IMS Strategic Plan 2015

1. ORGANIZATION OF THE INSTITUTE OF MEDICAL SCIENCES (IMS)

The IMS houses more than 400 active researchers providing a vibrant environment delivering world-class research in medicine and medical sciences. The IMS blends basic, preclinical and clinical research to encourage interdisciplinary interaction. Its vision is to conduct leading research that focuses on key challenges in health and medicine. To achieve this, research is organised into six programmes of research:

- Cardiovascular Medicine
- Cell, Developmental and Cancer Biology
- Immunity, Infection and Inflammation
- Microbiology
- Musculoskeletal Sciences
- Translational Neuroscience

Each programme consists of 15-25 PIs and their research staff who are aligned to its research strategies.

2. INTERDISCIPLINARY RESEARCH

The programmes form coherent groups of individuals, working in similar disciplines sharing ideas and techniques. Interdisciplinary interactions though are also essential and these are encouraged through a variety of approaches: cross-programme symposia are held to cross-fertilize ideas, interdisciplinary seminars are also arranged - the centrepiece being the IMS seminar series inviting prestigious speakers of international reputation. Integration and close collaboration are further promoted through specific laboratories set up to house researchers from other colleges - these are active for scientists from Chemistry, RINH and the Institute for Complex Systems and Mathematical Biology. Important also are the Integrative Centres which offer expertise and cutting-edge core technological support to all the college, and consisting of:

- the Aberdeen Biomedical Imaging Centre
- the Centre for Genome Enabled Biology and Medicine
- the Kosterlitz Centre for Therapeutics
- Systems Biology
- Core Facilities Centre
- Medical Research Facility - for in vivo biology and pre-clinical research

3. RESEARCH STRATEGY:

The objective of IMS management is to provide an optimal environment for biomedical research at the University of Aberdeen. The goals of its administrators have been to promote research by: recruiting the best researchers in leading research fields, supporting PhD students and young investigators in their research, actively encouraging and facilitating cross-fertilisation of research projects and ideas, growing the technological infrastructure with cutting-edge facilities, and providing robust management, effective administrative support, policies and procedures. These approaches, directed through the IMS programmes, have been effective (as outlined below) and it is essential to maintain such strategies. However, as also described below, significant future problems also exist that are imperative to address.
Measurement of research success in the IMS

Indicative of the robust research in the IMS are the 2015 results of the Leiden Ranking analysis of Biomedical and Health Sciences, in which scientific performance at the University of Aberdeen was ranked 40th out of 750 around the world and 15th in Europe and 10th in the UK for impact (when reflecting the size of the research base).

Another indicator of research health is the Research Exercise Framework (REF). The REF influences the distribution of Scottish governmental funds received by Universities and, importantly, top REF rankings in research areas are widely accepted as indicators of research strength. Research reputation is of paramount importance and maintenance of this crucial for recruiting of the best faculty and students and also influencing grant and publication success. The REF 2014 highlighted several areas of strength, as outlined below. Areas of weakness were also indicated and both will guide future research strategy in the IMS.

The base measure of research success in the IMS, simply put, is (i) publications and (ii) grant funding. It is essential that the numbers and standards of publications and grant funding income continue to rise into the future. Grant funding from research councils has been traditionally obtained through project grants in responsive mode. The success rates for such modes however have dropped and ways in which success rates can be increased need to be identified because a decline in research will inevitably result.

Steps to be taken

(I) Focus on areas of research strength

Areas of strength identified from analysis of the REF were microbiology (in particular fungal biology including candida and oomycetes pathogens, fungal immunology and control of DNA replication), musculoskeletal stem cell research, neuroscience, research in diabetes and metabolic disease and certain areas of developmental biology and cardiovascular research. Significant investment has been directed to these areas of strength and, when considered promising, will be directed to areas that may grow in the future.

The great success of the Aberdeen Fungal Group (80 members strong) provides a model to consider for research groupings who have not achieved the same success. Different teams will have varied way to do this, involving national and/or international members. Large groups providing interdisciplinary expertise directed towards important questions will have a significantly greater likelihood of success. Formation of such collaborative teams will be encouraged through funding for travel to meetings and seed funding. New themes should become areas of focus and badged as such with their own identity and encouraged to cross college boundaries or develop as inter-university networks. The level of funding will require IMS Directors to engage with upper management and provide strong recommendations on what is to be supported.

(ii) Direct researchers towards greater collaboration with industry.

