patients a local service. One result is that fever patients are being transported to the central hospital. They are admitted at a regional psychiatry centre and the patient is treated at the primary health care level supported by the ambulant team.  With regards to the patients who have been introduced to VC for the assessment of psychiatrist, some think this has been challenging but after being told thoroughly what is happening and why, there has been no problem and all of the video conferencing took place smoothly. No patient has so far refused. Several patients have stated that they felt unacquainted to use VC, but they are happy that they did not have to be transported to Tromsø. Transportation to Tromsø has been described by the patients as very tiring and stressful. The service has until now prevented "unnecessary" admissions.  *Establishing a VC system for serving decentralised mental health clinic for children and adolescents*  The department of children and youth mental health in one of the sites (Ofoten/Narvik), which is part of the regional psychiatry centres, will establish a virtual system where specialists perform treatment and evaluation with videoconference as a tool. In this project VC equipment will be implemented in the abovementioned decentralised department and the project partners and clinicians will develop an organisational and technical sustainable system. This will ensure increasing cooperation between the children and youth mental health clinic at UNN (central hospital), the children and youth mental health department at Ofoten, the primary health care level (school nurses, Kinder garden), GP and other departments in the region.  *Challenges and experiences*  This project will lean on the knowledge, which was gathered in the on-call cooperation service. Challenges which will be considered carefully in this project are how to organize the service, meaning how to organize the staff around such a service. An important factor for success is to anchor the project at all levels of involvement – both bottom up and top down.  Regarding the selection of the appropriate type of patients for VC consultations, the experience from the on-call cooperation service provides valuable knowledge. Violent patients are not appropriate for this type of consultation. Such patients have to be protected. This does not count for patients with psychosis in general, who certainly may be appropriate for a VC consultation. The selection of the patient will generally be conducted by the health care professionals based on their medical considerations. |
| BENEFITS TO PATIENTS |
| ***Decentralized on-call cooperation***   * Ensure that psychiatric patients (adults) get access to specialist service psychiatric evaluation as close to their home as possible * Ensure specialist care to psychiatric patients (adults) admitted to the regional psychiatric centres * Avoid expensive patient transport to hospital for evaluation and admission * Prevent long patient transport (300 km) to the central hospital in Tromsø, by providing * specialist services at the regional psychiatric centres * Give the patient right treatment at the right time and place. * Increasing patient empowerment   ***Mental health clinic for children and adolescents***   * Access to the appropriate specialist (specialist in psychology or psychiatrist) opens up for testing several treatments and medicines * More frequent therapy treatment * No long travel for the child no need to take the child out of school * Bad weather conditions can cause unforeseen and time consuming travel situation * Reducing transportation costs (taxi, other) * Increasing quality of life * Reducing psychosocial stress f.ex. in school situations |
| |  | | --- | | ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) | | ***Mental health clinic for children and adolescents*** Lack of specialists  * Travel distance to see health care staff * Delay of patient pathway caused by the lack of specialists * Covering of a large geographical area * Reduce referrals | | CLINICAL NEED | | ***Mental health clinic for children and adolescents***   * See point 3. * Specific guidance in relation to actual clinical cases in primary care | |
| BENEFITS TO HEALTHCARE STAFF |
| ***Decentralized on-call cooperation***   * Ensure that the health professionals who work at the regional psychiatric centres have   access to psychiatrists   * Prevent long patient transport (300 km) to the central hospital in Tromsø, by providing   specialist services at the regional psychiatric centres   * Improve efficiency by reducing the organisation of on-call services (from three to one) by means of VC * Increasing skills of use of VC as supplement for f-2-f consultations * Avoid expensive patient transport to hospital for evaluation and admission   ***Mental health clinic for children and adolescents***   * Ensure guidance to primary health care * Ensure that health professional at the local site receive guidance from specialist in actual cases * Prevent long patient transport (300 km) to the central hospital in Tromsø, by providing   specialist services at the regional psychiatric centres |
| TECHNICAL REQUIREMENTS (broadband) |
| ***Decentralized on-call cooperation / Mental health clinic for children and adolescents***  Cisco C40 with Premium Resolution and camera  NEC 55" LCD screen with wall bracket and loudspeakers  3 years’ service agreement for codec and camera |
| |  | | --- | | JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? | | ***Mental health clinic for children and adolescents*** NO existing equipment. The VC studio will be tailored for child use. | |
| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE | |
| ***Mental health clinic for children and adolescents***  Approx. 200 | |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) | |
| ***Mental health clinic for children and adolescents***   * Minimum of 1 clinician on each site. No administrative staff necessary. * The requirements are very much depended on how the service is organized in the specific setting. | |
| TRAINING REQUIREMENTS | |
| ***Mental health clinic for children and adolescents***   * An appropriate amount of time has to be allocated to preparations and performance of the VC service as well as training. | |
| Timescale for implementation (Please include equipment procurement, training etc) | |
| ***Mental health clinic for children and adolescents*** 12 months implementation plan:  1. Identify collaborating partners and establish the project (within the first three months) 2. Prepare an activity plan (within the first three months) 3. Describe and approve the organisation of the service (within the first four months) 4. Install VC equipment (within the 2nd month) 5. Training of health personnel (within the 3rd month) 6. Legal and security analysis (within 3rd and 4rd month) 7. Routine service (after one year) 8. Deliverable of final report | |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them | |
| ***Mental health clinic for children and adolescents***   * Conditions of responsibility * Responsibility of documentation * Professional secrecy/data protection * Contracts | |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them | |
| ***Mental health clinic for children and adolescents***  YES see above | |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them | |
| ***Mental health clinic for children and adolescents***  NO | |
| PROBLEMS / ISSUES ENCOUNTERED |
| ***Decentralized on-call cooperation***   * Organisation is a success criterion for the service. It is always a challenge in a clinic how you organize the new way of delivering the service. * An appropriate amount of time has to be allocated to preparations and performance of the VC service, as well as complementary work. |
| EVALUATION DATA (include details and results of any evaluation undertaken) |
| ***Decentralized on-call cooperation***   * A 6/7 month evaluation: So far the people working within this system are very satisfied. The local psychiatric health workers report that the psychiatrist’s on-call gives them more confidence to give patients a local service. Fever patients are being transported to the central hospital. Using videoconferencing with patients in acute crises doesn’t seem to give special problems, and patients report that their experience is to be taken very seriously. In summary, our experiences are good so fare. * Studies have shown that there are no differences between telemedicine and conventional face-to-face methods with regard to quality and satisfaction among patients and professionals. Telepsychiatry has also proved to be cost effective. In order to create a sustainable service it is of importance to develop an organsational system (procedure, routines) for the use of videoconferencing so that it’s easy to involve a specialist directly in a consultation, both when the patient are admitted to 24-hours departments or when the patient is consulted by an ambulatory team. In such a system the specialists can be located in different local sites. * A researcher is employed for three years to evaluate the service. The project is called VIDEOCARE.   Relevant articles:  Bishop, J. E., O'Reilley, R. L., Maddox, K., & Hutchinson, L. J. (2002). Client satisfaction in a feasibility study comparing face-to-face interviews with telepsychiatry. *Journal of Telemedicine and Telecare, 8*(4), 217-221.  Boydell M, K., Volpe, T., & Pignatiello, A. (2010). A qualitative study of young people's perspectives on receiving psychiatric services via televideo. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 19*(1), 5-11.  De Las Cuevas, C., Artiles, J., De La Fuente, J., & Serrano, P. (2003). Telepsychiatry in the Canary Islands: user acceptance and satisfaction. *Journal of Telemedicine and Telecare, 9*(4), 221-224.  Greenberg, N., Boydell M, K., & Volpe, T. (2006). Pediatric telepsychiatry in Ontario: Caregiver and service provider perspectives. *Journal of Behavioral Health Services & Research, 33*(1), 05-111.  García-Lizana, F., & Muñoz-Mayorga. (2010). What about telepsychiatry? A systematic review. *The Journal of Clinical Psychiatry, 12*(2), 1-5.  Pesämaa, L., Ebeling, H., Kuusimäki, M.-L., Winbland, I., Isohanni, M., & Moilanen, I. (2004). Videoconferencing in child and adolescent telepsychiatry: a systematic review of the literature. *Journal of Telemedicine and Telecare, 10*(4), 187-192.  Shore, J. H., Hilty, D. M., & Yellowlees, P. (2007). Emergency management guidelines for telepsychiatry. *General Hospital Psychiatry, 29*(3), 199-206. doi: 10.1016/j.genhosppsych.2007.01.013  Sorvaniemi, M., Ojanen, E., & Santamäki, O. (2005). Telepsychiatry in emergency consultations: a follow-up study of sixty patients. *Telemedicine journal and e-health, 11*(4), 439-441.  Yellowlees, P., Burke, M. M., Marks, S. L., Hilty, D. M., & Shore, J. H. (2008). Emergency telepsychiatry. *Journal of Telemedicine and Telecare, 14*(6), 277-281. doi: 10.1258/jtt.2008.080419 |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Mental health clinic for children and adolescents***

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| **Description of cost** | **estimated cost** | **Who will pay for this?  ITTS project /  healthservice / other** |
| Health personals own effort / staff cost in the implementation phase | 600.000 NOK /  79.000 Euro | UNN Clinic |
| NSTs own effort / staff cost in the implementation phase | 200.000 NOK / 26.000 Euro | ITTS project |
| Technical equipment | 150.000 NOK /  20.000 Euro | ITTS project |
| Furnishing and adjusting studio | 65.000 NOK /  8600 Euro | UNN Clinic |
| IT personal at location | 45.000 NOK/ 6000 Euro | UNN Clinic |
| BUP training VC use | 50.000 NOK /  6600 | UNN Clinic |
| TOTAL | 137600 Euro |  |

# SWOT ANALYSIS

***Mental health clinic for children and adolescents***

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| **Strengths** | **Weaknesses** |
| * New service will be created with the help of VC links. This helps to overcome lack of psychiatrists and other specialists (psychology specialists) * Transmission of competence between health care levels | * Staffing at the hospital: lack of organization   of for example vacation time, sick leave,  etc |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * Potential to expand to other sites once the   system is working. |  |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

**SECTION 3 -**

**IMPORTING PARTNER (S) COMPLETE SECTION 3 ONLY**

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| IMPORTING COUNTRIES |
| **Scotland** |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| NHS Highland Argyll and Bute (A and B) Community Health Partnership (CHP)   * 1. Lorn and Islands Hospital (LIH), Accident and Emergency (A and E) Department, Oban   2. Future sustainability: Aim is implementation across whole region, extending to Dunoon, Islay, Cambeltown, Bute and Mull as main centres following evaluation of Oban. (With continued demonstrated success, however, there are potentially a further 15 inhabited remote islands that this service could be implemented in subject to adequate technical infrastructure being available.) |
| ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) |
| * There are few specialists covering a large geographical area. Journeys are between 1-2 hours from Lochgilphead to the outlying main centres. Journey times to the Islands are even greater, requiring ferry connections. Ferry connections to some of the remoter islands are often limited in number. * Out of hours hospital doctors do not know patients and therefore are more likely to ask for specialist assessment * Out of hours GPs in many instances have first contact with the patient for the first assessment. While the GPs may know the patients, they often require specialist support * Many patients are admitted to hospital for full assessment and care * There are some limitations in the use of telephone to provide clinical support |
| CLINICAL NEED |
| * Minimise the need to transport vulnerable patients to the specialist hospital. Better for the patient to be assessed closer to home. * Minimise travel times for health care staff * VC will enhance the assessment of patients (visual aid rather than existing use of telephone) * Reduce transportation costs |
| BENEFITS TO PATIENTS |
| * Improved access to the appropriate specialist * Bad weather can make travel difficult * Reduce transportation costs * Reduce patient/ carer stress * Patients are less likely to be admitted and can be cared for through community support teams locally. |
| BENEFITS TO HEALTHCARE STAFF |
| * Health care staff at local site have enhanced support of specialist * Prevent long patient transport to the specialist hospital unit * Reduced admissions * Mobile equipment provides flexibility for doctors |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| Patient site:   * Edge 95MXP endpoint   Consultants and junior doctors:   * Lap top (encrypted for NHS use) * Camera * Audio headset * Broadband (ensure adequate bandwidth) * Jabber license   Rationale: This configuration will provide stable and manageable technical platform in the doctor’s homes or residences (Junior Doctor residences are currently being equipped with broadband). Jabber can be used without the need to provide separate virtual private network (VPN) capability. CISCO Jabber is NHS approved. |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| * A VC unit has already been purchased to provide tele-thrombolysis decision support within A and E department of LIH. This could be used for tele-psychiatry. * It is recommended that 3 lap tops (and supporting equipment) are purchased for use between 6 on call consultants and junior doctors. This will enable the flexibility of out of hours home and office use. (This assumes one spare unit and includes Window Server license only – no office, etc) * Jabber licenses will be required for each of the doctors using the system |
| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| * There are currently approximately 300 admissions per year in Argyll and Bute. The aim would be to use VC to support assessment of these patients where geography and circumstance dictates. With a really good assessment the number of admissions could be halved. This will only be achieved with good community care which will be in place by the end of 2012 through a redesign of A and B mental health services (this includes redesign of the community team, primary care workers and provision of self help guidance). GPs will have confidence that their patients will be cared for by a community team and if required there will be more local places of safety for short term admissions. * By December 2012 the aim will be to assess one patient per week using VC with this number rising over 2013 until the number of admissions can be halved and cared for in the community with specialist support via VC (VC is not a replacement for face to face but will be used where relevant). * The initial patient group that would benefit from, and are likely to accept VC, would be ‘revolving door’ patients. |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| The community support team will be in place by the end of 2012 as part of the mental health service redesign in the area. Job descriptions for staff will be updated to reflect that there is an expectation that VC will be used for assessing patients as well as for meetings and training. The Clinical Director’s aim is to use VC as part of the everyday mental health service and that all staff will be confident in its use.   * Oban currently has a community mental health person, liaison service, out of hours service and place of safety and so has regular contact with these patient groups. There would be no additional clinical staffing requirements for this service as this is a tool enhancing what already exists. * Oban already uses a VC link for staff meetings so are familiar with its use. * Patients will be accompanied during the VC session (as would be the case in a telephone assessment) * A and B CHP e-health department will purchase and configure equipment, train users in the operation of the lap tops with jabber and provide routine maintenance and support. * No out of hours IT support will be available. Should there be a technical failure the doctor would revert to the existing telephone support service. |
| TRAINING REQUIREMENTS |
| * VC training for health care staff both at patient site * Training of consultants and junior doctors in use of Jabber for clinical VC purposes |
| Timescale for implementation |
| December 2012:   * Oban link established * All consultants and junior doctors using VC to support the out of hours service   December 2013 – additional links established from the following options:   * Islay\* * Dunoon\* * Cambeltown\* * Bute\* * Mull\*   \*Feasibility, priority and exact timelines to be determined following staff/ patient consultation and technical assessment |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| YES  Consideration has been given to:  Mental Health Act 2003 and Adults With Incapacity (Scotland) Act 2000  NHS Highland considers the use of VC as equivalent to a fact to face assessment. |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

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| **Description of cost** | **estimated cost (ex VAT)** | **estimated cost (ex VAT)** | **Who will pay for this?  ITTS project /  healthservice / other** |
| Lap top \* 3 | £2203.74 | €2732.64 | ITTS |
| Cameras \* 3 | £712.80 | €883.87 | ITTS |
| Headsets \*3 | £89.96 | €111.55 | ITTS |
| Jabber license \* 10 | £1800 | €2232 | ITTS |
| Jabber recurring cost (£264/year – 2 years allocated to project) | £528 | €654.72 | ITTS |
| Carry case \* 3 | £43.20 | €53.57 | ITTS |
| Broad band connection |  |  | Doctors own |
| **TOTAL** | **£5377.70** | **€6668.35** |  |
| Jabber recurring cost | £264 | €327.36 | NHS Highland |
| All support and maintenance costs | Figure not provided but will be supported as part of A and B eHealth service |  | NHS Highland |

# SWOT ANALYSIS

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| **Strengths** | **Weaknesses** |
| * Visual assessment of patient * Minimises travel for both patient and health care staff * VC units in-situ in many locations * Primary care and Out of hours staff feel supported in patient assessment * Less admissions | * Variable quality of broadband speeds across region * Clinician uptake * 24/7 technical support. Should a technical failure occur the doctor will revert to using the current telephone support service. * This technical configuration relies on the doctors domestic broadband over which the NHS has no control |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * Extend across highland region to very remote sites * Extend to other uses in mental health services * Comprehensive VC cover across A and B could support other health services | * Further roll out across A and B may be limited or prevented through technical limitations |

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**SECTION 3 IMPORTING PARTNER(S) COMPLETE SECTION 3 ONLY**

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| IMPORTING COUNTRIES |
| Sweden |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| The County clinic for children and adolescents psychiatry BUP has responsibility to provide mental health service in a huge but sparsely populated area. The county clinic has three day units located at the hospitals in Umeå, Skellefteå and Umeå. The University hospital in Umeå also has a 24 hour unit with 6 beds. Approximate 140 persons are employed to different degrees. The BUP clinic includes a section for research (university of Umeå).  The service will be implemented at BUP in the three hospitals and serve patients mainly from the remote /rural areas. The healthcare centers in these areas will be involved. |
| ISSUES FACING THE SERVICE CURRENT, problem för verksamheten idag:(t ex lång väntelista, brist på läkare/specialist, långa resor för patienterna ) |
| The need of psychiatric service for children and adolescents widely exceed what the heath system can provide today.It is also very difficult to provide psychiatric health care in a way that gives all families in the county equal access Public transportations takes often more than a full day and many of the smaller communities are outside the bus routes. In evenings and weekends travelling by bus is not possible. Patients usually go by taxi paid be the healthcare. In winter many transports are cancelled because of hard weather.  No child psychiatri specialist in Skellefteå Hospital yet but one doctor is specializing.  No psychiatric specialist in Lycksele hospital and there are no plans to recruit. To offer child psychiatry is the most urgent need. All 10 psychiatrists work at the two hospitals near the coast; this means that a child patient living in the rural areas of the inlands has to travel between 130 up to 400 km one way for evaluation by a psychiatrist. This is a severe problem especially in a situation of emergency. There is only one psychiatric ward for children at the University hospital in Umeå.  Acute patients from the districts of Skelleftå and Lycksele come at short notice to Umeå  which puts pressure on the staff and ward there. If a bed is not needed or no beds left at the ward the patient and her or his caretakers has to go back again.  The psychiatrists ”on-stand” works mainly from their home by phone but they go to the hospital if needed ie to have access to patient records. |
| CLINICAL NEED / |
| Access to psychiatry specialist at the BUP unit at LyckseleHospital when it is open =(five days a week)  Access to psychiatry specialist for staff at emergency units at the hospitals in Lycksele and Skellefteå out of office hours  Fewer transportations of patients.  Reduction of work load at the day and night ward at the Hospital in Umeå  Teambuilding for all BUP staff in the three hospitals  Easier access to supervision for the doctor who is specializing in Skellefteå  Better evaluations of patient situation for doctors on stand, today only by telepnone |

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| BENEFITS TO PATIENTS |
| Less travelling  Fewer “days off” from work and school for families in rural areas  Easier to seek support and help  Quicker contact with and response from specialist about medication etc  Equal access to specialist care for all patients in the County  Patients and their family can stay where they live  More confident families/parents |
| BENEFITS TO HEALTHCARE STAFF |
| Learning and professional development Less travelling for team meetings etc  Direct support for medical decisions in real time, not only descriptions by phone  Evaluations can be done with higher quality if psychiatrist easily can join in together with the staff around the patient in the emergency situation.  Reduced number of acute patients sent to the Hospital in Umeå  More effective use of the resources in the county clinic, BUP  Mobility for the specialits on stand (he/she doesn´t have to stay close to the hospital)  Psychiatrists may see their on-stand duty less disturbing if there are technical options for staying  at home. Using the mobile broadband connection also gives more “freedom”.  In case a patient must go to hospital they are more often examined and security rules can  be designed in an individual way prior to journey. This will be an advantage also for the  taxi drivers. |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| Hardware:  Two sets of the following equipment placed at BUP in Umeå and Skellefteå for the specialist on stand to bring home.  Laptop with Movi/Jabber clients and VPN for access to the patient record system  Web camera  LCD screens size 24”  Router for wireless broadband net  Software requirements  Two (2) Telia subscribtions for mobil broadband according to existing procurement agreement    Two (2) cases for transportation |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| A VC system from a former project will be placed at the emergency dep. In the Hospital in  Lycksele to be used when acute patients arrive there.  The BUP staff has many years’ experience of using VC for other purposes both meetings and clinical |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| 50 -80 patients |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| Regular staff |
| TRAINING REQUIREMENTS |
| Staff at BUP has many years’ experience of using VC but a learning seminar will be held after a few months for mutual exchange of thoughts and experiences  Time for this 2 hours Information and support for staff at the Healthcare centres in question and for the staff at the emergency unit at the hospital in Lycksele.Manuals/plans on how to handle an acute situation with consulting the specialist by video in realtime must be at hand at the healthcare centres |
| TRAINING REQUIREMENTS |
|  |

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| Timescale for implementation (Please include equipment procurement, training etc) |
| All equipment can be in place within a month  Introduction can start when the equipment is in place  Implementation can start in beginning of september |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| NO |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| Yes, the on stand doctor has to consider secrecy and integrity of the patient when having  an on stand consultation in real time by video. |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
|  |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| YES/NO |

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| --- |
| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWAT ANALYSIS

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| **Strengths** | **Weaknesses** |
| Health care board recommend increased use of telemedicine  BUP staff has many years of experience of using VC in their  everyday work.  Infrastructure in place  Technical support available  All Healtcare centres have VC systems that can be used  A relatively low cost for equipment will have great positive impact on the service delivery | Two out of six doctors not willing to take part. They prefer the  existing work model  Staff at the healthcare centres may be reluctant to new work models  Coverage of mobile broadband net |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| New more efficient work models for these patients  Learning for staff at healthcare centres |  |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

Project 4 VC links for remote diabetes services

**PROJECT 4: VC Links for Remote Diabetes Services**



CONTACT: Gillian Galloway

**BUSINESS CASE**

**SECTION 1**

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| **LIST THE EXPORTING COUNTRIES** |
| * Finland * Scotland |
| **LIST THE COUNTRIES IMPLEMENTING OR EXPANDING THIS SERVICE** |
| * Scotland * Northern Ireland |
| **SUMMARY OF SERVICE** |
| **Overview:**  Using Video Conference (VC) technology to deliver diabetes tele-consultations to a remote location thus:   * reducing travel for health staff and enabling more patient consultations * minimising travel times for patients * enabling patients in remote locations access to specialist care * enabling quicker access to specialist services for patients * enabling delivery of education and case study discussions   **Finland:**  Diabetes tele-consultations regularly take place in 3 health centres across the  Oulunkaari area. Patients go to their local health care centre where they are seen by a specialized diabetes nurse. The consultation with the diabetes specialist doctor, who is based in Oulu (60-90km away) takes place via VC. Finland will export this service to Northern Ireland and exchange knowledge with Scotland.  **Scotland:**  NHS Highland in Scotland has implemented the use of VC to deliver diabetes consultations. To minimise the travel times for specialist doctors, which in turn will enable more patients to be seen, some diabetes consultations are now delivered via VC between the main District General Hospital, Raigmore in Inverness and a community hospital, Dunbar Hospital in Thurso, 115 miles away, in the North East of the region. As part of the ITTS project NHS Highland intends to implement this service more widely across the region and share experiences with Finland and Northern Ireland.  NHS Orkney has specialist support provided by NHS Grampian. Regular VC clinics are run between Balfour Hospital in Kirkwall, Orkney and Aberdeen. ITTS will extend the service further; and is aiming to establish a three way link between Aberdeen, Balfour Hospital and the remote sites of Dounby, Hoy and Westray. This service expansion will reduce travel for patients who would normally need to travel to Kirkwall and minimise travel for the diabetes team.  **Northern Ireland:**  Northern Ireland will import this project in the South East Trust area. Due to their diabetes service issues, Northern Ireland will look to link both General Practices and local community hospitals to the specialist centres using VC technology and to maximise the use of this VC infrastructure by delivering teaching over VC also. |

**SECTION 2**

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| PLEASE DESCRIBE THE SERVICES CURRENTLY IN EXISTENCE |
| 1. **Finland**   The REMEDY project, which was funded by the Northern Periphery Programme, run a pilot between 2002 – 2005 to develop health care for diabetics by using remote consultation. Partnerships in the project were built with Scotland, Sweden and Finland. The Finnish partners were Regional Hospital of Kainuu and University Of Oulu.  Oulunkaari Primary Health Care Services has been using VC in diabetes tele-consultations since 2005. This action was started because of high diabetes-morbidity, long distances and lack of specialized doctors. Nowadays diabetes tele-consultations are regularly used in three health care centres at Oulunkaari area. They are taken place once a week with 4-6 patients being seen per day. Diabetes patients come to their local health care centre where a specialized diabetes nurse arranges an appointment with the remote specialized diabetes doctor. The remote doctor is located in a private medical clinic, in the nearest town Oulu, 60-90 km from the local health care centre.  Remote contact between patient and doctor is created via video conference. A tele-consultation takes place in a similar way to a ‘face-to-face’ consultation. The diabetes nurse helps the patient with communication, operates VC and additional technical equipment such as an electronic stethoscope and document camera and takes care of patients’ follow-up care. The remote doctor is able to read information from electronic patient records and even make notes directly into them. After consultation, the remote doctor uses digital dictation to make information from the consultation immediately available in the health centre.  Diabetes tele-consultations have been a success in Oulu Arc because there is a serious need for this kind of health services. Organisations and their managers have been committed to this very carefully planned approach. The tele-consultation process has been thoroughly reorganized. There were enthusiastic doctors and nurses, as well. The VC equipment was easy to use and technology functioned well. Because there is a sufficiently large number of patients available to ensure this system is viable then this new way of working has become the habit.  Patients, nurses and doctors have been mostly very satisfied with diabetes tele-consultations. Availability and quality of diabetes care has improved. Nowadays there is faster access to care, improved medication and better care control. Especially, when diabetes is a risk to kidneys or blood pressure is too high, the diabetes doctor has been able to make quick changes to patients’ medication. Immediate transfer of information between doctor and nurse has been very valuable. Diabetes nurses have learned to take care of diabetes patients better and more independently than previously. |
| BENEFITS TO PATIENTS |
| Patients have been mostly very satisfied with diabetes tele-consultations.   * availability of diabetes care has improved * quality of diabetes care has improved * faster access to care * improved medication * better care control |
| BENEFITS TO HEALTHCARE STAFF |
| Nurses and doctors have been mostly very satisfied with diabetes tele-consultations:   * quick changes to patients’ medication * immediate transfer of information between doctor and nurse * diabetes nurses have learned to take care of diabetes patients better and more independently than previously |
| TECHNICAL REQUIREMENTS |
| Infrastructure:   * good broadband connections are required (min symmetric 8/8 Mbs)   Hardware requirements:   * normal PC with double screens in remote doctor’s and patient’s appointment facilities * remote controlled web camera (HD) (patient) * “normal” good quality web camera (HD) (doctor)   Software requirements   * videoconference software with secured point-to-point data connection and encrypted data * Electronic patient records with digital dictation * Virtual Private Network connection to make secured access to electronic patient record |
| STAFFING REQUIREMENTS |
| * specialized diabetes doctor * specialized nurse |
| PROBLEMS / ISSUES ENCOUNTERED |
| * Not any specific technical problems after “remote diabetes care set up” was specified and implemented |
| EVALUATION DATA |
| * Quality of care has improved * Satisfactory service for patients and clinicians |

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| PLEASE DESCRIBE THE SERVICES CURRENTLY IN EXISTENCE |
| *Scotland* NHS Highland has implemented the use of VC in tele-consultations as part of their Diabetes Service in the north of the region. Patients attending short notice appointments, 6 monthly reviews or their annual reviews could attend clinics at a remote site (Dunbar Hospital, Thurso) from the diabetes consultant who is based in the main District General Hospital in Inverness. The consultant had until now travelled the 115 miles to this peripheral clinic site. The patient is escorted by a specialist diabetes nurse at the remote site who will send the patient’s blood glucose data from the patient’s meter via the internet to the consultant, using ‘Diasend Clinic’ (a Swedish product that enables data to be downloaded from any make of blood glucose meter for viewing by a health professional). A consultation can then take place via the VC in a similar way to a ‘face to face’ consultation. Highland will be extending this service to include other remote sites and to develop the infrastructure around the use of VC to ensure the service is reliable and user friendly. Incorporation of the specialities of podiatry and dietetics will also ensure a comprehensive service could be offered to patients at remote sites. The use of VC provides efficiencies while maintaining a quality service through a reduction in travel and subsistence costs. |
| BENEFITS TO PATIENTS |
| * Due to the ability to run additional clinics with the reduction in travel times, patients will benefit from additional consultations with their clinician. * There will also be less clinic cancellations due to road closures in the winter. * Waiting times to see a specialist are also reduced. |
| BENEFITS TO HEALTHCARE STAFF |
| * Healthcare staff spends a lot of time travelling to remote clinic sites. Using VC for tele-consultations reduces the travel time for clinicians. * Travel to these remote sites can be particularly difficult in the winter with road closures and poor driving conditions. |
| TECHNICAL REQUIREMENTS |
| Central site (Highland Diabetes Institute Education Room - Inverness) requires:   * CISCO Room based system with camera * 1 Samsung television * 1 Lap top * 2 monitors * Access to NHS VC network   Peripheral site requires:   * Diasend * CISCO Room based system with camera * 1 Samsung television * Access to NHS VC network |
| STAFFING REQUIREMENTS |
| * The use of VC required changes to the clinicians job plans; with a change from working very long days due to the travel demands, to more frequent short sessions. * Peripheral site:   + Diabetes Specialist Nurse (DSN) required to sit with patient during consultation to:     - Explain and discuss sugar levels with patient     - Discuss treatment changes and write up change of treatment form     - Act as an ‘interpreter’ to relay information for hard of hearing patients     - Facilitate consultation     - Upload patient blood glucose data using Diasend   + Additional administration support to book room, set up VC, manage clinic slots, greet/settle patient * Central site:   + Administration support to book room, set up VC, manage patient record transfer   + e-Health VC support to monitor VC and be on hand for technical problems for both sites   + Consultant uses electronic dictation – increased secretarial support for additional letters |
| PROBLEMS / ISSUES ENCOUNTERED |
| In Inverness there is not a dedicated VC room for hosting these tele-consultations therefore the set up time for the room can be lengthy as the VC equipment and room furniture are often moved.The VC room also has multiple uses therefore availability of the room and VC equipment for tele-consultations can be an issue.While travel time is reduced for the consultant there is additional time demands on support staff both in Inverness to set up the VC room and in the peripheral site where there is an increase in the patient numbers which put additional administrative and support demands on the staff there to organise and manage the clinics, type paperwork and record results. The introduction of VC in Dunbar Hospital saw a doubling of DSN clinic commitment and no backup for DSN unavailability.  * NHS Highland use a number of diabetes data bases which need to be open during the consultation. This requires the consultant to have two monitors. |

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| EVALUATION DATA |
| Patient feedback   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | Strongly Agree | Agree | Neutral | Strongly Disagree | Total | | I found the VC an  acceptable way of  meeting the  specialist | 5 | 7 | - | - | 12 | | There was enough  time in the clinic  to discuss  problems | 6 | 6 | - | - | 12 | | I felt comfortable  talking via a  television screen | 2 | 9 | 1 | - | 12 | | Overall, I felt  that the clinic met  my needs | 5 | 6 | 1 | - | 12 | |

**SECTION 3**

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| EXPANDING COUNTRIES |
| Scotland – NHS Highland |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED |
| * Portree Community Hospital – Isle of Skye * Belford Hospital – Fort William (The use of VC to deliver diabetes clinics is currently done between Inverness and a Fort William GP. The aim is to move this to the local rural general hospital, Belford Hospital) * Caithness General Hospital, Wick is also being considered. The clinic time slot available in Caithness is not compatible with the consultant’s availability. Until this can be resolved patients in the North East of the region attend the established Dunbar Hospital, Thurso VC clinic which is a 20 minutes drive away from Wick. |
| ISSUES FACING THE SERVICE CURRENT |
| * Travel for Consultant Diabetologists is considerable * To attend the Skye clinic the consultant has to stay overnight on the island * There is currently a waiting list for patients to see a specialist * Need for the health service to reduce carbon emissions and travel costs * Increase in number of patients with diabetes which puts additional demands on the current service due to increased level of contact from GPs (General Practitioners) with questions |
| CLINICAL NEED |
| Reduce waiting times  * Speed up resolution for the patient * Ensure reviews are timely |
| BENEFITS TO PATIENTS |
| * The aim of NHS Highland is to ensure any changes to the diabetes service is at least patient neutral. That is; the patient should not see any reduction in the quality of their care. * Due to the ability to run additional clinics with the reduction in travel times, patients will benefit from additional consultations with their clinician. * There will also be less clinic cancellations due to road closures in the winter which minimises inconvenience * Waiting times to see a specialist are also reduced. |
| BENEFITS TO HEALTHCARE STAFF |
| * Healthcare staff spends a lot of time travelling to remote clinic sites. Using VC for tele-consultations reduces the travel time for clinicians. * Travel to these remote sites can be particularly difficult in the winter with road closures and poor driving conditions. |
| TECHNICAL REQUIREMENTS |
| Caithness General Hospital  * Diasend * CISCO Room based system with camera * 1 Samsung television   **Portree Community Hospital**   * Diasend * CISCO Room based system with camera * 1 Samsung television   **Belford Hospital**   * Diasend * CISCO Room based system with camera * 1 Samsung television   VC runs over NHS Internal IT network. Connections to these sites are good and already used in other clinical applications.  NHS Highland Diabetes tool-kit will be developed for each new site. This is a tool which guides those staff implementing the service at a new site. It is divided into sections for ease of use and describes:   * Patient criteria for suitability for VC tele-consultation * Scheduling of clinics and patients * Technical set-up * Managing the appointment * Post-appointment activities |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| There is no equipment to be purchased for this service expansion.   * Existing VC equipment can be used in all three sites. * NHS Highland has recently purchased Diasend equipment for each of the sites. |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| * 150 patients in Skye * 280 patients in Fort William * The patient list who attend VC clinic in Wick in the current service in existence will be now shared with the Caithness site. |
| STAFFING REQUIREMENTS |
| For each site, staff impacts:   * The use of VC required changes to the clinicians job plans; with a change from working very long days due to the travel demands, to more frequent short sessions. * Peripheral site:   + Managerial support to implement VC clinic, make staffing changes   + Diabetes Specialist Nurse (DSN) required to sit with patient during consultation and to upload data to Diasend.   + Additional administration support to book room, set up VC, manage clinic slots * Central site:   + Administration support to book room, set up VC, manage patient record transfer   + e-Health VC support to monitor VC and be on hand for technical problems for both sites   + Consultant uses electronic dictation – increased secretarial support for additional letters due to increase in number of clinics   These are not additional staff. These are existing staff but changes to their job plans may require to be negotiated. |
| TRAINING REQUIREMENTS |
| * VC training for those at peripheral sites * NHS Highland have produced a tool-kit for implementation of VC in diabetes services. This is a useful tool for the new sites to follow during the implementation process. Staff will need to be familiarised with this. |
| Timescale for implementation |
| * Portree Hospital, Skye – 5th July, 2012 – first VC clinic * Belford Hospital, Fort William – December 2012 * Caithness Hospital, Wick – Date not yet established but the need here is less and so is likely to be in 2013 once more evaluation data is available from the other clinic sites. The timetabling of available clinics slots will require negotiation before it can be established whether this is a feasible site. |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? |
| NO |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED? |
| NO |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED? |
| YES  There is a perception that the consultant has not taking the time to travel to see the patients face to face. Communications with patients regarding changes to their service needs to be sensitively managed. NHS Highland have produced a letter which communicates and explains the change to the service which all patients affected by the change will receive. |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWOT ANALYSIS

|  |  |
| --- | --- |
| **Strengths** | **Weaknesses** |
| * Building on current service in existence with evidence of success * Increases the number of clinics that can be run thus increasing flexibility * Aligned with Health Board policy to increase use of VC * Environmentally beneficial – reduced CO2 emitted * Clinical engagement and acceptance * Patient acceptance * Maintenance of service quality | * Public perception that consultant has not taking the time to travel to see them face to face * Set up time for VC * No Diabetes VC project manager anymore therefore central contact removed. Implementation shared amongst dispersed resource. |
| **Opportunities** | **Threats** |
| * Incorporation of other aspects of the diabetes service such as podiatry and dietetics * Use by other disciplines and functions such as training and meetings * Nurses at peripheral site are given more responsibility for managing the clinic * Extend VC service in NHS Orkney | * IT infrastructure (broadband width) could limit further implementation of this service * Lack of dedicated tele-consultation rooms can make the set up of clinics difficult. Risk that this may put clinical staff of using VC. * Relies on additional staff to manage the remote site * Limited time left in consultant job plans to introduce new clinic times. New clinic sites (Caithness) cannot accommodate consultant VC time preferences. |

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| IMPORTING COUNTRIES |
| Scotland – NHS Orkney |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| Orkney has specialist support provided by NHS Grampian. Dr Sam Philip, based in Aberdeen, has regular VC clinics with patients who come to Balfour Hospital. Orkney are aiming to establish a three way link between Aberdeen, Balfour Hospital and remote sites (Dounby, Hoy and Westray). The Balfour Hospital and Dounby are located on the Orkney mainland and Hoy and Westray are on separate islands. *Balfour Hospital* – Telemedicine roomAlready successfully running telemedicine clinics using this facility since 2009.  * Dounby Health Centre – VC room   The GP and Practice Nurses in these practices have already been benefitting from MDT contact with the Consultant, this would allow this service to be extended into Patient contacts with the consultant.   * *Hoy Surgery* – GP Consulting room   Current equipment is out dated and regularly loses link with other parties and therefore would need investment in new hardware.   * *Westray* – Nurses office/Consulting room   Current equipment is out dated and regularly loses link with other parties and therefore would need investment in new hardware.  For both Westray and Hoy this investment in equipment and service development would save precious clinical time for the NP who currently has to travel to Westray (for example) and take a full day out of her already restricted availability. |

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| ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) |
| Waiting lists are a challenge as well as currently only one nurse specialist available to manage a large caseload (approx 200 Type I and approx 800 Type II).  * Distance and time for some island patients to travel to Kirkwall from the Islands. * Distance and time for Nurse Specialist to travel to patients limiting the number of patient contacts. * As has been shown with the initial service established from the Balfour site – patients enjoy that they do not have to travel to Aberdeen to see the Diabetes consultant and get a multidisciplinary educational approach to their appointments. |
| CLINICAL NEED |
| * Improved access to diabetes services for patients in remote and rural areas and islands * Reduces waiting times to see specialists and reduces the patients travel time and costs |
| BENEFITS TO PATIENTS |
| * Improved access to specialist – especially during periods of bad weather * Reduced travel time and costs for Patients and NHS |
| BENEFITS TO HEALTHCARE STAFF |
| Improved educational opportunities – For all primary care staff, including the administration staff as the organisation and co-ordination of clinics and reporting back on data will be promoted as a development opportunity for them  * Supports and enhances MDT working * Better case load management through MDT triage process |
| TECHNICAL REQUIREMENTS (Hardwar and Software requirements, Procurement issues (tendering rules etc.) |
| Diasend package for 4 locations (insulin pump, transmitter and basic account)VC kit for 1 location (VC unit, TV, laptop and trolley)Existing data infrastructure has been assessed and deemed adequateProcurement will be through Public Contracts Scotland Procurement Portal |

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| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| Some existing equipment can be used in the Balfour Hospital and Dounby, however to ensure equitable access to the islands for patients with diabetes the current VC hardware requires replacement.  * The DIASEND equipment is currently on an ‘extended loan’ period and access to this equipment may become a problem if we are unable to fund through this route. On the other hand as a Managed Clinical Network and Primary Care Team working together we will provide and pay for any leaflets required to be produced and the VC equipment will be maintained and supported by our local IT team. |
| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| Potential access for all patients with diabetes in Orkney from Balfour site and   * Westray 36 total diabetes population; * Hoy 30 total diabetes population; * Dounby 131 total diabetes population. |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on VC equipment) |
| Specialist nurse, Specialist Dietician and admin support at Balfour.  * GP or Practice Nurse in Dounby. * GP and/or Community Nurses based at Hoy, Westray and Dounby may require support from local practice admin staff required to switch on VC equipment and trouble shooting. The administration staff will also require training on reporting back the appropriate data |
| TRAINING REQUIREMENTS |
| * Diasend training for patients and staff at peripheral sites. * We propose running V/C clinic training for all staff involved, initially at Balfour site then local session within practice. |
| Timescale for implementation (Please include equipment procurement, training etc) |
| * Equipment order – December 2012 * Equipment installation – January 2013 * Staff training – February 2013 * Patient communications – February 2013 * First 3 way VC clinic – March 2013 |

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| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| NO |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWOT ANALYSIS

|  |  |
| --- | --- |
| **Strengths** | **Weaknesses** |
| * Building on current service in existence with evidence of success * Increases the number of clinics that can be run thus increasing flexibility * Aligned with Health Board policy to increase use of VC * Environmentally beneficial – reduced CO2 emitted * Clinical engagement and acceptance * Patient acceptance * Maintenance of service quality * Shifting the ‘Balance of Care’ in all respects * Reduction in patient travel time * Proven benefits to patients having MDT approach to education based appointment | * Time limitations of consultant’s work plan within constraints   of SLA as Consultant based in Aberdeen   * Limitations of Diabetes Specialist Nurse and Dietetic Time |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * Incorporation of other aspects of the diabetes service such as podiatry/ patients own practice nurse or community nurse if an island based patient * Use by other disciplines and functions such as training and meetings * Nurses at peripheral site are given more confidence and knowledge of diabetes through ~~for~~ managing the clinic * Extend and localise VC service in NHS Orkney | * IT infrastructure (broadband width) could limit further implementation of this service * Lack of dedicated tele-consultation rooms can make the set up of clinics difficult. Risk that this may put clinical staff off using VC. * Relies on local staff willing to take on additional roles/skills to manage the remote site * Limited time left in consultant job plans to introduce new clinic times. New clinic sites (Caithness) cannot accommodate consultant VC time preferences. |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