Industrial collaboration provides important uplift for research council grants, is essential for many European Council grants, results in opportunities for varied studentship schemes as well as providing a direct route of funding. The products of translational research resulting from industry collaboration have the potential to give rise to Impact Case studies for the REF. The Kosterlitz Centre for Therapeutics (http://www.abdn.ac.uk/kosterlitz/) has been active since 2010 and helps investigators to identify commercially enterprises with which to collaborate. The Scottish Universities Life Sciences Alliance also has a series of initiative running to develop drug discovery (http://www.sulsa.ac.uk/opportunities/research-funding).
There will be increased emphasis on the importance of industry collaboration. In the past faculty have found links to companies difficult to find and we will continue to use KCT and SULSA to assist with these links. IMS Programme leads will actively encourage these steps.

(iii) Development of cutting edge-techniques including pre-clinical disease models

Maintaining cutting-edge approaches to research is of paramount importance. Professor Al Brown has provided excellent leadership of the Facilities Integrative Centre, advertising what new approaches can be taken and making the most of opportunities to apply for funding of new equipment. We will help support training in new techniques including CRISPR-Cas9 in which several individuals are now developing expertise and who will be encouraged to collaborate with others. New Pre-clinical disease models, particularly in oncology, need to be situated in the MRF and funds will be sought for this.

(iv) Recruitment of new faculty

With increasing competition by Universities for the best new faculty members there will need to spend greater time on identifying and securing top researchers. Discussion will be had with Programme leads to identify developing research fields and they will be encouraged to invite potential candidates for an initial visit, presentation and opportunity to meet with faculty members. For interviews there will broader representation on the selection committee of faculty, including IMS Programme Leads. On recruitment, new faculty, at whatever career level, will be assigned a mentor to provide a guide to all procedures in the IMS from ordering to grant applications. It should be noted that all staff are entitled to be assigned a mentor should they request this.

(v) Targeted reduction in teaching/administrative burden.

Greater dialog will be necessary with School heads to improve the balance between research and teaching. Already, for promotions, separate “Research” and “Teaching” tracks exist. For those taking a research track the teaching/administrative burden should be reduced, with discussion with the relevant school head. The Annual Review and Framework for Academic Expectations report should reflect this, obviously with greater expectations in areas that reflect research.

4. NEW AREAS OF INTERACTION WITHIN THE UNIVERSITY:

(i) Future relationship with the Pathways to a Healthy Life Institutional Theme

The institutional themes have been in existence for some several years and, if they stay in their current form, it will be essential to ensure that our research strategy aligns with and supports the Institutional theme “Pathways to a Healthy Life”. There is considerable scope to funnel all IMS activity as applicable to the Pathways theme. We need, therefore, to evaluate the current activities of the institutional theme in relationship to the research in the IMS and develop a clear strategy to use the Theme and its resources to develop further multidisciplinary research programmes with the IMS.

(ii) Development of further collaborations between the IMS, IAHS and RINH

The University of Aberdeen’s Foresterhill campus is one of the largest combined health, higher education and medical research campuses in the country and the RINH will move to a new state of the art scientific facility in early 2016. The intention is to forge new cross-disciplinary collaborations, to increase research capacity and to make a distinctive contribution to national and
international research. The challenge to us is to convert this intention into a reality and to optimise cross-collaboration amongst all areas within the College and University.

There is also scope to enhance cross-collaboration between the IAHS and the IMS. Although some collaborations do exist it is important to define new opportunities and support these to develop. The IMS Directors will meet with the Directors of Research for the IAHS and RINH in scoping meetings with the research programme leaders to identify areas to prioritise and develop new collaborative research projects.

(iii) Integration of NHS Research and Development Strategy and University strategy

There is an opportunity to link more closely the NHS R and D strategy with that of the IMS research strategy and one priority is to establish a Clinical Research Facility with the appropriate staffing and infrastructure, which is situated within the hospital environment, to facilitate the opportunity for clinical trials.

As above, scoping meetings between the NHS Director of Research and the IMS Directors will identify how closely the IMS and NHS research programmes are and/or can be aligned with priorities established to fertilise translational research projects.

(iv) Cancer Centre

The new NHS Grampian Cancer Centre will be built on the Foresterhill site with a proposed completion date of 2018. This will provide state of the art systemic and radiotherapy clinical treatment facilities for cancer patients and it is also intended to build a clinical and translational research facility within the cancer centre. The research facility will accommodate existing research staff (research nurses, data managers, clinical research fellows) but will also provide capacity for expansion of research staff and new laboratory facilities to allow rapid immediate processing of clinical biospecimens to GCLP standards and for specific and complex analysis as part of translational research studies.

This provides an increased clinical and translational research capacity in cancer medicine and the opportunity for increased participation and funding for IMS researchers in translational cancer research programmes. Accordingly engagement and representation of IMS in the development of the centre is strategically important.