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| IMPORTING COUNTRIES |
| Northern Ireland (NI) |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED |
| South East Trust area which will be led by Dr Roy Harper, Consultant Physician & Endocrinologist   1. Improve access to clinics for elderly patients by linking hospital sites 2. VC diabetes infrastructure will also be used for staff education and teaching. For example:    1. Anonymised cases – discussion with multidiscipline team 3. This project will also explore the potential development of a link between specialist services and GPs. |
| ISSUES FACING THE SERVICE CURRENT |
| * Travelling for elderly is not convenient and sometimes not possible due to poor mobility * Work load for clinician could be eased by reducing the number of outpatient clinics thus freeing up time which can be used to see new patients |
| CLINICAL NEED |
| * Equitable access to services for patients in rural areas * Minimise waiting times to see specialists |
| BENEFITS TO PATIENTS |
| * Improved access to specialist * Minimise travel as public transport coverage in rural areas in NI is insufficient and where there is public transport, it is infrequent. * Minimise the use of private transport, parking costs and carbon emissions. |
| BENEFITS TO HEALTHCARE STAFF |
| * Improved educational opportunities * Encourages multidisciplinary team working * Better case load management |
| TECHNICAL REQUIREMENTS |
| **For Main and Local Hospital sites**  **Infrastructure:**   * Sufficient bandwidth connectivity between Ulster Hospital (clinician site) and Bangor Hospital (local hospital) for VC use * Availability of VC support during clinic sessions   **Hardware requirements:**   * Use of existing normal PC with double screens (clinician site) * Use of existing “normal” good quality web camera (clinician site) * Use existing room-based Tandberg video conference unit (remote site) * Point of care testing (if required)   **Software requirements**   * Use existing videoconference software (clinician and remote site) * Access to electronic patient records (clinician site)   **For Local GP surgery site**  **Infrastructure:**   * Robust VC infrastructure with sufficient bandwidth and QoS (Quality of Service)   between Ulster Hospital and GP surgery (e.g. Portavogie area)   * Availability of VC support during clinic sessions   **Hardware requirements:**   * normal PC with double screens * remote controlled web camera (HD) (patient) * Point of care testing (if required)   **Software requirements:**   * videoconference software with secured point-to-point data connection and encrypted data or Microsoft Links * Virtual Private Network connection to make secured access to electronic patient record * Database management – access to patient records/ streamline number of databases accessed if transfer of information to staff in GP surgery is required. |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) |
| * Hospital to hospital links will utilise existing equipment * VC equipment for primary care use may be required. This will be known once the GP practice/s has been identified and their current VC provision understood. The aim though of putting VC into GPs would be to have multiple clinical applications so costs could be shared. |
| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| * 20 - 40 patients per month (4 - 8 patients per clinic session) – hospital to hospital VC link |
| STAFFING REQUIREMENTS |
| * Peripheral site (applicable to local hospital site and GP sites)   + Need to examine whether Diabetes Specialist Nurse (DSN) or healthcare worker e.g. Band 3 is required to sit with patient during consultation   + Need to examine if any upload of data from patient required or if patient already on remote monitoring programme   + Additional administration support to book room, set up VC, manage clinic slots * Central site:   + Examine the need for and availability of administration support to book room, set up VC, manage patient record transfer   + Trust IT/External support to monitor VC and be on hand for technical problems for both sites   + Conducting review appointments at GP sites will require staff to rethink current working practice and clinical models. |
| TRAINING REQUIREMENTS |
| * VC training in primary care, small hospitals and local clinics |
| Timescale for implementation |
| * Hospital to hospital link within 6 months * Primary Care clinic within 1 year (once viable GP/s identified) |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? |
| NO |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED? |
| NO |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED? |
| NO |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWOT ANALYSIS

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| **Strengths** | **Weaknesses** |
| * High level of clinical engagement * Possible cost-effective solution using current software available * Environmentally beneficial – reduced CO2 emitted | * Set up time for VC in primary care * Changing the way the service works takes time |
| **Opportunities** | **Threats** |
| * Patients reluctant to travel may be encouraged to use the VC service * VC service in primary care may encourage other professionals to use the equipment such as for training and meetings * Maximising on use of current VC equipment in local hospital * Improvement in care by offering faster access to care | * IT infrastructure – bandwidth * IT support within Primary care sector * Dependent on Admin/clinical support to manage the remote site * Patient perception that this is a “lesser” service than face-to-face appointment * Insufficient take up by patients to justify investment |

Project 5 Smartphones for tracking physical activity

**PROJECT #5 A Smartphone-Based Intervention to**



**Track and Promote Physical Activity**

CONTACT: Liam Glynn, Pat Hayes, Monica Casey

**BUSINESS CASE**

**SECTION 1**

**SECTION 1 TO BE COMPLETED BY THE DEMONSTRATOR PROJECT TEAM LEADER**

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| **LIST THE EXPORTING COUNTRIES** |
| **Ireland** |
| **LIST THE COUNTRIES IMPLEMENTING OR EXPANDING THIS SERVICE** |
| **Scotland** |
| **SUMMARY OF SERVICE** |
| **Scotland**  This service will be implemented in one Highland General Practice; Culloden Medical Practice. This is a 6 doctor practice with around 6000 patients and is based in Inverness. Patients who need to increase their physical activity, and meet the inclusion criteria will be referred by their GP to the practice nurse for enrolment in the service.  An appointment will be made with one of two practice nurses who are tasked with managing this service. In the appointment the nurse will explain the ITTS project and the Smartphone app. The nurse will also discuss the project evaluation with the patient. If required the nurse can help the patient download and operate the app although as far as possible the patient is encouraged to set this up themselves (ITTS will provide written guidance). Patients who agree to take part in the service and have signed the consent form will be asked to carry on as normal for the first week while the app is running on their smartphone. After this first week, the patient will call the nurse to provide her the week’s step count. Using this initial data the nurse will set a target number of steps for the patient to achieve per day over a period of 8 weeks. A date will be arranged at the end of this period for the patient’s final visit appointment to review their data and to complete the ITTS questionnaire. Patients will be encouraged to continue to use the app to monitor their step count after this 8 week period. |
|  |

**SECTION 3**

**IMPORTING PARTNER(S) COMPLETE SECTION 3 ONLY**

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| IMPORTING COUNTRIES |
| Scotland |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| Culloden Medical Practice, Inverness, Highland, Scotland |
| ISSUES FACING THE SERVICE CURRENT |
| Increasing levels of obesity in patients despite the introduction of a great number of exercise initiatives both at a local and national level  * Lack of motivation by patients to increase activity levels * Current solutions:   + Can be costly for patients (e.g weight watchers, gym membership),   + Can be of little interest to patients   + Patients may perceive they do not have time for exercise   + Patients may not want to carry additional equipment (such as pedometers)   + Can be enjoyed short term but do not bring about behavioural change leading to a healthier lifestyle |
| CLINICAL NEED |
| Increase activity in patients to reduce weight and improve health  * Reduce incidence of diseases caused in many cases by obesity such as diabetes and heart disease * Provide patients a straightforward means to self manage their activity levels * Provide patients an exercise that can easily fit into their lives |

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| BENEFITS TO PATIENTS |
| Increasing activity will help reduce weight and improve health  * Many patients already carry smart phones so no additional equipment is required * A goal can be set * The smart phone app is relatively inexpensive * If a patient is familiar with a smart phone the app is simple to use * Results can be emailed to the practice nurse * Tracking step counts can be motivational * Walking outdoors is also shown to be beneficial to wellbeing |
| BENEFITS TO HEALTHCARE STAFF |
| By improving health in patients, appointments for the complications of obesity will reduce  * Patients are given responsibility for reaching their target step count * Nurses can easily monitor progress of their patients without the need for appointments |
| TECHNICAL REQUIREMENTS |
| * Patients require to own a smartphone which is compatible with the app * Patients will be required to purchase the app – Accupedo-Pro Pedometer (there is a free version but the functionality, such as displaying graphs and email options, reduces to counting steps only after 7 days) * Patients will require access to wifi if they wish to email their results to the practice nurse |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT |
| There will be no equipment purchased for this project. Patients who own a smart phone and are willing to purchase the app will take part in the implementation of this service. This will ensure the service is designed in a sustainable way. |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| This project will aim to recruit 20 patients into this service for the purpose of evaluation.  Longer term; the aim is for each GP in the Culloden Medical Practice to refer 2-3 patients per week to this service: 6 GPs \* 2 \* 52 weeks = approximately 624 patients per year |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on VC equipment) |
| The existing 2 practice nurses will manage this service. The GPs will refer the patients to the practice nurse. There will be some administration required in printing out and organising questionnaires which will be done by the Practice Manager. |
| TRAINING REQUIREMENTS |
| The practice nurses will download the Accupedo App onto their own smartphones in order to learn how to use it.  * The Practice nurse will be responsible for any training requirements for patients although it is hoped that patients with a smartphone will understand how to download the app. * The ITTS project will require information packs for both clinicians involved and patients. ITTS will guide the practice manager and nurses through the content to ensure full understanding.   + Patient pack will contain: participant information sheet, consent form, project leaflet, guidelines to download the app, initial visit participant assessment, final visit questionnaire and assessment.   + Clinician guideline pack contains all of the patient information and in addition information about ITTS, using smartphones to track physical activity, inclusion criteria, protocol guidance, how to manage patient visits, and supporting information.   + A crib sheet will be produced for GPs |

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| Timescale for implementation (Please include equipment procurement, training etc) |
| Practice nurses to be briefed on project – Feb, 2013  * ITTS PDW will meet with nurses to talk about ITTS and do any training required – mid March, 2013 * ITTS researcher to provide research materials for review – mid March, 2013 * Finalise patient information leaflet – mid March, 2013 * Finalise all patient and clinician packs and GP crib sheet – May, 2013 * Go live – May, 2013 |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| NO |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| YES  Only patients with smart phones and who are willing to purchase the app can take part in this project. |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



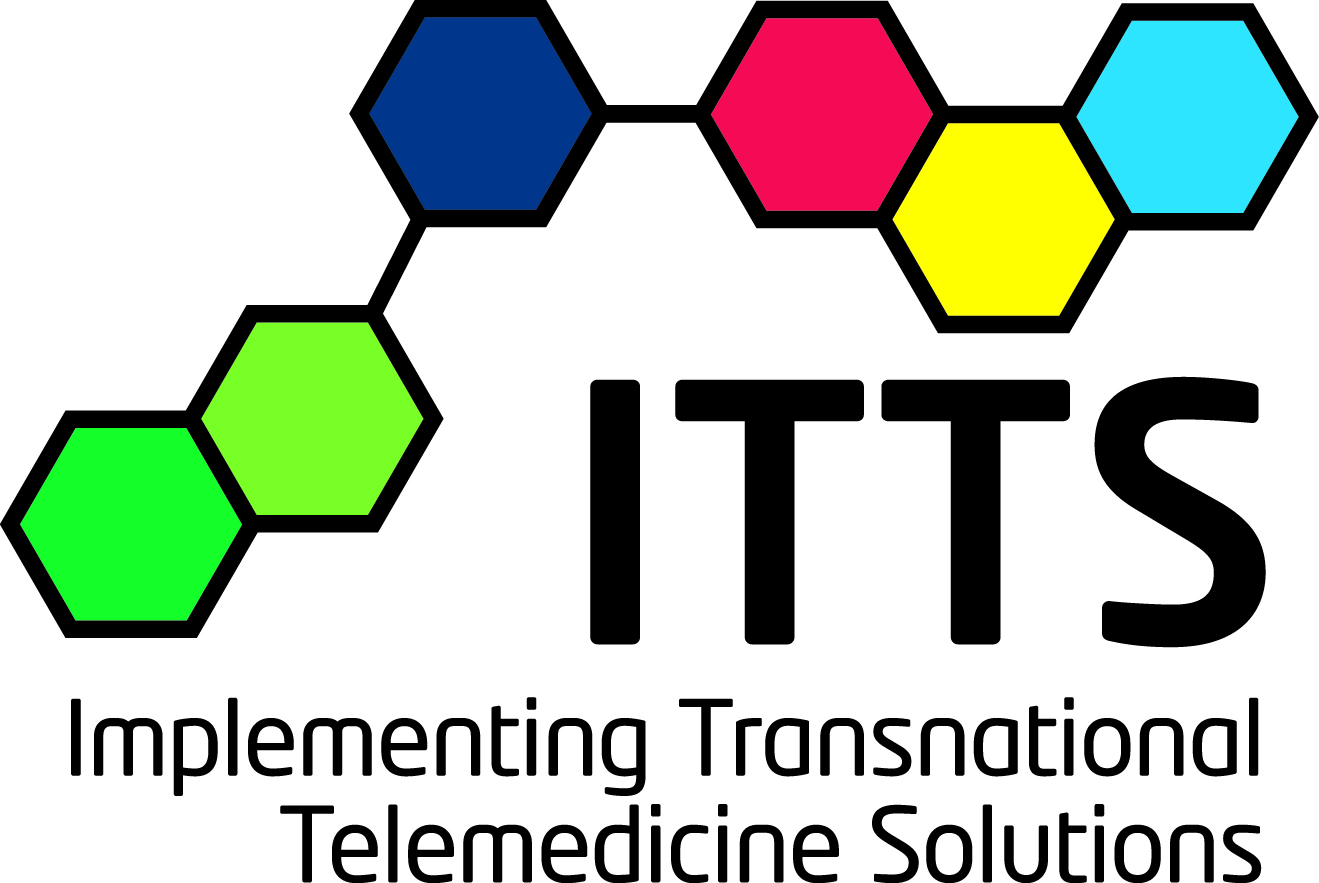
SWOT ANALYSIS

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| Strengths | Weaknesses |
| * Motivated local clinical team * Easy access to subjects * Significant demand in local population * Simple technology; simple protocol * Potential for long term behavioural change * Immediate feedback and reward system * Strong research basis * Cost effective | * Technological failure * User fatigue * Requires Smartphone platform * Inaccurate while driving * Initial setup requirements * Reliant on patient willingness to purchase app * iPhone app seems to be less reliable than android version |
| Opportunities | Threats |
| * Extend to other practices * Paths for all | * Increased workload for practice nurses * Lack of interest by patients * Other technologies such as pedometers |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

Project 6 Smartphone and internet support for diabetes services

**PROJECT 6: Smart Phones & Internet Support for Diabetes**



CONTACT: Soo Hun (soo.hun@hscni.net)

**BUSINESS CASE**

**SECTION 1**

**SECTION 1 TO BE COMPLETED BY THE DEMONSTRATOR PROJECT TEAM LEADER**

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| **LIST THE EXPORTING COUNTRIES** |
| **Norway**  **Finland**  **Ireland**  **Northern Ireland** |
| **LIST THE COUNTRIES IMPLEMENTING OR EXPANDING THIS SERVICE** |
| **Norway**  **Finland**  **Northern Ireland** |
| **SUMMARY OF SERVICE** |
| At present there are 3 countries with various Smart phones/Internet support projects for Diabetes patients.  2 countries are expanding their current demonstrator projects:  Norway  Finland  And 2 countries which importing the projects are:  Scotland  Northern Ireland  There are a number of common issues/organisational challenges across the expanding or importing countries. These issues range from:   * Linking all the exporting projects which are similar yet different, under the scope of ITTS e.g. infrastructure, service design, target patient profile, application designs (with algorithms) * Engaging with General Practitioners in using this type of service and in accepting patient data * User fatigue in another standalone “diabetes application” and integration with Electronic Patient Records (EPR)/Electronic Care Records (ECR) * Linking of patient data with patient education and self management approaches/solutions * Maintaining active participation and consistent usage from patient * Data security barriers – firewalls, etc... * Infrastructure problems e.g. challenges of broadband infrastructure in rural locations; testing of other technologies e.g. satellite technology * Linking with other projects – e.g. Finnish “self-care” portal and physical activity project |

**SECTION 2**

**EXPORTING PARTNER(S) COMPLETE SECTION 2 ONLY**

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| PLEASE DESCRIBE THE SERVICE CURRENTLY IN EXISTENCE (this can be taken from ‘services in existence’ document ITTS-00040) |
| 1. **Norway**   The Norwegian Centre of Integrated Care and Telemedicine has for several years been involved in the development of self-help tools implemented on a mobile platform with an emphasis on diabetic patients and the self-monitoring of their disease. Until 2010 the focus was primarily on the mobile phone tool and the individual effects, where the experiences have been all together very positive. Lately the issues are turning more and more on the challenges connected to the implementation of such tools and services, raising questions like:   * How must this change in treatment offerings and self monitoring for the patient be planned and facilitated in order to reach both health care workers and vendor companies? * What measures need to be taken in order to make these tools available for the user on a regular basis? * What are the key elements in order to make this give value for the GP’s? (Organisational and economical issues)   Currently there is a large ongoing EU study being carried out (RENEWING HEALTH in the CIP programme) where the Norwegian participants are using this tool for a large scale implementation in order to study and experience the challenges connected to some of these questions, but still with a close focus on the individual. In the NPP project the Norwegian pilot on diabetes treatment will focus strictly on the public health care services and the organisational and economical aspects that are being challenged.  Our diabetes concept is the Few touch application, which provides the patient with several functionalities in order to manage diabetes such as elements for giving the user an overview of blood glucose levels, food habits, physical activities and personal goals , see here <http://telemed.no/diabetes-and-self-management.4982935.html>  Consideration for next stage may be extending patient view of data from phones to a web portal.   1. **Finland**   In Finland it is not so common to use web based health care and social services. Core technology and platform for this kind of web services has been developed several years by two cities in Finland (Espoo and Oulu). In Oulu they started to use this technology one year ago. Today more than 3.000 clients are using web based health care and social services. There are about 150.000 inhabitants in Oulu.  Oulu Arc joint area is just now developing own platform and services for self health care / self management (“Oulu Arc Self Care Portal”). Main interest is to develop technology and services which will be easy to use in web and can be possible to use by smart phones too. Special target is to activate most of the population to use services in electronic mode (web and smart phones).   1. **Northern Ireland**   u-tell:diabetes is a joint project between Dr Roy Harper and University of Ulster. This is a diabetes application that allows patients to submit their glucose, blood pressure and weight readings via a phone or a portal, which will be reviewed on a weekly basis by a diabetes professional. The system has voice-recognition embedded to validate the readings submitted over the phone as well as provide voice activated relevant clinical feedback to the patient based on their readings and progress in general.  This application has been used by more than 200 patients to-date and is being used to support and motivate diabetes achieve their weight, blood pressure and blood sugar targets.  The system is being upgraded at present to incorporate more functionalities for both the clinicians and patients.  There is a running cost for the voice recognition component (annual licence fee) of the system. A test login can be provided to all who are interested in testing out the system.  Below is a short video walk-through of the new u-tell-diabetes system. The video covers both staff and patient use of the Web view of the system. The video shows the stage that was in pre-release phase at the time (Sept 2011) and may have been updated since then.  [http://193.61.148.85/download/u-tell-videos/diabetes/index.html](https://mail.hscni.net/owa/redir.aspx?C=94b81d309fef477b8baea191e890f83e&URL=http%3a%2f%2f193.61.148.85%2fdownload%2fu-tell-videos%2fdiabetes%2findex.html)  See below for Dialog infrastructure diagram |
| BENEFITS TO PATIENTS |
| For all of the models:   * patients are able to carry out self monitoring and self management of their condition * patients have multiple means of submitting data ranging from mobile phones, ordinary phones and/or web portals * patients on web portals can see and chart their progress through visual aids such as graphs   In Northern Ireland model, patients are able to submit readings such as glucose, blood pressure and weight readings and receive relevant clinical feedback via voice activation.  In Finnish model patient can make a request to an appointment, check laboratory results, make a question to nurse or doctor and receive answers or to be recalled for example cotroll. |
| BENEFITS TO HEALTHCARE STAFF |
|  |
| TECHNICAL REQUIREMENTS (broadband) Hardware requirements  Software requirements |
| 1. **Norway**      1. **Finland** 2. **Northern Ireland**  * Server to host u:tell application * Licence for voice-recognition software |
| STAFFING REQUIREMENTS |
| 1. **Norway** 2. **Finland** 3. **Northern Ireland**   None |
| PROBLEMS / ISSUES ENCOUNTERED |
| There were a range of common problems/issues across the different projects namely:   * Engaging with General Practitioners in using this type of service and in accepting patient data * User fatigue in another standalone “diabetes application” and integration with Electronic Patient Records (EPR)/Electronic Care Records (ECR) * Linking of patient data with patient education and self management approaches/solutions * Maintaining active participation and consistent usage from patient * Data security barriers – firewalls, etc... * Infrastructure problems e.g. challenges of broadband infrastructure in rural locations; testing of other technologies e.g. satellite technology |
| EVALUATION DATA (include details and results of any evaluation undertaken) |
|  |

**SECTION 3**

**IMPORTING PARTNER(S) COMPLETE SECTION 3 ONLY**

|  |
| --- |
| IMPORTING COUNTRIES |
| This project will not have any importing countries. Instead a research project will be set up instead that will review the issues as outlined above. The research will inform the different countries of the challenges and opportunities for using mobile technologies for diabetic patient.  Potential areas to take the project forward for consideration are as follows:   * the benefits of each application * how different country reach out to the less “able” * self efficacy - how to ensure those who have most to gain actually benefit * Population of elderly people – diabetes is a growing problem * Equal access to services * Patient security – can learn from Finnish experience * Amount of time healthcare professional spend on the system * For younger population outcome measure of engagement using smartphone versus what’s at present   The information and knowledge gleaned can then be exchanged between the participating countries and provide input to the countries who may already be utilising or planning to utilise mobile technologies for management of diabetes. |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| A suggested solution is to set up an online knowledge sharing network.  A suggestion would be to use a simple format: a basic knowledge sharing forum for ITTS-related physicians and technologists (and patients?) which would facilitate the discussion of issues and sharing of best practice (see illustration on p.2). Forum topics can include problems encountered, suggested solutions, needs, wants, ideal systems, comments, feedback, etc.  We could assign a different “problem area” to a Partner with relevant experience, for management and supervision, for example:  - Engaging with GPs - Scotland  - Preventing user fatigue - Ireland  - Integration of system – Norway  - Infrastructure: Sweden  - Security - Finland  - Manufacturer support - Finland  - Overall management of the project - N Ireland  Partners can then share knowledge and answer questions, suggest best practice. They can encourage suitable people to contribute to discussions. It would be up to the individual Partners to shape information received to apply to their country’s needs, laws, systems, etc. and provide feedback and comments. Any Partner or other interested person can use the forum to ask questions, share problems they have encountered, and share their experiences, good or bad – to exchange knowledge, in other words!  Users would be asked to register to join the forum. This would allow us to collect demographic information on who is using the site, plus provide contact details for follow-up questionnaires.  The forum could be launched with boards ready to discuss the issues already highlighted by the Project knowledge sharing sessions. Each participating Partner could then invite relevant people to contribute. Alerts could be sent to users when someone replies to their question or post, to encourage repeat visits. Interesting questions could also be included in ITTS newsletters, and occasional forum e-mailouts could highlight certain topics to encourage participation.  Maintenance for the forum should be minimal. Someone should occasionally (once per week) check the forum for irrelevant/inappropriate posts and remove them. Hopefully requiring registration to use the forum should discourage ‘spam’. e-Mailouts to encourage participation could be sent monthly or quarterly, depending on the level of forum activity.  The forum could be hosted within the main ITTS website, or just linked to from the website. Costs and availability of financial support would have to be confirmed. If this idea is approved, Scotland could assist in setting up the forum if required. |
| ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff)  * Organisational hindrances * Established as a service; engaging with General Practitioners in using this type of service and in accepting patient data * Integrated in work execution – for GP and specialist; Linking of patient data with patient education and self management approaches/solutions * Clinician fatigue in another standalone “diabetes application” and integration with Electronic Patient Records (EPR)/Electronic Care Records (ECR) * Behavioural challenges * Maintaining active participation and consistent usage from patient * Technological obstacles * Data security barriers – firewalls, etc... * Infrastructure problems e.g. challenges of broadband infrastructure in rural locations; testing of other technologies e.g. satellite technology * Interoperability and standards * Platform independence * Commercial justification * Different models   + one that is based on solutions where the patient’s condition is monitored by sensors, submitted via a gateway to a central server where the data/results are studied by medical or support personnel for evaluation before further actions may be taken. In these cases the data collected will be owned by the health-care as it resides on their server.   + So called self-help tools where the patient/person monitor their own condition by means of web-based or mobile solution. In these cases the person will take responsibility for their own condition and results and the data collected is at the ownership of the individual. Data may be conveyed to the health-care personnel at the patients/persons own choice. * Financing model – public /private /both |
| BENEFITS TO PATIENTS |
| * Informs and encourages patient to self-manage the diabetes * Patients and carers have the ability to track progress and the potential for clinicians to take relevant interventional actions. |
| BENEFITS TO HEALTHCARE STAFF |
|  |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| None required at present |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| None required at present |
| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| None required at present |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
|  |
| TRAINING REQUIREMENTS |
|  |
| TRAINING REQUIREMENTS |
|  |
| Timescale for implementation (Please include equipment procurement, training etc) |
|  |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| NO |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |

|  |
| --- |
| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWOT ANALYSIS

|  |  |
| --- | --- |
| **Strengths** | **Weaknesses** |
|  |  |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
|  |  |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

|  |
| --- |
| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWOT ANALYSIS

|  |  |
| --- | --- |
| **Strengths** | **Weaknesses** |
|  |  |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
|  |  |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

|  |
| --- |
| IMPORTING/EXPANDING COUNTRIES |
| **Norway** |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| We want to create a demonstrator where we combine this into a bigger concept, including another already existing demonstrator, which is a webportal used by patients writing their symptoms into it and having a dialogue with the doctor. This is developed for cancer patients but can be used for diabetes as well.  The concept above is not a service but will be a demonstrator implemented in a pilot. By today it is due to data security restriction, not possible to send patient data through mobile phones. It is only possible in pilots. How to overcome the datasecurity barriers will be highly important to evaluate. Another barrier, the unacceptance amongst doctors (GP’s) to include such a service in their practice will be challenged through such a project. |
| ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) |
|  |
| CLINICAL NEED |
|  |
| BENEFITS TO PATIENTS |
|  |
| BENEFITS TO HEALTHCARE STAFF |
|  |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| Technical requirements for a client to use self care portal is just normal computer with internet access and possibility to identify himself by bank sign or mobile sign. For health care organization it is possible to purchase self care portal as a cloud service which can be integrated to electronic patient record system. |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
|  |
| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
|  |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
|  |
| TRAINING REQUIREMENTS |
|  |
| TRAINING REQUIREMENTS |
|  |
| Timescale for implementation (Please include equipment procurement, training etc) |
|  |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| YES/NO |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| YES/NO |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| YES/NO |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| YES/NO |

|  |
| --- |
| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWOT ANALYSIS

|  |  |
| --- | --- |
| **Strengths** | **Weaknesses** |
|  |  |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
|  |  |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

Project 7 Smartphones for inflammatory bowel disease

**PROJECT 7: Smart Phones for Inflammatory Bowel Disease**



CONTACT: Gillian Galloway

**BUSINESS CASE**

**SECTION 1**

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| **LIST THE EXPORTING COUNTRIES** |
| Scotland |
| **LIST THE COUNTRIES IMPLEMENTING OR EXPANDING THIS SERVICE** |
| * Ireland * A partner in Sweden may also be sought but is not part of the business case at this stage |
| **SUMMARY OF SERVICE** |
| There is a wide spectrum of disease amongst patients with Crohn’s and Ulcerative Colitis, referred to in this business case as Inflammatory Bowel Disease (IBD), including patients whose disease is well controlled, and those who need more intensive management. Previous studies have demonstrated that using static telephones to follow up IBD patients improves patient satisfaction with their care. This project will offer patients a more personalised service through the use of ‘smart phones’ together with a software application or ‘app’ to enable patients to record their symptoms. This data is then transferred using the mobile phone network to a health provider computer for viewing by their health professional. The health professional can then follow up with changes to their care if deemed necessary.  Scotland are running this as a feasibility study in the NHS Highland catchment. Professor Angus Watson, Consultant Colo-Rectal Surgeon at Raigmore Hospital in Inverness, is the Principle Investigator on the project. He is working with a Highland based company, Open Brolly, on the design and development of a customised app for use in this project, with the longer term aim of implementing this into IBD health services. There are potential opportunities for international collaboration through ITTS and for development in the functionality of the app for use in other chronic conditions. |

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| Professor Laurence Egan of NUI Galway, the local clinical lead in IBD and the departments nursing research lead, Aine Keogh have expressed an interest in collaborating in this project. With around 15000 people with IBD in Ireland the use of smart phones could potentially help these patients and their health carers manage their disease better. Patients will be more empowered and it has the potential to have real benefits in terms of preventing hospitalisations and other serious consequences of IBD. The app will require to be further developed to be compatible with Irelands IT infra-structure. If this can be achieved, Ireland aims to initially pilot this project from the Galway University Hospital referral area starting with a group of 10 patients.  The ITTS project will also look to identify a Swedish partner to join the international pilot. If successful the business case will be updated at a later date to include Sweden. |

**SECTION 2**

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| PLEASE DESCRIBE THE SERVICE CURRENTLY IN EXISTENCE |
| There are over 600 patients living with IBD across the NHS Highland area, some at considerable distance from secondary care. In addition, GPs may only have one or two patients with this condition and so could find it difficult to maintain current knowledge of treatment for IBD. This project has been designed to help patients manage their own disease, whilst given them access to the best specialist advice through the use of smart phones to enable patients to record their symptoms. This information is monitored by a specialist IBD nurse who will call the patient for a consultation should any symptoms deviate from a normal level. This IBD nurse will then help direct the patients care appropriately.  Software is being designed that will display the transferred data from the patient’s smart phone so that it can be interpreted by the research team at Raigmore Hospital. Each patient will have a range of symptoms that can be displayed graphically, and if any of the symptoms deviate from a normal level, this will alert both the patient (by the smart phone) and the IBD nurse. Once alerted, the IBD nurse will either call the smart phone or a designated landline to hold a consultation. The IBD nurse will use a clinical management template and his/her judgement to help direct the patient’s care appropriately.  40 patients with IBD will be recruited from across the Highlands and Islands. Some will live in urban areas; others will live in remote locations. As well as testing the technology, researchers will also measure if the use of the smart phone improves IBD patients’ health and wellbeing. A variety of measures to record what impact the technology has on their disease, quality of life and the number of contacts with their GP and hospital doctor will be used. Frequency of use will also be measured.  Many patients with IBD struggle to take the medication that has been prescribed for their disease management. The phone ‘app’ can be used to record, which medications have been prescribed and how often the patient takes them. This ‘compliance’ rate is very valuable in helping direct patient care.  [Return to contents page](#Contents)  If successful, it is hoped that the introduction of this system of disease management will help personalise the care that can be delivered to each patient. The use of smart phone technology may help improve the care of other groups of patients with chronic medical conditions. Patients with asthma, diabetes, chronic pulmonary disease and depression may benefit from the use of mobile phone technology.  In addition, a key outcome of this project is the transfer of data across the NHS Highland firewall, from a patient’s smart phone into a patient record. This is novel in Highland and demonstrating the security of the patient data will open up opportunities for the delivery of other health services in this way. |
| BENEFITS TO PATIENTS |
| * Patients may not have to visit their GPs or hospital doctors so often and this may be a more economical way of delivering high quality care to patients with inflammatory bowel disease. * This also offers the patient personalised care and with better disease control a perceived better quality of life. * Provides the patient immediate advice should symptoms trigger threshold values. * Reduce number of hospital admissions |
| BENEFITS TO HEALTHCARE STAFF |
| * GPs will have additional support in the care of their IBD patients and can be assured care for their patients is appropriate and current. * The smart phone will record which medications have been prescribed and how often they are taking by the patient, an area of care often with a relatively poor compliance rate. This information will better inform the medical staff when directing patient care. * Whilst this technology will enable the patient to have more contact with specialist services the patient will have less face to face contact with primary care staff, thus providing a more economical way of delivering care. * Secondary care will have a better record of patient symptoms on which to base clinical decision making. |
| TECHNICAL REQUIREMENTS |
| * 3G mobile phone contract (Vodafone) * I-phones * IBD app on each phone * Desk top computer for IBD nurse * Data will cross the health service ‘firewall’ into a secure dedicated server. This data can then be accessed by the health professional via the health service intranet.   (In phase II of this pilot the intention will be to link the clinical dashboard to the Sky store and PAS databases, enabling automatic update of the patient record. This link will be two way so the health professional can send information back out to the patient). |
| STAFFING REQUIREMENTS |
| * 1 IBD specialist nurse for monitoring data, providing telephone support and training patients in the use of the smart phone.   (This project includes 40 patients. A scalability assessment will be done to calculate the nurse to patient ratio). |
| PROBLEMS / ISSUES ENCOUNTERED |
| Issues being considered in the design of the project are:   * The level of 3G coverage across the Highlands and Islands: the app has been designed in such a way that the data is stored until the phone regains a signal. The use of Vodafone Broadband in the patient’s home also acts as a ‘cell’ for the mobile phone ensuring there is always a 3G signal in the home. * Motivating patients to input data: the patient will receive automated messages should the system not receive input from the patient. The IBD nurse can also view where patients are not inputting data and prompt the patient. Patient rewards will be built into the system to ensure encouragement is given. * Patient understanding or motivation: The eventual intention is for this smart phone and app to be prescribed to patients as part of their personalised care package. However, this will be based on an assessment of the patient and whether the use of this type of technology will be something they can and will want to use. * NHS firewall issues have been overcome through the use of a dedicated IBD patient data base that ensure data is held securely without comprising the health service wider infrastructure. * Intellectual Property (IP) ownership: This resides with NHS Highland and Open Brolly * Commercial costs: The future commercial application and app costs have not yet been established. |
| EVALUATION DATA |
| Data analyses will begin May 2013. |

**SECTION 3**

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| 1. **IMPORTING COUNTRIES** |
| Ireland |
| 1. **WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED** |
| Galway University Hospital, Clinical Research facility and IBD patients in the associated referral area. |
| 1. **ISSUES FACING THE SERVICE CURRENT** |
| Patients with IBD not presenting in a timely fashion in order for health care providers to assist them in preventing serious flare ups of their condition. |
| 1. **CLINICAL NEED** |
| There is a need for methods of tracking patients’ symptoms, transferring this information to the healthcare providers on a more regular basis in order to help prevent or act early upon flares of IBD and thus prevent associated complications. |
| 1. **BENEFITS TO PATIENTS** |
| It is estimated that 15,000 Irish people suffer from IBD, often diagnosed between the ages of 15 and 30 years. The ideal app would provide a method of recording symptoms, supply information/feedback and be reportable to the health care provider.  Research by St Vincent’s University Hospital in Dublin in the form of a questionnaire answered by 180 IBD patients was carried out in June 2011. This showed that 55% of IBD patients look for information about their IBD online; 76% would like an Irish IBD website and 80% would be prepared to use a symptom tracker. This research was entitled ‘Current and future education for IBD patients’. A user friendly app for self monitoring could help the patient keep track of the symptoms and seek help before a serious flare results in hospitalisation. Besides increasing knowledge and empowering patients to feel more in control of their illness, it has the potential to have real benefits in terms of preventing hospitalisations and other serious consequences of IBD. |
| 1. **BENEFITS TO HEALTHCARE STAFF** |
| An IBD symptom tracker would be an innovative health care solution to assist health care providers in their goal of providing high quality preventative patient care. A symptom tracker would provide information which if monitored regularly could help prevent the flare ups of IBD by acting in a timely fashion with advice or medication changes to help improve the quality of the patients’ lives. |
| 1. **TECHNICAL REQUIREMENTS** |
| * Smart phone per patient * app for recording IBD symptoms for each patient * Method of reporting these recorded symptoms to the Doctor/Nurse for assessment: This is yet to be decided but will require access to a 3G network or wifi. It may also require data crossing a firewall into a secure server. The health professional can then call up the data on a standard PC. |
| 1. **JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable)** |
| Exact equipment specifications are not yet defined. Currently there is no equipment available that can be used and so all must be sourced. Equipment options are:   * Patients use their own iPhones. * ITTS provide the smart phones if iPhones are required. The Irish team have access to Android phones if the app is Android compatible. * 3G mobile phone contract or wifi connection for each patient * IBD app on each phone * Desk top computer for IBD nurse * Data will cross the Irish HSE ‘firewall’ into a secure dedicated server. This data can then be accessed by the health professional via the health service intranet. Technical discussion on how to achieve firewall access required. |
| 1. **HOW MANY PATIENTS WILL THIS PROJECT INCLUDE** |
| * 10 patients at a time will be recruited |
| 1. **STAFFING REQUIREMENTS** |
| * The patients will be set up with the app, instructed in its use and then will work independently for the duration unless they experience technical difficulties. Pat Hayes, technical expert, will be available for these issues. * A nurse or doctor will need to be available for assessment of the reported symptoms of IBD and to contact the patients when intervention is required. Professor Laurence Egan, the local clinical lead in IBD and the departments nursing research lead, Aine Keogh have expressed a willingness to consider involvement in such a project. |
| 1. **TRAINING REQUIREMENTS** |
| * Patients to be instructed in the use of the app and also smartphone if they are not familiar with this technology. * Pat Hayes, Monica Casey, Doctor and Nurse to become familiar with the use of the app/smartphone and the resulting data generated. |
| 1. **Timescale for implementation** |
| * Scottish/ Irish meeting in Ireland to define collaborative project – 27th July, 2012 * This meeting will be used to:   + Demonstrate the app prototype and discuss the study protocol   + Discuss technical considerations for Ireland such as data protection and health service firewall   + Establish whether Ireland can and will go ahead with the implementation of this study   + Define project milestones with dates for the Irish feasibility study. Milestones will include:     - Memorandum of Understanding between partners     - Resolve any data management issues     - Finalise project costs for Ireland     - Develop app for use in the Irish context (Open Brolly)     - Acquire equipment     - Patient recruitment     - Training for staff and patients     - Involvement of a third partner (Sweden) |
| 1. **ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED?**   **If Yes then please list them** |
| YES   * Secure transmission of the patients’ information. * It is hoped this project will run as an academic collaboration, between Professor Angus Watson and Professor Laurence Egan. Before embarking on the project a Memorandum of Understanding will be approved and signed by both partners. Professor Angus Watson will remain the Lead Researcher. While the aim of this project is to implement the use of Smart Phones into IBD health services there are a number of stages to the pilot work before this can be achieved. These will be assessed and directed by Professor Angus Watson and will align with the expectations of the original Scottish funder ‘Crohns and Colitis UK’. This project follows the triple helix model, and due consideration should also be given to the use of IP. |
| 1. **ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?**   **If Yes then please list them** |
| NO |
| 1. **ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?**   **If Yes then please list them** |
| There may be a an opportunity to develop the potential role of social networking in the functionality of the app |

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| 1. **COSTS** |

Double click to access the excel spreadsheet below



SWOT ANALYSIS

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| Strengths | Weaknesses |
| * Motivated local clinical team * Significant demand in local IBD population * Available custom built APP * Inexpensive technology * Prevention of hospitalisation and serious complications of IBD | * Technological failure * Poor adoption of technology |
| Opportunities | Threats  What threats could harm the project, finances / it infrastructure / staffing? |
| * Further development for use in other chronic conditions | * Data management * Not finding a solution for crossing the health service firewalls * Protocols need to be fool proof * Referral pathways need to be finalised |

For instructions on using SWOT Analysis, visit [www.mindtools.com/rs/SWOT](http://www.mindtools.com/rs/SWOT)

Project 8 Remote support in medical and social care emergencies

**PROJECT 8: Remote Support in medical and**



**social care emergencies**

CONTACT: Matti Matero, Finland

**BUSINESS CASE**

**SECTION 1**

**SECTION 1 TO BE COMPLETED BY THE DEMONSTRATOR PROJECT TEAM LEADER**

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| **LIST THE EXPORTING COUNTRIES** |
| **Scotland** |
| **LIST THE COUNTRIES IMPLEMENTING OR EXPANDING THIS SERVICE** |
| **Finland** |
| **SUMMARY OF SERVICE** |
| Remote support in medical and social care emergencies is supported through the use of telecare. Telecare describes any service that brings health and social care directly to a user, generally in their homes, supported by information and communication technology. It covers social alarms and lifestyle monitoring.  Telecare covers a wide range of equipment (detectors, alarms, pendants etc) and services (monitoring, call centres and response).  Established telecare services are in place throughout Scotland. In the NHS Highland Region there are more than 4,000 telecare service users. The Highland Hub provides the support for telecare in the Highland Region of Scotland. As well as being the call centre for telecare emergency alerts, the Highland Hub currently provides a co-ordination and management function for Primary Care Out of Hours (OOH) responses and NHS24 triage services across four Health Boards (NHS Highland, Shetland, Western Isles and Orkney). The Hub is the single point of contact for partner services (NHS24, Scottish Ambulance Service (SAS), NHS Western Isles, NHS Orkney and NHS Shetland) with the objective of ensuring that the patient journey is as efficient and stream-lined as possible. It also provides support to single handed GP practices delivering out of hours services across remote and rural areas.  The key organisations involved in the development of telecare in Scotland are local health, housing and social care partnerships.  Established telecare services are in place in Oulu Arc area in Finland too. Basic model of telecare is quite similar as in Scotland. One of challenges is numbers of false and unnecessary alerts. Oulu Arc has been piloting to integrate telecare and videoconference to enable better way to evaluate condition on patient and need for help. They are interested in expanding use of videoconference with telecare and continue technical development. |

**SECTION 2**

**EXPORTING PARTNER(S) COMPLETE SECTION 2 ONLY**

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| PLEASE DESCRIBE THE SERVICE CURRENTLY IN EXISTENCE (this can be taken from ‘services in existence’ document ITTS-00040) |
| Remote support in medical and social care emergencies is supported through the use of telecare. Established telecare services are in place throughout Scotland. In the NHS Highland Region there are more than 4,000 telecare service users.  Telecare describes any service that brings health and social care directly to a user, generally in their homes, supported by information and communication technology. It covers social alarms and lifestyle monitoring. Telecare covers a wide range of equipment (detectors, alarms, pendants etc) and services (monitoring, call centres and response).  Telecare equipment is provided to support an individual in their home and tailored to meet their needs. Telecare services range from a basic community alarm service that is able to respond to an emergency and provide regular contact by telephone to an integrated system that includes detectors or monitors (ie motion, falls, fire and gas) that trigger a warning to a response centre.  Telecare employs the use of a range of technologies in the home setting. It is used primarily to support individuals with a range of health and/or social needs to live more independently and remain at home safely. A basic telecare package of technology includes a base unit, body transmitter and smoke detectors. An enhanced telecare package includes a wide range of peripheral sensors, including epilepsy sensors and DDA (Disability Discrimination Act) pagers for people with a sensory impairments. These alarms and devices trigger a response from a call centre, such as the Highland Hub.  The Highland Hub provides the support for telecare in the Highland Region of Scotland. As well as being the call centre for telecare emergency alerts, the Highland Hub currently provides a co-ordination and management function for Primary Care Out of Hours (OOH) responses and NHS24 triage services across four Health Boards (NHS Highland, Shetland, Western Isles and Orkney). The Hub is the single point of contact for partner services (NHS24, Scottish Ambulance Service (SAS), NHS Western Isles, NHS Orkney and NHS Shetland) with the objective of ensuring that the patient journey is as efficient and stream-lined as possible. It also provides support to single handed GP practices delivering out of hours services across remote and rural areas.  The key organisations involved in the development of telecare in Scotland are local health, housing and social care partnerships. |
| BENEFITS TO PATIENTS |
| Telecare can:   * Improve confidence and supports independence. * Increase personal safety. * Improve quality of life and well-being. * Increase sense of dignity. * Help to prevent unnecessary admissions to care homes. * Speed up hospital discharge and reduce number of readmissions. * Save lives. * Save money. * Inspire confidence in relatives and carers. * Increase personal privacy. * Reduce the number of patient falls. |
| BENEFITS TO HEALTHCARE STAFF |
| Telecare can:   * Reduce the need for ‘just in case’ or ‘check’ visits. * Support staff in role. * Enable care staff to be more productive. * Enable care homes to accept residents with higher care needs. * Enable health and social care staff to monitor large numbers of patients at the same time. * Reduce social care costs. |
| TECHNICAL REQUIREMENTS (broadband) Hardware requirements  Software requirements |
| * Telecare home units require a telephone landline and mains electricity access. * The sensors can be wired or used wirelessly with extra hardware. * Telecare alerts are managed by a monitoring centre which some telecare companies provide. The monitoring centre uses software developed by the company. * Highland region uses the ‘Highland Hub’ (see previous page) as its monitoring centre with software installed with support from the company. |
| STAFFING REQUIREMENTS |
| * Staff will be needed to install the home telecare units and sensors, including explanation and reassurance to patients and carers. * Local staff will also be needed to respond to technical issues such as low battery   problems.   * 24-hour response service is necessary to support telecare. This can be a service   provided by an existing emergency response unit.   * Staff will need training in the understanding and use of telecare. There is an on-line telecare training tool available. * Mechanism to recruit service users. * Develop locally appropriate response systems with agreed named contacts, informal carers. |
| PROBLEMS / ISSUES ENCOUNTERED |
| * High volume of ‘false’ alerts daily. * Patients frequently forget or refuse to wear their emergency alert pendants. * Has the potential to threaten individual users’ privacy, autonomy and control. * Can be difficult to recruit users. * Danger that efforts will focus on the technological aspects of the service rather than the human elements. * Important that appropriately qualified and experienced staff assess user need, reach agreement with users, fit the equipment and provide suitable training in it’s use. |
| EVALUATION DATA (include details and results of any evaluation undertaken) |
| A number of systematic reviews suggest that telecare and telehealth can be effective in improving the quality of life and health outcomes of the people who use the devices or services (Barlow et al 2007) and may also result in cost savings (Polisina 2009). There have been few evaluations of sufficient quality to determine effectiveness.A large-scale country–wide telecare service (England) showed that for every £1 spent on telecare, £3.82 was saved in ‘traditional’ care costs (quality of evidence not assessed).<http://www.jitscotland.org.uk/publications-1/telecare/> See - An Assessment of the Development of Telecare 2006-2010. This report examines the growth and development of telecare in Scotland from 2006 to 2010 and provides an assessment of the business case put forward for telecare funding against measureable goals. |

**SECTION 3**

**IMPORTING PARTNER(S) COMPLETE SECTION 3 ONLY**

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| IMPORTING COUNTRIES |
| Finland |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| Oulu Arc Joint Area, partnership for health and social care services in five municipalities in Northern Finland (Ii, Pudasjärvi, Simo, Utajärvi, Vaala).  Near sides will be in patients’ homes in two municipalities: Utajärvi and Vaala.  Far sides will be in Utajärvi service centre for elderly people. |
| ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) |
| Because of increasing number of clients of home care there is a need to enable home care staff to be more productive.  Telecare is one way to make it possible to reduce the need for check visits and monitor larger number of patients.  Using telecare makes a number of false alerts. There is a need to reduce number of visits because of false alerts. By integrating telecare alarm to videoconference makes it possible to evaluate a need for help to be send to a patient´s home. |
| CLINICAL NEED |
| Many clients of home care services are using telecare which enables to give alarm when it is needed. 24-hour response service is supporting telecare. Interaction is only by voice and it makes it difficult to evaluate what kind of help is needed.  There is a need to monitor client’s condition and actions in real time by using videoconference.  There is a need to integrate telecare and videoconference. |

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| BENEFITS TO PATIENTS |
| * Instructions * Enable to observe patient’s condition and start care in early state * Improve confidence and supports independence. * Increase personal safety. * Improve quality of life and well-being. * Increase sense of dignity. * Help to prevent unnecessary admissions to care homes. * Inspire confidence in relatives and carers. * Increase personal privacy. |
| BENEFITS TO HEALTHCARE STAFF |
| * Reduce the need for ‘just in case’ or ‘check’ visits. * Support staff in role. * Enable care staff to be more productive. * Enable care homes to accept residents with higher care needs. * Enable health and social care staff to monitor large numbers of patients at the same time. * Reduce social care costs. * Enable to specify what kind of help is needed. |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| HARDWARE   * Telecare alerts * Portable VC unit:   + PC: HP Touch Smart 600 24”   + Webcam: Logitech Pro 9000   + Speaker-microphone: Clear One Chat 50 (or 150)   SOFTWARE   * Operating system: Windows XP / Windows 7 * VC client: Arctic Communicator v 1.94 or later   BROADBAND   * VC require minimum ADSL 2 / 1 Mbs * telecare require mobile connections (gsm) |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| We do have 5 portable VC units and 5 more will be purchased by ITTS (Project 10).  5 more is needed to buy.  10 telecare alerts (Tunstall 67005/88).  We have numbers of them but 10 more is needed for better integration with VC. |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| 10 patients |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| * Nurse / home care person / project worker * Staff will be needed to install the home telecare units and sensors, including explanation and reassurance to patients and carers. * Local staff will also be needed to respond to technical issues. * 24-hour response service is necessary to support telecare. This will be a service   provided by an existing emergency response unit (Esperi). |
| TRAINING REQUIREMENTS |
| * clients * personnel of home care services * personnel of 24-hour response service (Esperi) |

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| Timescale for implementation (Please include equipment procurement, training etc) |
| 9 months |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| NO |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| YES  Patient privacy protection. Close communication to make client to understand their homes will be visible to others is needed. |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWOT ANALYSIS

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| **Strengths** | **Weaknesses** |
| * The existing, good functioning VC-technology * Health and social care professionals are used to use VC technology in their work * Telecare alert with video enables to specify quickly which kind of help is needed. | * Limited broadband connections in the most rural areas * Patient recruitment and vc unit installation to their homes takes much time * Personnel of home care do not have very good ability to use computers and VC * Lack of motivation to use VC-technology * Solving technical problems immediately * Not possible to ”follow” patients to every rooms at their homes |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * Technology can be used for other clinical and social services. * Extra injuries can be avoided * Home care patients can be treated with less costs * More people can live in their own homes * 4G mobile network has potential to solve some challenges with broadband | * A lot of false or unnecessary alarms * Patient attendance and motivation * Too little project staff * Funding questions concerning home based VC units and broadband * No broadband available |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

Project 9 Remote exercise classes for rehabilitation

**PROJECT 9: Remote Exercise Classes for Rehabilitation**

CONTACT: Gillian Galloway

**BUSINESS CASE**

**SECTION 1**

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| **LIST THE EXPORTING COUNTRIES** |
| Scotland |
| **LIST THE COUNTRIES IMPLEMENTING OR EXPANDING THIS SERVICE** |
| The following countries will import home based remote rehabilitation:   * Northern Ireland * Sweden * Ireland * Finland   The following will implement the ‘hub and spoke’ remote rehabilitation model:   * Scotland (Highland) |
| **SUMMARY OF SERVICE** |
| **Summary**  Remote exercise classes can be used in the rehabilitation of a number of Long term Conditions such as COPD (Chronic Obstructive Pulmonary Disease), Ischemic heart disease and in stroke. COPD in the UK, for example, is the fifth biggest killer disease and the second most common cause of emergency admissions to hospital. Current guidelines recommend pulmonary rehabilitation in the treatment of patients with COPD enabling patients to live active lives for longer. Patients who live remotely from centralised clinics or have travel difficulties may be unable to attend established rehabilitation groups. A remote based solution offers these patients the opportunity to take part in these classes from their home or local health centre, ensuring they realise the same clinical, social and educational benefits as those living closer to clinics. This remote solution uses internet based VC technology to enable patients to view their centrally based physiotherapist and other class members at the same time. The exercise programmes are designed in a similar format to those run in regular exercise classes. The physiotherapist is able to monitor the patients by seeing and speaking to them. This service will:   * Reduce the time physiotherapists travel to deliver rehabilitation to these patients groups * Enable the delivery of more rehabilitation classes or other patient contact (through time saved in travel) * Minimise or remove patient travel requirements * Reduce patient cancellations * Increase social interaction amongst these patients * Increase confidence in exercising for these patients * Reduce hospital admissions and enable patients to live longer, independent lives at home   **Ireland**  Ireland will implement this service for the rehabilitation of COPD patients based in the North County Clare area. Currently a physiotherapist travels to see each patient which takes a lot of time and does not address the waiting list for such rehabilitation. A centrally based physiotherapist will be able to see 6 patients at once using VC installed in the patient’s homes. Time saved travelling can be spent seeing more patients.  **Sweden**  Sweden will implement this service for the benefit of patients who live in remote areas surrounding Umea and who cannot access rehabilitation classes, either through distance, sparsity of patient numbers making formation of classes not viable and through patient concerns about exercising alone. Easy to use VC units will be installed in patient homes enabling them to take part in a group class delivered by a physiotherapist based in Primus (primary care centre), Umea.  **Northern Ireland**  In Northern Ireland distance of travel and mobility problems means that some patients in the Southern Health and Social Care trust area are unable to attend rehabilitation classes. A centrally based physiotherapist will deliver group based rehabilitation classes to COPD patients who will be based in their homes.    **Finland**  Finland will implement remote rehabilitation via VC to patient in their homes in Utajärvi, Vaala and Ii. These patients have chronic diseases such a stroke or heart disease and have difficulty accessing rehabilitation either through distance or frailty or because of health staff resource limitations. Group based rehabilitation will improve physical and social wellbeing of patients and in many cases enable them to stay at home for longer.  **Scotland**  NHS Highland in Scotland will implement a ‘hub and spoke’ model of remote rehabilitation classes; the hub being a central location where the physiotherapist is based, delivering a standard rehabilitation class to a group of patients; the ‘spokes’ being one or a number of different remote centres where further groups of patients are based who can also take part in the class. This model will offer a service not currently available in many remote locations due to the sparsity of patients, making the formation of a class unfeasible. Highland intends to further develop the service across the Highland region and may in time offer these classes in patient’s homes. To maximise the usage of equipment and to reach as many remotely based patients as possible, highland will develop a flexible ‘hub and spoke’ model which can move around to different locations depending on the need and also will encourage the sharing of equipment across different patients groups such as COPD, cardiac, stroke, etc.  Note: Highland does not intend to implement home delivery of classes as part of ITTS due to wider scoping work currently going on in Scotland looking specifically at home based service delivery; the outcome of which will shape Highland’s home VC strategy.  NHS Orkney will also implement this service but this is not included in this business case. |

**SECTION 2**

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| PLEASE DESCRIBE THE SERVICES CURRENTLY IN EXISTENCE |
| (Note: there are 2 services described in this section)a.Scotland Group-based pulmonary rehabilitation delivered to the home via the Internet  **Background**  Many patients cannot attend group-based pulmonary rehabilitation programmes due to remoteness from the clinic or transport problems. A feasibility study of a novel method of delivering a programme via Internet-based videoconferencing was conducted during 2009-2010.  **Methods**  A mini PC was re-boxed in a simple case with a single large on/off button, which was connected to each patient’s home television and wired to the Internet, together with a webcam, speakerphone, and, where appropriate, a wireless pulse oximeter. The physiotherapist delivered the programme from a central location equipped with a desktop PC connected to the Internet; webcam; speakerphone and 40-inch video screen. When patients turned on their mini PC and TV and switched to the video channel, they automatically joined the class. All patients and the physiotherapist were visible and audible on all TV screens, to create a group spirit. A supporting screen was added to the physiotherapist’s set-up to display patient names, exercise duration (30-60 seconds), pulse oximeter readings, and an exercise timer. A desktop videoconferencing service was employed. A standard pulmonary rehabilitation exercise programme was delivered involving twice-weekly sessions for 8 weeks. Patients were assessed pre- and post- programme by Chronic Respiratory Questionnaire (CRQ), the Hospital Anxiety and Depression Scale (HADS) and an incremental shuttle walking test. Satisfaction was measured using the Client Satisfaction Questionnaire (CSQ). Results are expressed as mean (SD).  **Results**  All patients completed the programme. The technology performed well: one patient missed a single session due to a temporary problem connecting to the Internet. Clinical improvements occurred in all patients, comparable to those in a conventional programme. Compared to pre-programme values, there were improvements in: shuttle walking, 88(35) metres; CRQ dyspnoea 8(5.2); emotion 2.8(1); fatigue 5.3(3.7) and mastery 4(2.6). HADS anxiety and depression scores reduced in 3 of 4 patients. Satisfaction scores were high: CSQ values 29-32.  **Conclusion**  The system allowed delivery of effective group-based pulmonary rehabilitation to patients in their own homes and should improve accessibility for future patients. The outcome of this work was the recommendation that testing the intervention on a larger scale is warranted and that it could be adapted for use in other clinical scenarios such as Ischemic heart disease and stroke. |

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| BENEFITS TO PATIENTS |
| * Patients do not need to travel to attend a class * The classes are designed so as to provide social interaction for patients thus reducing social isolation * Patients realise health benefits from taking part in exercise classes for COPD * Patients also benefit from education delivered at the end of the session * Patient exacerbations and anxiety is reduced * Patients are empowered to look after their own health and have greater independence |
| BENEFITS TO HEALTHCARE STAFF |
| * Staff can deliver classes from a central location thus minimising travel * Staff can use the sessions to deliver education to patients also * Staff can assess patients wellbeing and identify additional needs in these sessions that may have gone undetected |
| TECHNICAL REQUIREMENTS (broadband) |
| * PC: mini-ITX PC with Windows XP Operating System. * Camera: Logitech QuickCam Pro 9000 Webcam. * Speakerphone: ClearOne Chat 150 USB Speakerphone. * Video screen: (TV screen in patients homes) * Pulse oximeter: Nonin 9560 Wireless Fingertip Pulse Oximeter (Continua certified).   The mini PC was re-boxed in a simple black perspex sleeve with a large illuminated on/off button, in order to create an accessible aesthetic and interaction (Figure 1). The PC was connected to the patients’ own TV using a VGA cable. A TV rather than a computer screen was chosen to display the video because a TV is a familiar technology with a screen size suitable for watching several feet away while carrying out the exercises. The PC used a wired (Ethernet cable to router) connection to the Internet, which is more reliable than a wireless connection for videoconferencing.  *Physiotherapist Hardware and Media*   * PC: Desktop PC with Windows XP Operating System. * Camera: Logitech QuickCam Pro 9000 Webcam. * Speakerphone: ClearOne Chat 150 USB Speakerphone. * Video screen: 40-inch widescreen, 1024x768 resolution. * Support screen: 20-inch widescreen with remote control. * CD Player and music CDs.   **Commercial Software**  Desktop videoconferencing service (JVCS Desktop) that is available to the JANET community [2]. JVCS Desktop uses a new videoconferencing software application by Tandberg called ‘ConferenceMe’ that works with a Multipoint  Control Unit (or bridge).  **Custom Software**  Custom software was developed to: simplify and automate patients’ experience of joining a videoconference, provide an exercise timer for the physiotherapist that also allowed patients to see time remaining, and capture real-time data from the pulse oximeters and convey this information to the physiotherapist in a straightforward manner. The software was developed in Microsoft’s .NET framework and written in C# (C-Sharp) language. Communication between the physiotherapist PC and the patient PCs was established using an Internet socket connection. |
| STAFFING REQUIREMENTS |
| * 1 physiotherapist for 8 patients (This is NHS guidelines. The system will allow up to 12 patients to be involved at one time) * Technical staff to install, maintain and remove equipment |
| PROBLEMS / ISSUES ENCOUNTERED |
| * Patients must have a broad band connection. For the purpose of this study this was installed into patients homes for the duration of the exercise programme. * Time to install and remove equipment was lengthy * **NOTE:** *This project has not continued as a service in NHS Highland as a result of the project Principle Investigator retiring. This left the project without a ‘champion’ to continue its evaluation on a bigger scale. However, this project has lead to the initiation of other studies in Scotland; namely within East Lothian and Midlothian Physiotherapy Service which is piloting home based rehabilitation for patients with COPD. This project has not yet been completed and so the outcome cannot yet be fed into the ITTS project. As results become available the ITTS team will be informed of findings to help to continue to advise their service design. However the equipment choice made is of interest to ITTS. This project utilises ‘off the shelf’ Polycom equipment. From a sustainability view point, commercially available equipment is recommended for implementation at scale, ease of ‘plug and play’ for patients and for maintenance by health authorities. Partner countries implementing this service can choose to source commercially available home based VC units suitable for use within their own health service infrastructure.* |
| EVALUATION DATA (include details and results of any evaluation undertaken) |
| A.Taylor, A. Aitken, D. Godden and J. Colligan, “Group Pulmonary Rehabilitation Delivered to the Home via the Internet: Feasibility and Patient Perception” 2011A.Taylor, A. Aitken, D. Godden and J. Colligan, “Delivering Group-Based Services to the Home via the Internet: Maximising Clinical and Social Benefits”. 2011 |

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| PLEASE DESCRIBE THE SERVICE CURRENTLY IN EXISTENCE |
| **Scotland is exporting two services in existence** b. Scotland (Perth and Kinross) – Tele-pulmonary rehabilitation for people living with COPD (‘hub and spoke’ model) Perth and Kinross is an area in Scotland immediately to the south of Highland and is a large rural area, covering 5000km2. COPD patients from the outlying areas have difficulty in accessing the rehabilitation programme delivered at Perth Royal Infirmary, due to travel issues. To reach these patients the use of tele-health technology was implemented in 2008 to enable these patients to join the class from the remote location, the town of Pitlochry. The class is run as normal in Perth but the physiotherapist has a VC link to a health centre in Pitlochry where a small number of rural patients also take part in the class. |
| BENEFITS TO PATIENTS |
| * Rural patients have access to a rehabilitation class * Patients do not need to travel far to attend the class * The classes provide social contact for patients with other patients with teh same condition * Patients realise health benefits from taking part in exercise classes for COPD * Patients also benefit from education delivered at the end of the session * Patient exacerbations and anxiety is reduced * Patients are empowered to look after their own health and have greater independence |
| BENEFITS TO HEALTHCARE STAFF |
| * Staff can deliver classes to more patients at once * Staff can deliver classes to rural patient, ensuring an equitable service * Combing patients in the central location with patients in the rural areas ensure a feasible number of patients for a class * Staff can use the sessions to deliver education to patients also * Staff can assess patients wellbeing and identify additional needs in these sessions that may have gone undetected * Support staff have an opportunity to develop skills |
| TECHNICAL REQUIREMENTS (broadband) |
| * Tandberg 880 VC unit – both sites * 23” monitor – both sites * Table top microphone – Perth only |
| STAFFING REQUIREMENTS |
| Central site (Perth Royal Infirmary):  * Respiratory physiotherapist * Respiratory nurse   Remote site (Pitlochry)   * Physiotherapy assistant (was given specific training to ensure confidence being with patients on her own) |
| PROBLEMS / ISSUES ENCOUNTERED |
| * Some initial dialup difficulties – resolved via IT helpline * Some colour variation which did not influence the effectiveness of delivery * Adaptation had to be made to improve the sound quality in the Perth Royal Infirmary gym |
| EVALUATION DATA (include details and results of any evaluation undertaken) |
| Taking from: SG Tayside Remote Pulmonary Rehabilitation COPD Evaluation 9th July, 2009  **Clinical conclusion:**  Clinical measures for both groups (central and remote) were comparable to those of previous programmes.  **Satisfaction questionnaire results:**   * All respondents reported that would participate in tele-medicine again * Scoring of how they felt about the telemedicine link was high and there was no negative comments * All key staff felt the programme to be a success * Staff were impressed with the versatility of the equipment and how it adapted to the delivery of the class * The key issue that this model of delivery addressed was rurality and access. This model was a more efficient method to deliver to these areas.   **Economics:**   * Outreach model (sending existing specialist staff out to rural areas) – total per block: £7728.00 * Centralised model (patients travelling to Perth) - £2297.20 * Tele-health model - £246.20   **Outcome:**  Remote pulmonary rehabilitation programmes are now routine service delivery in Tayside and Lothian.  Further reference:  D. Godden, C McClusky, M. Barrow, Evaluation of Remote Pulmonary Rehabilitation in Scotland – Final report, July 2011 |

**SECTION 3**

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| IMPORTING COUNTRIES |
| Ireland |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients’ home) |
| The near side will be the Physiotherapy Unit, Primary Care Centre Centre, Ballyvaughan, Co Clare.  The North Clare Primary Care Team (PCT) was formed in November 2004 by general practitioners of the local area involving the three medical practices located in the towns of Ballyvaughan, Corofin & Lisdoonvarna (see map). The PCT includes 5 general practitioners, practice nursing and administrative staff as well as allied health professionals catering for a population of approximately 8,000 people spread over a wide geographical area of 550 sq. km. This population has a high dependency ratio and a below national average deprivation score. All the factors above make the delivery of primary care services to this population a considerable challenge to which the North Clare PCT is fully committed. Practice, ancillary staff and other primary care health professionals from the three medical practices have been meeting regularly and collaborating since the inception of the PCT in November 2004. The North Clare Primary Care Team was formally selected by the Clare primary care local implementation group of the HSE in September, 2006 as one of the first three official PCTs to be developed in the Clare area.   |  |  | | --- | --- | | North Clare Care Map | Ireland |   The patient group will consist of a mix of face to face and remote. We anticipate 5-6 patients will be onsite receiving face to face therapy while 1-2 patients will receive in their own homes in the area covered by the North Co Clare primary care team. |
| ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) |
| * Travel distance * Lack of clinicians * Waiting lists |
| CLINICAL NEED |
| * COPD Rehabilitation required for patients * Need to carry out physiotherapy for an increased number of patients in a reduced amount of time |

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| BENEFITS TO PATIENTS |
| * Social interaction of exercising with a group * Comfortable conditions in their own home * Improved patient outcomes through increased access to therapy:   + An increased number of patients in remote areas would receive care they currently cannot access due to travel distance, lack of clinicians, and waiting lists. * Reduced out-of-pocket patient expenses through reduced travel, accommodation, and time input costs |
| BENEFITS TO HEALTHCARE STAFF |
| * We will be able to carry out therapy to a group of approximately 8 patients simultaneously instead of separate sessions. * The programme will enable therapy to be delivered in a more timely and efficient fashion and will enable healthcare staff to increase caseloads to include patients on long waiting lists who not currently being facilitated. |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| Physiotherapist:  * Speakerphone * Increased quality of broadband at Ballyvaughan Medical Centre for duration * RAD VISION VC 240 Video conference equipment (needs testing) * Display table   Patients:   * RAD VISION VC 240 Video conference equipment (needs testing) * Pulse oximeters for patients in their homes, number to be confirmed * Increased broadband quality costs for patients’ homes |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| * No existing equipment so all must be purchased. * From an economic perspective, the justification for the expenditure outlays must be viewed against the potential efficiencies the project may generate in the longer term. That is, potential cost savings to the healthcare system and to patients which result from the implementation of the project should be considered against the initial expenditures required. In terms of healthcare costs, the project will increase the capacity of healthcare staff to provide care to current patients and to patients who currently have limited access to care. Increased access to care will improve patient health but may also have long term impacts in terms of the reduced need for more costly hospital care. In terms of patient costs, the project would be expected to reduce out-of-pocket expenditures on travel and accommodation and may reduce lost earnings for those who currently receive care. In assessing the justification of the investment, the potential cost savings associated with these resources should be compared to the initial expenditures required to implement the project. |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| * 12-16 patients – 2 x 6 week sessions involving 6-8 patients each time * After the life time of the project it is anticipated that the physiotherapist attached   to the primary care team will continue to provide this service a minimum of twice annually. |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| * Physiotherapist will be required. * Pat Hayes, our technical staff project worker, will install the equipment in the Ballyvaughan Medical Centre and in the patients’ homes and be available for troubleshooting issues. |
| TRAINING REQUIREMENTS |
| * The 6-8 patients will be brought into the medical centre for an initial session to familiarize them with the routine. A decision will be made by a method yet to be confirmed on the patients that will receive remote therapy from their own homes. * This decision may predominantly be decided on the quality of internet access to the patients’ home. * The chosen patients will be then instructed how to use the equipment at home. A family member or friend may need to be available until the patient is comfortable with the technology. * Technology training for the physiotherapist. * Training and setup to of equipment to provide a secure and safe exercise area to allow the physiotherapist to adequately interact with both patients in the clinic and the remote patients. |

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| Timescale for implementation (Please include equipment procurement, training etc) |
| 6-12 months from approval |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| YES   * Observation of health and safety issues. * Will ensure home environment is adequate for the exercise to be carried out safely. * No trailing wires, space to exercise safely. |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Patient Hardware***

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| RADvision VC 240 Video Conference unit | €2700 www.meritec .ie |
| Speakerphone: ClearOne Chat 150 USB speakerphone | €460 (www.chatandvision.co.uk) |
| Pulse Oximeter: Nonin 9560 Wireless fingertip Pulse Oximeter | €475 *(* www.proactmedical.co.uk) |
| Broadband connection (2.5MB used in Scotland) | €35-2mb €45-4mb (Airwire) €200 install |

***Physiotherapist Hardware***

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| Speakerphone: ClearOne Chat 150 USB speakerphone | €460 (www.chatandvision.co.uk) |
| RAD Vision VC 240 Video Conference Unit | €2700 www.meritec .ie |
| CD player and music CDs | €60 (www.currys.ie) |

Total hardware costs for 1 physiotherapist (€ 3,220) and 6 patients in centre. One home patient will cost € 3,680 to € 3,880 so that equals €7,100 with one patient at home. Add € 3,880 for each additional patient at home.

Note: price will fluctuate as patients may have existing broadband connection etc.

# SWOT ANALYSIS

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| **Strengths** | **Weaknesses** |
| * Existing technology infrastructure * Individualised approach to personal care * Participatory healthcare * Continuous improvement of technology, healthcare * Reduced waiting time | * Limited technology, TV, broadband * Differences in wireless broadband speeds * Technology breakdown * Patient motivation |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * Increased community contact * Development of monthly/annual training programs * Professional mentoring * Motivation by peer supervision * Community bridging * Social: elimination of isolation/loneliness through group participation for elderly * Technology can be used for other clinical, social services | * Time needed for installation of broadband services where not existent * Poor coordination and planning * Patient attendance/motivation |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

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| IMPORTING COUNTRIES |
| Sweden, county of Västerbotten, primary care level. |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| Primus, the prime care unit for specialised physiotherapy in Umeå is the base where the specialized physiotherapists work. Physiotherapy in groups will be offered to patients in remote areas in their home or if necessary at their local healthcare centre anywhere in the county. |
| ISSUES FACING THE SERVICE CURRENT |
| * Patients who are referred to Primus are mainly chronic pain patients and also patients with multi morbidity such as CPOD, stroke and heart diseases. * The patients are referred to the physiotherapists at Primus from their local Healthcare centre. The Physiotherapists at Primus work mainly in groups, because of its beneficial effects. The average number of sessions/week is 100. Every day there is one group session with 8-10 patients. For travelling and fatigue reasons the group meets only once a week. * Sessions are cancelled due to the patients’ day to day conditions. Especially patients with multi morbidity. As many as 25-30 % of the sessions are cancelled or rebooked for fatigue reasons. * But there are also patients who totally refrain from group treatment because of long travelling distances. Group training near home is not an option because it is difficult for the Healthcare centres in remote areas to form groups of patients with similar needs. * Resources are not used in an effective way. * Many patients hesitate to exercise without supervision for fear of doing more harm than good. |
| CLINICAL NEED |
| Training under supervision enables the physiotherapist to correct the individual patient, prevent negative compensatory behaviors and help them to overcome fears.  * Supervised training has a well-known effect on the patients’ confidence and motivation to keep training after the therapy period. * Physiotherapy with intensive training in a shorter period, i.e. 4-6 weeks, has shown to be a good practice especially in groups. Most patients of the target groups in remote areas cannot receive specialized physiotherapy in a group. These patients are offered fewer face to face sessions individually. * The overall clinical need is to enable more equal access to rehabilitation. |
| BENEFITS TO PATIENTS |
| * At least double amount of sessions compared to face to face. * Less travelling at least 8 return travels /patient. * Patients can stay at home for training. * Equal access to rehabilitation. * Training in groups gives new contacts. * The individual patient can meet other people with similar difficulties. * Family and personal assistants can get information in real time from a physiotherapist. |

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| BENEFITS TO HEALTHCARE STAFF |
| * More effective use of resources at Primus * More patients can have group training at Primus * Home patients can receive group training and thus have more sessions * Fewer cancellations or rebooking. * More patients can fulfil a planned therapy period leading to long lasting outcome with more confident and satisfied patients. * Professional satisfaction. * Less public costs for patients travelling = on average each patients travel 100 km one way at public cost of 100 Skr per 10 km = 160 000 SKR per patient/ year = 18200 Euro. * Cost for one goods transportation of 100 km is about 1060 skr, = 120,5 Euro. Usually there are four goods / transportation. One VC in a case will then cost 265 skr to deliver and another 265 skr to collect, = 30 + 30 Euro/patient = a total of 1800 Euro * Some patients might be able to bring the VC unit home with help from family. |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| 1 VC system with HD quality and remote zooming function at Primus.  * A “studio” at Primus adapted for physiotherapy by video in real time. * 5 portable VC systems with HD quality and easy to install in the patients home. We will use existing procurement agreement “Commentus” and have chosen four WX90 and one EX 60. * 5 transport cases. * Oximeters to send pulse and saturation data in real time to the physiotherapist. * Oximeter data from all patients. Different solutions will be tested. |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| * The Healthcare board in Västerbotten recommend increased use of telemedicine. * Västerbotten has adequate and safe technical infrastructure. * Primus has VC system with adequate standard and a suitable room. * Primus staff has knowledge and experience in using the VC system. * Technical support is available. * Healthcare staff in remote areas has many years experience working with telemedicine. |
| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| * 30 – 40 patients will receive one group training period of 4-5 weeks, 2 to 3 sessions/week each time 30-40 minutes. A total of 6 - 8 training groups during the project time. * Follow up will be done face-to-face at Primus or by VC at local healthcare centre. |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| * The project involves all four physiotherapists at Primus * No Health care staff required except for the physiotherapist * In most cases no IT technician for installation * If the patients cannot manage themselves to connect to the electric and the broadband contacts it is easy for anybody around them to help * For those who attend a group at the healthcare centre the receptionist will have to show them in. |
| TRAINING REQUIREMENTS |
| Staff:   * The physiotherapists at Primus have basic knowledge about how to use the technology. * Seminar for mutual discussions with staff from other ITTS project after some months’ experiences.   Patient:   * Patients must have an introduction of how to use the equipment; a manual will be put into each travel case. This is included in the procurement. * The home units will be pre programmed for easy connections. |
| Timescale for implementation (Please include equipment procurement, training etc) |
| No special procurement procedures, existing agreement can be used.  * Order and delivery time for the VC systems is estimated to four to six weeks. * Implementation can start between June and August 2012. |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| No |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| Group Therapy in homes requires certain considerations such as    * Patients must be fully aware that they and part their home are visible to the other patients in the group |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| No |

***Double click to access the excel spreadsheet below***



# 18 SWOT ANALYSIS

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| **Strengths** | **Weaknesses** |
| * The Health care board in Västerbotten recommend increased use of telemedicine * Highly motivated physiotherapists at Primus * Transportation service is not a problem, VLL sends other equipments to patients’ homes, the same routines will be used. * Experiences from former projects show that most patients accept to have a VC equipment in their home for some weeks * More effective use of Primus resources. * Good infrastructure and technical support for staff * No rest values for the Primus clinic. Costs are under the investment limits. * Costs for delivery and installation of the home-units are considerably lower than similar costs in other projects when a technician has delivered the home-units. | * Technical adaption for connection of an oximeter is not solved. Different possible solutions will be tested. * Lack of coverage of broadband net in the sparsely populated remote areas. This will be addressed using mobile network and a router in the patient’s home. * Technician is needed for installation. * Today we know very little of the effects of our implementation; We rely on the good effects from national and international projects in the field. * We don´t know if the transportation services are sufficient. |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * This project gives a strong push forward to in-home rehabilitation by video * Other rehabilitation professions will see the benefits of this working model * Other professional staff around the patients will learn more about what physiotherapy can do for patients with chronic conditions * Community bridging * Social, elimination of isolation/loneliness through group participation for elderly. | * Costs for transportation is now in a central budget and does not affect the clinics, but this will change in a year or two. There is a risk that the budget for transportation of the VC units will not be covered. * From 2013 a new organisation of healthcare services in the communities will change the existing responsibilities for patients with multimorbidity. This may arouse questions about responsibility for costs and the need for telemedicine services. |

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| IMPORTING COUNTRIES | |
| Northern Ireland | |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) | |
| Southern Health & Social Care Trust – COPD Team for pulmonary rehabilitation across entire Trust locality. | |
| ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) | |
| Due to rural nature of some areas within the Southern Health and Social Care Trust this causes difficulties for patients to attend clinic. Therefore pulmonary rehabilitation Classes cannot be offered to all patients because of long distances from their home to clinic. It is often difficult to establish groups in each of the geographical areas within the Trust.    Professionals have reported that patients are reluctant to exercise on their own as they feel they need supervised to ensure they are doing their exercises correctly. | |
| CLINICAL NEED | |
| Pulmonary rehabilitation is effective in treating COPD. This rehabilitation combines physical exercise with education and is currently undertaken in hospital or clinic-based group led by a Physiotherapist. The support of the group is deemed very important. However, distance of travel and mobility/transport problems means that some patients are unable to attend rehabilitation.Supervised exercise classes enable the physiotherapist to see each patient and correct the individual exercise technique if required and provide patient confidence to exercise.Evidence suggests that group exercise has a positive impact on patient’s confidence and motivation and patients tend to continue an exercise regime outstand of the group and after the planned group sessions come to an end.Patients living remotely can be offered group therapy but in many cases this is an impossibility do to travel distances for patients. Therefore there is a clinical need to provide a more equitable pulmonary rehabilitation service to the entire Trust population. | |
| BENEFITS TO PATIENTS | |
| * The ability to attend group-based pulmonary rehabilitation in their own homes * Improved accessibility * Less travelling * Equal access to rehabilitation * Patients can stay at home for therapy * Training in groups gives new contacts * The individual patient can meet other people with similar difficulties * Family and personal assistants can get information in real time from a physiotherapist * Educational sessions can be provided as part of the exercise class | |
| BENEFITS TO HEALTHCARE STAFF | |
| * More effective use of staff resources * Fewer cancellations * More patients can fulfil a planned therapy period leading to fewer sessions per patient * Education can be built into the exercise programme which will assist the patients to better look after themselves, thus reducing the need for therapy over a longer period. | |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) | |
| Videoconferencing systems to be installed into 6 patients homes and connected to their TV and internet 1 VC system with HD quality and remote zoom-in function to be located in one of the established vc rooms within the trust or will be a PC based system at the Therapists base.   |  |  | | --- | --- | | **Hardware/Software** | **Description** | | **Patient Hardware** | * 6 VC unit * 6 Pulse oximeter | | **Physiotherapist Hardware and Media** | * Desktop PC * Webcam, * Speakerphone * Video screen, * Support screen, * CD Player; and * Music CDs. | | **Software** | * hardware equipment for both patients and physiotherapist needs to be able to operate using the existing VC software currently being used by the Trust. It is envisaged this will be stipulated in the requirements for the VC equipment. | | **Communications** | * Installation of broadband links in patient’s home if required. |   **Procurement Issues**  Commissioning and decommissioning, training and maintenance of the equipment – there is currently no capacity for IT staff to commission/decommission (deliver, install/uninstall and test) the VC equipment in the patients home; train the patients in the use of the VC equipment as well as carry out required maintenance. It is envisaged that this service will be procured as part of a “Managed Service”.  Hardware costs and depreciation – for the service to start up, it is envisaged that the costs of buying equipment may be quite prohibitive and may not allow the project to scale to the desired numbers of patients within the required timeframe. It is envisaged the lease/rent if the equipment is an option and may be procured as part of a “Managed Service”. It also means that the Trust does not have to manage the depreciation, obsolesce and disposal of the equipment when it reaches the end of its lifecycle. In the unlikely event of the project being discontinued this contract for the managed service can easily be terminated.  Buying solutions website – Buying Solutions is a UK government procurement services organisation with various service frameworks that are pre-tendered and fully EU-compliant.  Early investigation show that there are a number of service frameworks under the Telehealth that provide Managed Service frameworks that are capable of delivering to the service required within Northern Ireland. There is a EU-compliant process for carrying out the procurement on the website [www.buyingsolutions.gov.uk](http://www.buyingsolutions.gov.uk) which will enable all suppliers with the frameworks to respond to a required set of requirements. | |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? | |
| See above for leasing/rental of equipment and the Managed Service approach | |
| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| 6 COPD patients in the first instance undergoing a twice monthly 8 weeks exercise session approximately 18 patients over the course of 6 months |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| No increased staffing is required as the use of VC will reduce travelling time and this time can then be reallocated to patient training.  The equipment should be all set up to make seamless for the patient/carer to operate. Should the patients not be able to manage to connect to the power and the broadband contacts by themselves, their carers can be trained to assist. |
| TRAINING REQUIREMENTS |
| Staff and patient training on the use of equipment – as outlined in the procurement section. |
| TRAINING REQUIREMENTS |
| As above |
| Timescale for implementation (Please include equipment procurement, training etc) |
| Indicative timescales are as follows:  Procurement – 1.5 months (June –Mid July 2012)  Protect planning and testing – 1 month (August 2012)  1st patient on project/project commencement – end September 2012  Service operational – 6 months October 12 – January 2013 |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| Consent – new episode of care |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| Patients must be fully aware that they and part their home are visible to the other patients in the group |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| NO |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWOT ANALYSIS

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| **Strengths** | **Weaknesses** |
| * Trust has commenced clinical engagement and project has been received positively. * Trust has identified a Champion for this project * Senior management and practitioner buy in * Project can reduce costs and deliver improved clinical benefits to patients. * Exercise more enjoyable as a group – social aspect | * Patient experience and confidence in using VC and internet |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * Recommendations set out in ‘Transforming Your Care’ – focus on technolnogy * Available EU-compliant procurement service frameworks to start at a low cost basis. * Other rehabilitation professions will see the benefits of this working model | * Ability to recruit patients – patients do not buy in to the new service * Technology doesn’t deliver and causes problems * Model does not work and therefore not sustainable |

For instructions on using SWOT Analysis, visit [www.mindtools.com/rs/SWOT](http://www.mindtools.com/rs/SWOT)

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| 1. IMPORTING COUNTRIES |
| Finland |
| 2. WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| * Oulu Arc Joint Area (partnership for health and social care services in five municipalities in Northern Finland (Ii, Pudasjärvi, Simo, Utajärvi, Vaala)) * Near sides will be in patients’ homes in two or three municipalities: Utajärvi, Vaala and Ii. * Far sides will be in Utajärvi service centre for elderly people (psychosocial and physical rehab) and in Ii health care centre (physical rehab). |
| 3. ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) |
| * lack of rehabilitation services for home care patients (having chronic conditions such as stroke, heart diseases or multimorbidity patiens) * many home care patients are enable to travel to service centres due to frailty and long travel distances * rehabilitation home visits are restricted because of few staff resources and long distances |
| 4. CLINICAL NEED |
| * Elderly people are wanted to stay at home as long as possible * Functional ability of home care patients will be worsen without training * Group therapy via VC can be an efficient way to improve physical and psychosocial performance |
| 5. BENEFITS TO PATIENTS |
| * Patients do not need to travel to attend rehabilitation * The classes are designed so as to provide physical and psychosocial rehabilitation for improving physical performance, reducing loneliness and advancing cognitive performance |
| 6. BENEFITS TO HEALTHCARE STAFF |
| * Physiotherapist and social worker can deliver classes from a central location thus minimising travel * Efficient resource utilization * General practitioners and nurses can use same technology in their purposes |
| 7. TECHNICAL REQUIREMENTS HARDWARE  Patient:   * PC: HP Touch Smart 600 24” * Webcam: Logitech Pro 9000 * Speaker-microphone: Clear One Chat 50 (or 150)   Physiotherapist:   * PC: Desktop PC * Video screen: 36” or wider * Support screen: 24” * Webcam: with zoom and control (for example Canon VC-C50i) * Usb-adapter for video (for example Grabbeex) * Speaker-microphone: Clear One Chat 50 (or 150)   Social worker:   * PC: Desktop PC * Screen: 24” * Webcam: Logitech Pro 9000 * Speaker-microphone: Clear One Chat 50   SOFTWARE   * Operating system: Windows XP / Windows 7 * VC client: Arctic Communicator v 1.94 or later   BROADBAND   * minimum ADSL 2 / 1 Mbs * mobile connections (3G) does not work well enough |

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| 8. JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable)Is there existing equipment that can be used? |
| * VC units suitable for patients already exist. * The physiotherapist and the social worker will be able to use existing VC units |
| 9. HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| * 12 (in two groups: 2\*6) home care patients with chronic conditions (stroke, heart disease, arthritis) |
| 10. STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| * Technical staff to install equipment * 1 Physiotherapist * 1 home care social worker |
| 11. TRAINING REQUIREMENTS |
| * Patient, caregiver and home care staff training * Physiotherapist and social worker already can use VC |
| 12. Timescale for implementation (Please include equipment procurement, training etc) |
| * Project planning from June to August, patient recruiting and testing in August * Technology installation in August. * Rehabilitation classes from September to December 2012,(first group, 15 weeks) and from January to April 2013. * End testing in May 2013. * Evaluation and report writing from June to September 2013. |
| 13. ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| No |
| 14. ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| Yes.   * How to guarantee patient safety, when they practice alone in home - home assessments before rehabilitation, home care staff and caregiver familiarisation * Patient privacy protection. They must understand clearly that their homes are visible to others - clear explanation to patients * Patients cannot choose other rehabilitation services, like physiotherapist home visits – no alternative can be provided |
| 15. ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| YES   * How to maintain social interaction between patients in VC environment -> group instructor (physiotherapist or social worker) must encourage patients to talk * How to take notice of caregivers and how to inform them -> home visits before rehabilitation, caregivers participates in visits |

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| 16. COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# 17. SWOT ANALYSIS

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| **Strengths** | **Weaknesses** |
| * The existing, good functioning technology * Health and social care professionals are used to use   VC technology in their work   * Good co-operation between home care and   rehabilitation services | * Limited broadband in the most rural areas * Patient recruitment and vs unit installation takes much time * Physical training is somewhat limited, because manually control is not possible |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * Technology can be used for other clinical and social services. * 4G network is just now coming to be available and   it might solve problems with broadband   * Rehabilitation services are available for the most vulnerable home care patients * Home care patients can be treated with less costs * More people can live in their own homes | * Patient attendance and motivation * Too little project staff * Funding questions concerning home based VC units and broadband |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

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| IMPORTING COUNTRIES |
| Scotland - Highland |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| Service delivery will be based on the “Hub and Spoke” model with a central unit (s) being utilised to allow Physiotherapy staff to deliver sessions at remote sites. Hub sites will vary depending on equipment secured.  The delivery of the service will be to Physiotherapy Gyms/appropriate rooms across the area. The main ‘hub’ locations identified as feasible for locating this service are:   * Fort William Health Centre - Physiotherapy Gym * Caithness General Hospital - Physiotherapy Gym   Possible ‘spoke’ sites are:   * Portree Hospital, Skye - Physiotherapy Department * Broadford Hospital Skye - Main Physiotherapy Room * Lawson Memorial Hospital, Golspie – Cambusavie Unit * Migdale Hospital, Bonar Bridge   Ideally it should be possible to switch the hub about to at least some extent across the wide geography to make best use of staffing and patient needs. |
| ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) |
| NHS Highland (North) established pulmonary rehabilitation programmes in the community in 2008. There are challenges for this service particularly in remote and rural areas where it can be difficult to sustain classes due to small numbers of patients scattered across a large area, availability of health professionals, costs associated with travel and winter conditions. These patients can lose out on the health benefits from such classes and also the social interaction that they provide. NHS Highland is striving to provide therapeutic interventions as close to or into patients homes via a technological medium in order to provide a service, and use staff resource effectively and equitably.  Access to VC equipment in a place suitable for rehabilitation use is difficult due to increased demand for each unit or those that are available are in sites that are not suitable. |
| CLINICAL NEED |
| * Deliver therapeutic intervention across remote and rural geography   + Pulmonary rehabilitation is effective in treating COPD and thus people with COPD are advised to exercise regularly.   + Cardiac patients   + Falls * This rehabilitation is often delivered in classes due to the importance of the social interaction and support also. However, in Highland, it has been recently established that 47% of COPD patients live remotely to rehabilitation facilities. It is important for Highland to identify a means to reach these patients to ensure an efficient, effective and equitable service. * In remote areas, however, patient numbers are often too low to run exercise classes. A means to deliver a class to the patients local centre will enable a class to be formed ‘virtually’ and be a more economic method of delivery. * Promote self management – encourage patients to regularly exercise * Maintain/ deliver a quality service – adopting services with an evidence base (remote pulmonary rehabilitation programmes are now routine service in NHS Tayside and NHS Lothian areas.   Ref: A full report can be found at [www.sctt.scot.nhs/pulmonaryrehab.html](http://www.sctt.scot.nhs/pulmonaryrehab.html) ) |
| BENEFITS TO PATIENTS |
| * Patients do not need to travel far to attend a class and is more convenient * The classes are designed so as to provide social interaction for patients thus reducing social isolation * Patients realise health benefits from taking part in exercise classes for COPD * Patients also benefit from education delivered at the end of the session * Patient exacerbations and anxiety is reduced * Patients are empowered to look after their own health and have greater independence |
| BENEFITS TO HEALTHCARE STAFF |
| * Staff can deliver classes from a central location thus minimising travel. Time freed from travel enables more patients to be seen. * Staff will be able to deliver therapy to groups of 8 patients at each site across several sites up to 24 patients at one time. * Staff can use the sessions to deliver education to patients also * Staff can assess patients wellbeing and identify additional needs in these sessions that may have gone undetected * Service delivery is cost effective whilst benefiting an increased number of patients who may not have access to this service |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements |
| Remote centre (spokes) Each spoke requires:   * CISCO room based VC unit with trolley and screen * NHS Highland network connection * Exercise equipment   **Physiotherapist (hub):**  Standard NHS Highland room based system   * CISCO room based VC unit with trolley and screen * Music player   Depending on the final location there may be a requirement to install network points. |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| * This project will utilise the NHS Highland VC network infrastructure. * In some locations it may be possible to utilise existing VC units. However, most VC units are sited in locations not suitable for exercise classes. To ensure maximum take up by clinical staff and to minimise technical difficulties in setting up classes it is recommended that 3 dedicated VC units are initially made available for this service which will be located in health centre gyms. This will allow for full flexibility in planning and best use of overall resource. * This service is difficult to run in remote locations in NHS Highland as low numbers make formation of classes unfeasible. Many patients therefore do not benefit from the rehabilitation classes provided in group sessions. Savings to the NHS will come from the reduced number of hospital admissions through better health in this patient population. * Where this service is available physiotherapists could now offer the class to a larger number of patients via VC thus reducing their travel costs and saving their time. * It is proposed that 2 units are purchased by the ITTS project. * NHS Highland will make available one other unit for the initial project phase (2 spokes and 1 hub). * NHS Highland and the physiotherapy service will need to consider how to continue to fund further development of the service. * Existing exercise equipment will be utilised.   **Note:**  This business case has recommended the use of CISCO VC units to deliver this service. However, other equipment options have been used in other areas in Scotland. This project will review any evaluation work done on these other services and may make changes to the equipment specifications here. Changing the equipment choice is not expected to incur additional costs. |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| * Maximum of 24 patients at any one time. * On a rolling basis, classes would be run to include 16 patients across sites at any given period of 8 week rehabilitation. |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| * 1 Physiotherapist for each class * VC professional to manage VC bridge and technical issues * Support staffing requirements at the remote sites to help patients and to start VC |
| TRAINING REQUIREMENTS |
| * Physiotherapist VC training * VC training for support staff * The patients will be brought into the centrally based physiotherapy gym for an initial session to familiarise them with the routine. |
| Timescale for implementation (Please include equipment procurement, training etc) |
| Highland will phase in remote based rehabilitation classes by firstly linking sites where the patient need is greatest (in terms of numbers) and broadband speeds ensure high quality VC connections. Once this has been accepted by patients and staff the next stage will be to implement this more widely across Highland, in some cases relocating VC units or possibly purchasing more. This can also align with the roll out of super fast broad band across Highland. This will ensure an equitable service for all Highland patients. The long term goal will be the provision of home based remote rehabilitation classes.   * Remote rehabilitation delivered to two local health centres (spokes) from a hub location - December 2012 * Extension to one other spoke in Highland – July 2013 * Relocation of hub and spoke sites demonstrated – July 2013 |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| NO |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| YES  Patient safety   * All classes are on NHS property with health professionals available should it be required. * Patients at the ‘spoke’ ends will have a support worker accompanying them during the class. * The Physiotherapist will be able to observe all patients and ask them questions should anybody feel unwell. * All classes are in gyms designed for such an activity |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| YES   * Important to maintain group based classes to ensure patients have social interaction. * A patient may not like to view their health professional via a VC screen, preferring ‘face to face’. However, in many cases this is a service they currently do not have so this will be regarded as a positive addition to their care. |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWOT ANALYSIS please input to

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| **Strengths** | **Weaknesses** |
| * Patients who would be unable to benefit from remote rehabilitation can now take part in classes * Classes are group based so social interaction is maintained * Physiotherapist can use the VC connection to deliver education also * 1 Physiotherapist can potentially deliver a class to up to 24 patients at one time * NHS Highland has growing expertise within clinical staff in using VC | * Variation in broadband speeds may limit where classes can be run |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * Further develop the service into patient’s homes * Super fast broad band roll out in Highland will enable wider implementation * Implementation in Orkney * Expand usage to other patient groups such as cardiac rehab or pain management classes | * No additional funding is made available for further implementation in other sites which will limit the flexibility of this service * Funding not available to meet recurring costs |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

**PROJECT 9: Remote Rehabilitation Classes: Swedish update**

**SECTION 3**

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| IMPORTING COUNTRIES |
| Sweden |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| Sweden Long-term Pain Rehabilitation dep. (LPR) at Umeå University Hospital and in the patients’ home. |
| ISSUES FACING THE SERVICE CURRENT |
| There is a referral compulsion to the LPR team and 85% of the patients are referred from all Healthcare centres in the whole County. The patients are mainly in working ages, 18-65 years on average 42 years.  The Treatment program includes Specialised Physiotherapy in a group, Basic Body Awareness Therapy BBAT, a method with evidence of good results for patients with Long-term Pain conditions. It offers a prolonged therapy period for the LPR outpatients.  The therapy is performed in groups. Most patients who participate live close to Umea city. Due to long distances only a few patients from remote areas participate. If they do they stay at the patient hotel.  Statistics show that only 25% of the outpatients, who would benefit, participate in the Physiotherapy treatment program, i.e. 80 patients out of the 320 referred /year.  There is an obvious unequal access to this kind of specialised Physiotherapy. |

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| CLINICAL NEED |
| Possibility to offer patients in remote areas BBAT Physiotherapy in a group.  The BBAT-method enables a deepened rehabilitation process and the advantage of evaluating results within the group.  Training in a group has a well-known effect on the patients’ confidence and motivation to keep training after the therapy period.  Prolonged therapy period strengthens the treatment per se and enhances the outcome.  Using video-links you can reach patients living in remote areas.  Also be able to offer individual contacts with the other professions in the rehab team.    The overall clinical need is to enable more equal access to rehabilitation. |

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| BENEFITS TO PATIENTS |
| Equal access to rehabilitation  Patients can stay at home for therapy  Training in a group  Prolonged training periods  More sessions than offered today  Time saving therapy model |
| BENEFITS TO HEALTHCARE STAFF |
| More effective use of resources at the LPR dep.  Fewer cancellations  More patients can fulfil a planned therapy period leading to fewer sessions per patient  More confident patients  Less public/County costs for patients travelling |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| 1 VC system with HD quality and remote zooming function A room at the clinic adapted for physiotherapy by video in real time  4-6 portable VC systems with HD quality and easy to install in the patients home  4-6Transport cases |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| The LPR dep. has a VC system with adequate standard.  The Healthcare Intranet in Västerbotten provides good infrastruture  Technical support available |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| There is a referral compulsion to the LPR team and 85% of the patients are referred from all Healthcare centres in the County. The patients are mainly of working age, 18-65 years on average 42 years.  20-25 patients including about 12 on distance. A therapy period lasts about 4 weeks. |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| Two regular Physiotherapists  No Health care staff required except for the physiotherapists  Technician from the Medical Technical dep. installs the VC system in the patients’ home. |
| TRAINING REQUIREMENTS |
| The physiotherapists have a basic knowledge about how to use the equipment.  A international seminar for mutual discussions and hands-on workshop will be held in September 2013. |
| TRAINING REQUIREMENTS |
| No training required The Physiotherapists have some earlier experience. |

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| Timescale for implementation (Please include equipment procurement, training etc) |
| No special procurement procedures, existing agreement can be used Order and delivery time for the VC systems is estimated to four to six weeks  First group in may 2013. |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| NO |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| Group Therapy in patients’ homes requires certain considerations:    * The Patients must be fully aware that they and part of their home are visible to the other patients in the group |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| No |
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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets)  |  |  |  |  | | --- | --- | --- | --- | | One (1) unit CTS-EX60-K9 | EX60 - NPP, Touch UI | 4 157 Euro | ITTS | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | Four (4) units CTS-EX90-K9 | EX90 - NPP, Touch UI | 16 628 Euro | ITTS | |
| |  |  |  |  | | --- | --- | --- | --- | | EX 60 service | Partner Core-Bridge NBD 1 år service | 497 Euro | ITTS | | EX 90 service | Partner Core-Bridge NBD 1 år service | 7 819 Euro | ITTS | | Installation |  | ? | VLL | |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWAT ANALYSIS

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| **Strengths** | **Weaknesses** |
| The Health care board in Västerbotten recommend increased use of telemedicine  Highly motivated physiotherapists and clinic lead  Transportation service is not a problem, VLL sends other equipments to patients homes  Experiences from former projects show that most patients  accept to have a VC equipment in their home for some weeks  VC rooms at the healthcare centres will not be used.  (high booking already)  Possibility to expand and increase production with existing resources and no additional costs for patient hotel  and travelling. | Lack of coverage of broadband in the remote areas  This implementation does not cover the needs of all patients  in rural areas  Late start might lead to few patients for the study and  unforeseen problems might come up |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| This project gives a strong push forward to in-home  rehabilitation by video  Be able to fit in with individual contacts while the system is  at the home of the patients  To be able to offer all continuation groups BBAT training  by video  Facilitate inter disciplinary teamwork  Open up for new working models within rehabilitation  More cost-effective use of resources | Remaining costs, if any, for investments is not solved.  Costs for installation of the home units after the project is not solved.  Maybe a future solution is that the patients pay a fee  for having an equipment at home  Challenge for the Physiotherapists to keep contact with everybody especially if some patients are taking part face to  face and some are on video. |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

Project 10 Home-based service delivery for patients with multimorbidity

**PROJECT 10:**



**HOME BASED SERVICE DELIVERY FOR**

**PATIENTS WITH MULTIMORBIDITY**

CONTACT: Matti Matero

**BUSINESS CASE**

**SECTION 1**

**SECTION 1 TO BE COMPLETED BY THE DEMONSTRATOR PROJECT TEAM LEADER**

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| **LIST THE EXPORTING COUNTRIES** |
| **Northern-Ireland**  **Scotland** |
| **LIST THE COUNTRIES IMPLEMENTING OR EXPANDING THIS SERVICE** |
| **Sweden**  **Finland** |
| SUMMARY OF SERVICE  The aim of exported services is to expand the use of technology to support long term conditions and to develop local staff expertise to use remote monitoring in patient care. The clients are mainly elderly who use assistive technologies in improving their quality of life taking greater control of their life and enabling them to remain as independent as possible within their own home and within their chosen way of life. This is particularly so for those who live alone and in rural locations.  Sweden will implement this kind of service with Waran patients and elderly patients with heart and/or lung conditions who are controlled in or near home and blood pressure follow ups. Main issue is general lack of specialists in the rural areas, long distances and a heavy workload at the healthcare centrals in the county who are ordered to have 15000 more visits every year to reduce the visits to the hospitals.  Finland has some experiences of using video conferencing in home care of elderly patients (virtual home care). They are interested in expanding virtual home care to enable patients to remain at their own homes but supporting their life by monitoring care and having more social interaction. |
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**SECTION 2**

**EXPORTING PARTNER(S) COMPLETE SECTION 2 ONLY**

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| PLEASE DESCRIBE THE SERVICE CURRENTLY IN EXISTENCE (this can be taken from ‘services in existence’ document ITTS-00040) |
| **Scotland**  The Argyll & Bute Telehealth Project evolved from an existing telecare service, supported by the Scottish Government Joint Improvement Team. In May 2007 several telehealth companies were invited to present to a project steering Group.  The project aims were: to expand the use of technology to support long term conditions; to develop local staff expertise to use remote monitoring in patient care; to expand the specialist knowledge available by developing practitioners with a special interest in the project areas; to assist patients to manage their long term conditions; and to link this work to reduction in crisis admissions to hospital.  The steering group wished to pilot home monitors for COPD and surgery and community telehealth monitors in accessible locations. A delay in implementation ensued as the commercial supplier initially chosen was subsequently de-selected due to concerns regarding procurement. A new supplier (Telehealth Solutions Ltd®, Watford UK) was engaged to provide equipment and logistical support for the initiative.  Three types of systems or “Pods” were installed: home monitoring, surgery monitoring and community monitoring. Home Pods were installed for 17 COPD patients in March 2009 with touch screen facilities to enable daily clinical monitoring. Symptom reports and measures such as oxygen saturation were sent by wireless or broadband to the Telehealth Solutions® secure server, maintained behind the NHS firewall. Nominated community nursing teams checked a website daily and were alerted to changes in the patient’s condition. The overall findings of the evaluation were positive and supported continuation of the telehealth scheme. The home pods have been well received and effective. There was a reduction in hospital admissions observed for COPD patients.  **Northern Ireland**  TelemonitoringNI Managed Service was procured by ECCH on behalf of the 5 Health and Social Care Trusts in Mar 2011. This regional service is capable of providing telehealth monitoring up to 3500 patients over a 6-year period. It will enable the collation of patients' vital signs from their home, for conditions such as diabetes, COPD, CHF and secondary prevention of stroke management.  A dedicated nursing triage team will provide first line support to the patients when their vital signs exceed set thresholds which trigger an alert. During the triage process the nursing team will make contact with patient to discuss their readings as well as provide them with relevant support and patient education. The triage team will also use their clinical judgement and where appropriate pass on the results of their assessment to local response teams based in the Trusts. The patient’s nurse and/or doctor will have access to these readings and other information; and will be able to view them on their computer screens. They will then make contact with the patient and take appropriate actions.  Patients/carers will also be able to review the readings via a portal which will also have links to relevant websites pertaining to their condition.  Throughout April – November 2011, a number of workshops have been organised to further refine the requirements and develop the service including an online referral form, clinical and activity reporting. In addition various other protocols, process/procedures and plans have been developed ranging from Clinical protocols to Business Continuity/Disaster Recovery plans.  TelemonitoringNI Service went “live” on the 8th December 2011 and for April ’11 – March ’12, nearly 1,400 people have received telemonitoring; including patients on telemonitoring pilots implemented prior to Telemonitoring NI.  A website to provide information about the service to patients/carers as well as health professionals is being developed (www.telemonitoringni.info) and will be launched in the near future.  Future developments are being planned – discussions on additional conditions for monitoring such as hypertension will commence in the near future.  We are also commencing work to commission an independent evaluation of TelemonitoringNI. |

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| BENEFITS TO PATIENTS |
| **Scotland**   * Satisfaction with the use of telehealth pods in Argyll & Bute was generally high. * Use of home pods for COPD showed greatest satisfaction. * Patients found the pods easy to use and reported that they improved their awareness of   their health condition.   * Numbers and duration of hospital admissions for COPD declined during the use of the pods. . Due to the small sample size and relatively short period of use this cannot be considered statistically significant. * Patients reported added convenience in having the surgery pod; they could have their blood pressure taken without making an appointment for example.   **Northern Ireland**   * Added peace of mind that their condition is being monitored * Greater understanding of their condition and how to manage it * Greater freedom to get on with their day-to-day lives without the fear that their condition is deteriorating * Less risk of unplanned admissions to hospital * Less need to have contact with a clinician if their condition is stable * Reduced anxiety for their carers and family |
| BENEFITS TO HEALTHCARE STAFF |
| **Scotland**   * The healthcare staff were very positive about the homecare pods. * Staff believed that in the longer term telehealth home pods would make managing the   Patients’ condition easier.   * Staff identified potential benefits of the surgery pods. They felt it was too early to comment at the time of the evaluation. * Visits to surgery can be reduced.   **Northern Ireland**   * Telehealth can alert clinicians to early warning signs of clinical deterioration experienced by the patient (through monitoring of the patient's vital signs and their responses to programmed questions about their condition and wellbeing) * It can be used to provide information which may be useful in considering changes to therapy and treatment regimes. * It can provide them with improved and timely patient information, which in turn will aid clinical decision making. |
| TECHNICAL REQUIREMENTS (broadband) Hardware requirements, Software requirements |
| **Scotland**   * Home pods can function using a telephone landline. * Patients and carers need a PC if they want to see patients data. * Broadband required for community and surgery pods. * Communication is via GPRS. GPRS (General Packet Radio Service) is a method of enhancing 2G phones to enable them to send and receive data more rapidly. With a GPRS connection, the phone is "always on" and can transfer data immediately, and at higher speeds: typically 32 - 48 kbps. An additional benefit is that data can be transferred at the same time as making a voice call. GPRS is now available on most new phones.   **Northern Ireland**   * Home hubs using telephone line or mobile units using mobile phone networks for those without telephone lines * Peripherals such as Pulse Oximeter, Blood glucose meter, Weighing Scale, Thermometer and Blood Pressure meters * Healthcare staff can view data from a PC * Patient and carer can view data from a web-based patient portal using a PC |

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| STAFFING REQUIREMENTS |
| **Scotland**   * Staff will be needed to install the telehealth units and sensors, including explanation and reassurance to patients and carers. * Some areas have utilised staff from ‘housing’ and locally available ‘handy person’ schemes to install equipment. * Local staff will be needed to respond to technical issues such as low battery   problems.   * Staff will need training in the understanding and use of telehealth. * Mechanism to recruit service users. * Staff need to embrace potential changes to the organisation of their work   **Northern Ireland**   * This is a Managed Service managed by the supplier which includes installation of equipment in patient’s home, training of patients as well as maintenance and deinstallation of equipment * Managed Service provider also provides clinical triage team who are nurses * Healthcare professionals will be trained on how to access patients data and print reports * Healthcare professionals will refer patient and take necessary actions when clinical triage team escalates alert/warnings to them |
| PROBLEMS / ISSUES ENCOUNTERED |
| **Scotland**   * Telehealth initially increased the workload of staff because this group of patients were normally supported by the surgery rather than community staff. * The community pods in the sheltered housing were underused. * There were technical issues with the community pod on the island of Luing.   **Northern Ireland**   * Clinical engagement as not all healthcare staff considers Telehealth works * Demand for “evidence” to be localised * Greater awareness of the service |
| EVALUATION DATA (include details and results of any evaluation undertaken) |
| **Scotland**   * Evaluation of the use of telehealth in Argyl & Bute.   **Northern Ireland**   * An evaluation will be commissioned as part of the project - a number of smaller pilot evaluations have been carried out in 2009 – see excerpts of information below.   Table 3.2: Patient Feedback on Benefits – all Trusts   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Patient Feedback on Benefits** | **Strongly Agree** | **Agree** | **Disagree** | **Strongly Disagree** | **N=** | | The monitoring system assisted me in managing my health on a day to day basis | 42% | 49% | 8% | 1% | 114 | | The remote monitoring system has reduced the number of visits I made to my GP | 41% | 41% | 16% | 2% | 105 | | I believe my own monitoring of my condition has reduced the number of nurse/ community team/health professional visits | 36% | 44% | 19% | 1% | 104 | | I believe that during the monitoring period, the remote monitoring system prevented my admission to hospital or need to attend A&E Services (and/or GP Out of Hours) | 30% | 45% | 21% | 4% | 105 | | The remote monitoring system has enabled me to better manage my own condition and become more involved in my health care | 38% | 49% | 12% | 1% | 112 |   Table 3.7: Carers providing Feedback on Patient Benefits and ease of use   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Patient Benefits | Strongly Agree | Agree | Disagree | Strongly Disagree | N= | | I consider remote monitoring has improved the level of care given to the person I care for. | 55% | 43% | 2% | 0% | 49 | | I consider remote monitoring has helped prevent the person I care for being admitted to hospital. | 58% | 33% | 7% | 2% | 45 | | When assisting the person to operate the remote monitoring equipment, I found it easy to use. | 69% | 31% | 0% | 0% | 42 | | Remote tele-monitoring gave me reassurance about the condition of the person I care for and supported me in my care for that person. | 40% | 60% | 0% | 0% | 30 | |

**SECTION 3**

**IMPORTING PARTNER(S) COMPLETE SECTION 3 ONLY**

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| IMPORTING COUNTRIES |
| Sweden, county of Västerbotten |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| Healthcare centre/cottage hospital in StorumanHealthcare centre/cottage hospital in SorseleHealthcare centre in Malå |

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| ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) |
| There are long distances and a high number of elderly people in the Lapland Healthcare district. The patients live in smaller villages, some with only a few families, scattered over the area. Travel to and from a patient´s home takes between 2 and 4 hours for the nurses. The blood pressure controls are also time consuming for staff and nurses. The costs for patient transportation are considerable.General lack of specialists at the healthcare centres in the rural areas and a heavy workload on the prime care in the whole county who are ordered to have 15000 more visits every year to reduce the amount of visits to the hospitals.Waran patients, current care processAbout 30 % of the patients cannot go to the healthcare centre. Nurses in the inland regions of Storuman and Sorsele and Malå take blood samples at theese patients’ home. The samples are sent from the healthcare centre to the lab at Lycksele hospital where the INR analyses are done. The INR result is manually documented in the patients’ records and to the Aricula system\*. Then the doctor is alerted to look at the new value, decide of dosage of Waran and date for next blood test. Then the nurses make a second home visit to effect the new prescription.The patients who have their blood sample taken at their healthcare centre must wait till the next day to have the result and a new prescription. This information is given on phone by a nurse. There is an obvious risk of making faults in the manual documentation of the INR value  Heart/lung conditions:  Elderly patients are controlled by nurses and doctors mainly at the healthcare centres. Some are inpatients at the connected ward. (Cottage hospital)  When the sounds are week or difficult to analyse the patients are sent to the hospital in Lycksele for further examination. Three to five (3 – 5) patients per week from the three healthcare centres go by ambulance or in acute taxi to the hospital which is from 150 up to 250 km to go one way.    There is a risk for negative stress for these patients while travelling Blood pressure follow ups: current care process High risk patients who have their blood pressure followed up regularly either go to the healthcare central lab/nurse or have a district nurse coming home for taking the pressure.  Lab staff/nurses/receptionists at the healthcare centres spend a lot of time around these patients such as book and call the patient, see the patient, register and document the values in the patient records, when needed alert the doctor etc  Often the medication is changed from the results of one single high value.    General risks:  Frequent driving in hard weather and/or on bad roads means risk for accidents for the nurses and ambulance staff.    Costs:  Travel costs are high and nurses work time is high for each home visit.  Costs for using ambulance or acute car / taxi are considerable for the county. |
| CLINICAL NEED |
| Waran patients:  Possibility to send blood samples in direct connection to taking it, quicker and easier contact with specialist team  Possibility to produce a INR value in direct connection to taking the blood sample. This INR value could be used immediately by the Waran team. No second home visit or phone call for changes of medication.  Heart and lung conditions:  Possibility for the nurses and doctors to use an electronic stethoscope at the healthcare centre for distance monitoring of auscultations of heart and lungs  Blood pressure patients  Higher amount of tests for safer medical decisions. Easy access to blood pressure measurement without loosing quality or patient safety and with no increased staff time. |

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| BENEFITS TO PATIENTS |
| Waran patients get safe medication instructions in direct connection to the blood test. Fewer home visits.  Higher medical safety and less acute transportation to the hospital in Lycksele for heart/lung patients.  Possibility to measure blood pressure in a safe way when it suits the individual patients within recommended time limits, or when the patient feels worried.  No fee when taking blood pressure themselves |
| BENEFITS TO HEALTHCARE STAFF |
| Waran patientsSafe data can be sent quicker directly to the Waran team.Results are not manually documented between systems.Taking the blood sample and adequate changes of medication can be done at the same visit; which reduces the amount of travels and saves time for district nurses. Heart and lung patients:  Better quality of the heart/lung auscultations and fewer patients sent to the hospital . Blood pressure patientsReload the staff at the Healthcare central the administration around the blood pressure takings. Better compliance to recommended controls when the patients are freer to decide when to take their pressure. Generally less travel time and travel costs and r Less travel time and travel costsReduced risk for traffic accidents |
| TECHNICAL REQUIREMENTS Hardware requirements, Software requirements, Procurement issues (tendering rules etc.) |
| Check-up bags with required sensors:Three in Storuman One in Sorsele  One in Malå  Three electronic stethoscopes |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable)Is there existing equipment that can be used? |
| Storuman has three check-up bags with required sensors that can be used for this purpose. The staff in Storuman, Sorsele and Malå have more than 10 years experience of working on distance (telemedicine)  Necessary infrastructure in place  Technical support is good and reliable.  Any problems will be dealt with immediately.  Our E-stethoscopes are to old to be used clinically  Procurement following existing agreement. |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| Waran group:  About 160 pat totally in all the geographic sites all pat take regular tests at intervals between one up to six weeks  Heart and/or lung controls are made on average once every day at each one of the  three sites  Blood pressure:  Amounts to about 2000 controls per health care centre = 6000 totally in all three geographic sites |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| Regular staff |
| TRAINING REQUIREMENTS |
| NOBut new nurses need a short introduction to the equipment (Check-up bag) before using it but it is very easy to handle |
| TRAINING REQUIREMENTS |
| Patients will have an introduction before they are allowed to take their blood pressure by themselves. A manual will be at hand beside the equipment |

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| Timescale for implementation (Please include equipment procurement, training etc) |
| The Check-up bags and the E stethoscopes will be in place by the end of August 2012. |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| No |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| No |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| Patients: Good to be free to choose time for taking blood pressure |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| YES/NO |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***

Three (3) Chech-up bags, 30 000 SKR each = 90 000 SKR = 10026 Euro VLL

Three (3) E-stethoscopes, 6000 SKR each = 18 000 SKR = 2005 Euro ITTS

# SWAT ANALYSIS

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| **Strengths** | **Weaknesses** |
| Long experience of working with distance monitoring  Experienced and motivated staff at rural cottage hospitals.  High technical competence in the field of distance monitoring of stethoscope sounds at the Medical technical dep.  The proposed model of Check-up bag is approved for use in health care.  Blood pressure patients will be more responsible for  their health  A ongoing study in Västerbotten indicate that patients who take their own blood pressure have lower  pressure than those who have their pressure taken by staff. | Negative attitudes among population in the inlands; i e telemedicine may be looked upon as the first step towards closing the local healthcare centre.  Attitudes in medical staff, not ready to accept telemedicine methods  Strategies for information can meet these issues |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| Implementation of these working models will enable the Prime care level to take on more patients according to new policy in the county council  New ideas and ways of using technical equipment will come from health care staff. | There is a national discussion about replacing Waran with a medicine that doesn’t have to be controlled in the same way.  However this is not an immediate threat. |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

**SECTION 3**

**IMPORTING PARTNER(S) COMPLETE SECTION 3 ONLY**

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| IMPORTING COUNTRIES |
| Finland |
| WHERE WILL THE PROPOSED SERVICE BE IMPLEMENTED (list the geographical area and actual sites e.g. Hospital, health centre, patients home) |
| Oulu Arc Joint Area (partnership for health and social care services in five municipalities in Northern Finland (Ii, Pudasjärvi, Simo, Utajärvi, Vaala))  Near sides will be in patients’ homes in two municipalities: Utajärvi and Vaala.  Far sides will be in Utajärvi service centre for elderly people. |
| ISSUES FACING THE SERVICE CURRENT (e.g. waiting lists, lack of clinicians, travel distance to see health care staff) |
| Elderly people are willing to live at home as long as possible but lack of social contacts cause loneliness and various problems with physical, mental and social performance.  Personnel of home care services are working at patient’s homes but they are short of time. Patients find time period with home care personnel is too short for interaction.  Many patients of home care services find their social contact been decreased because of various illness, worse functional ability and long distances.  Rehabilitation function in home care is still important but in some cases it is getting minority role, partly because of too tight schedule of personnel. On the other hand there are many patients who are not willing or not able to join physical or other rehabilitation activities at all. Different kinds of social activities are getting bigger role.  Possibility to have interaction for example with relatives and friends could give added value for investment. |
| CLINICAL NEED |
| Elderly people who are not able to came and participate day activity groups could participate by VC.  Need to carry out various social actions to enable participation of social activities (clubs, 3rd sector, culture), meet friend and relatives by VC.  Need to carry out more visits to observe condition by VC instead of physical visit. |

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| BENEFITS TO PATIENTS |
| More social contacts by using VC, less loneliness, less problems with physical, mental and social performance.  Wider range of activities, possibility to choose activities to participate makes independecy of client to be improved because self managed actions.  Ability to continue living at home because of social activity and support other old people, friends and relatives  Better quality of care because of more regularly visits (done by VC).  Client will get mental support, material help, services, information and new social contacts. Feel of security will be improved. |
| BENEFITS TO HEALTHCARE STAFF |
| More social contacts by using VC, less loneliness, less problems with physical, mental and social performance, ability to live longer at home, less cost because on social and health care.  Monitoring of clients condition, medicalization, supporting self care / management (blood pressure, sugar, weight, etc).  Same VC infrastructure is available for many players in the social and health care sector. |
| TECHNICAL REQUIREMENTS Hardware requirements  Software requirements  Procurement issues (tendering rules etc.) |
| 10 portable VC units to be installed to patients homes  4 VC units to be installed to centers of home care and daily activities service  HARDWARE  Portable:   * PC: HP Touch Smart 600 24” * Webcam: Logitech Pro 9000 * Speaker-microphone: Clear One Chat 50 (or 150)   Center:   * PC: Desktop PC * Video screen: 36” or wider * Support screen: 24” * Webcam: with zoom and control (for example Canon VC-C50i) * Usb-adapter for video (for example Grabbeex) * Speaker-microphone: Clear One Chat 150   SOFTWARE   * Operating system: Windows XP / Windows 7 * VC client: Arctic Communicator v 1.94 or later   BROADBAND   * minimum ADSL 2 / 1 Mbs * mobile connections (3G) does not work well enough |
| JUSTIFICATION FOR PURCHASE OF EQUIPMENT (if applicable) Is there existing equipment that can be used? |
| VC units suitable for patients partly exist.  4 more portable VC units and 2 more “center VC units” need to be purchased. |

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| HOW MANY PATIENTS WILL THIS PROJECT INCLUDE |
| 30 patients   * 10 patients who are participating at their homes (with their husbands and wives) * Possibly their families and / or friends * 20 clients in day activity groups |
| STAFFING REQUIREMENTS (e.g. is a nurse required to be with patient, is admin staff required to switch on vc equipment) |
| 1 home care project worker and 1 day activities worker  Third-sector actors  Technical staff to install equipment |
| TRAINING REQUIREMENTS |
| clients  personnel of home care and day care services  other persons who are participating care  actors in 3rd sector |

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| Timescale for implementation (Please include equipment procurement, training etc) |
| 9 months |
| ARE THERE ANY LEGAL ISSUES TO BE CONSIDERED? If Yes then please list them |
| NO |
| ARE THERE ANY ETHICAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| YES  Patient privacy protection.  Close communication to make client to understand their homes will be visible to others is needed. |
| ARE THERE ANY SOCIAL ISSUES TO BE CONSIDERED?If Yes then please list them |
| YES  How to maintain social interaction between patients in VC environment?  How to regard all participants in big day care activity group (equality, take care of personal needs, etc) ?  Facilitator for VC sessions is needed. |

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| COSTS please list any costs associated with implementing this service (e.g. equipment, software, technical support, patient information leaflets) |

***Double click to access the excel spreadsheet below***



# SWAT ANALYSIS

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| **Strengths** | **Weaknesses** |
| * The existing, good functioning technology * Health and social care professionals are used to use VC technology in their work * Good co-operation between home care and rehabilitation services * Other actors (families, 3rd sector, etc) to be involved in social and health care. * Patients can choose activities which are suitable for their social contects. | * Limited broadband connections in the most rural areas * Patient recruitment and vc unit installation to their homes takes much time * Physical training is somewhat limited, because manually control is not possible * Personnel of home care do not have very good ability to use computers and VC * Lack of motivation to use VC-technology * Solving technical problems immediately |
| **Opportunities** | **Threats**  What threats could harm the project, finances / it infrastructure / staffing? |
| * Technology can be used for other clinical and social services. * Home care patients can be treated with less costs * More people can live in their own homes * involving other departments and 3rd sector in client based social and health care * 4G mobile network might solve some challenges with broadband availability | * Patient attendance and motivation * Too little project staff * Funding questions concerning home based VC units and broadband * No broadband available |

For instructions on using SWOT Analysis, visit [**www.mindtools.com/rs/SWOT**](http://www.mindtools.com/rs/SWOT)

Plan for ITAS

** PLAN FOR INTERNATIONAL TELEMEDICINE ADVISORY SERVICE (ITAS)**

Agree constitution

To write a business case including sustainability

Review progress of ITTS on a quarterly basis

Approve ‘a case for telemedicine’

Approve ‘Telemedicine into everyday

Recruit new members

Identify key policy makers in each country to ensure effective dissemination and policy informing strategy

Produce a short article describing and discussing ITAS (academic paper)

**actions:**

Invite members to Sweden meeting, would be good if Thomas at least could attend in person – *Thomas has been invited*

Set up quarterly ITAS meetings

Issue ITAS objectives and get them agreed

Ensure objectives are met

Invite members to Final conference

Set up an meeting ITAS in December 2013

Discuss and agree the constitution and objectives of ITAS

Discuss the business case for the sustainability of ITAS

Review interim report which will be circulated to ITAS prior to the meeting

Project Publications – list of project publications to be sent to ITAS prior to meeting for their review and suggestions

Dissemination of project – ITAS to identify key policy makers in each country to ensure effective dissemination and policy informing strategy

A Case for Telemedicine – suggestions for distribution

Plan for Evaluation

**EVALUATION PLAN**



* The evaluation plan is based on the Model for ASsessment of Telemedicine (MAST1).

The model is derived from the MethoTelemed project, a European-funded project designed to assess the outcomes of telemedicine within seven domains:

1. Health problem and characteristics of the application

2. Safety

3. Clinical effectiveness

4. Patient perspectives

5. Economic aspects

6. Organisational aspects

7. Socio-cultural, ethical and legal aspects

For each of the seven domains a number of outcomes will measured in each of the e-Health applications.

* Teams, including research team, from each demonstrator site will agree which aspects of the MAST model they will use.

This will be dependent on the context, the intervention and the work force.

* There will be a common set of evaluation data which will be collected at each site including use of Electronic Health Implementation Toolkit (Hit2).

1. MethoTelemed – a Framework methodology to assess the effectiveness of Telemedicine applications in Europe <http://www.telemed.no/methotelemed.4567567.html>
2. <http://www.ucl.ac.uk/silva/pcph/research-groups-themes/e-health/resources>

1. Arild E. Innomed 2009. Rapport. Forprosjekt . Kartlegge behov for nye telemedisinske løsninger hjem til nyresviktpasienter. <http://www.innomed.no/media/media/filer_private/2011/03/02/hjemmedialyse_sluttrapport.pdf> [↑](#footnote-ref-1)
2. **Arild E, Rumpsfeld M, Sjaaeng EE., “Teledialysis – experiences from North Norway” (NST Report, August 2007)** [↑](#footnote-ref-2)
3. Arild E. Innomed 2009. Rapport. Forprosjekt . Kartlegge behov for nye telemedisinske løsninger hjem til nyresviktpasienter. <http://www.innomed.no/media/media/filer_private/2011/03/02/hjemmedialyse_sluttrapport.pdf> [↑](#footnote-ref-3)
4. See <http://www.northernireland.gov.uk/pfg> for details [↑](#footnote-ref-4)
5. See <http://www.dhsspsni.gov.uk/transforming-your-care-review-of-hsc-ni-final-report.pdf> for details [↑](#footnote-ref-5)