



## **LJMU Institute for Health Research (IHR) Year 1 report 2016-2017**

Research, scholarship and knowledge exchange for health across the life course

### **Introduction**

A new IHR strategy was approved in November 2016 with the philosophy to improve human health across the life course. This is being achieved by supporting staff and students to work towards gaining a better understanding of disease, healthy behaviours and the prevention of illness, therapeutics and novel technologies and the improvement of community and hospital based healthcare. The related objectives were to:

- 1) Provide leadership, direction and unity for health-related research and scholarly activities across LJMU.
- 2) Enhance the research environment and individual researcher capability by promoting researcher development, the sharing of ideas and increasing cross-discipline collaborations through participation in shared projects, PhD supervisions, discussions, workshops and seminars.
- 3) Align our research and activities to external priorities and increase the acquisition of funding from a variety of external sources to support projects ranging from small targeted developmental studies to sustained programmes of research.
- 4) Promote the publication of world-leading outputs co-authored by researchers from across LJMU and to increase the overall quality profile of UoA3 and the other UoAs submitting health-related research to REF 2021.
- 5) Develop capacity and capability in focused health-related research disciplines to enable swift, targeted responses to external drivers, policy initiatives and workforce needs.
- 6) Explore all potential opportunities for effective external engagement and establish productive partnerships with local, national and international organisations.

This report will provide evidence that the first two objectives have already been met and processes and structures are in place to start achieving objectives 3-6 over the next academic year.

Continuing success of the IHR will be judged in terms of the magnitude of the added value of the IHR beyond existing research structures which will be evidenced from:

- The number of active interest groups.
- The number and completion of Cross Faculty/IHR PhD studentships.
- An increase in the volume and quality of outputs (of a variety of sorts).
- An increase in collaborative funding applications (internal and external).
- An increase in external engagement and knowledge transfer activities.

After just eight months of activity a number of successful events have been held to bring together health researchers from across LJMU and the number of staff and external collaborators interested in joining in IHR activities and Interest Groups is a key measure of initial IHR success. Additionally, structures are now in place to move forward towards meet the performance indicators of funding, outputs and external activities.

### Membership:

Currently 155 research staff from across the University (Figure 1) have signed up as active members of the IHR and this number is growing as more workshops and meetings are held. Some additional staff who have not yet shown interest in joining a Group, will be considered members for purposes of the REF submission, and encouraged to participate where possible. Members benefit from belonging to a research community that provides access to new partnerships, researcher development, and facilitation of activities geared towards helping individuals at all stages of their career engage in research, scholarship and knowledge exchange.

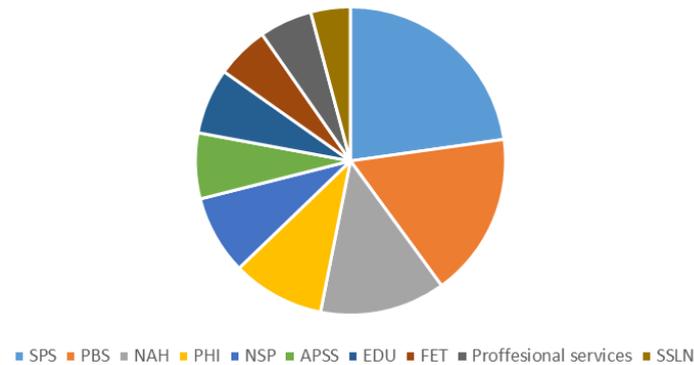


Figure 1. Distribution of IHR members from Schools (SCI/EHC) and Faculties (FET and APPS). This data does not take into account the newly formed Liverpool Business School.

### Interest groups

The integration of the IHR virtual infrastructure across LJMU is facilitated by the operation of Interest Groups (Figure 2) that enable; the exchange of knowledge, identification of common or complementary research expertise, mentoring and peer support, and a team approach to new funding bids. This enhances and expands the existing research environment and provides a forum for new discussions via the facilitation of seminars and workshops. These groups are fluid and some of the original 2016 groups have already been replaced by more appropriate research topics. Many research staff are members or two or more groups and there is much overlap of research areas across different groups. All groups have dedicated support from Research and Innovation Services in terms of supporting workshop activities, identifying external partners and identifying/preparing funding bids. By means of this network of interest groups the IHR is developing capacity and capability in focused health-related research disciplines that enables swift, targeted responses to external drivers, policy initiatives and workforce needs.

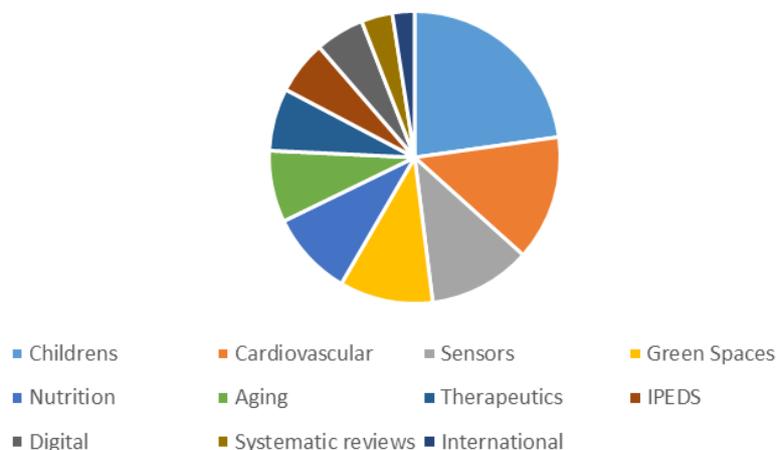


Figure 2. IHR Interest group membership

Further information regarding the activities and measurable outcomes of the active interest groups are provided below. The groups that were established first are good exemplars of what other groups will achieve as they develop. The remaining Interest groups will hold their first workshops in September 2017 and these will develop over the next academic year.

## 1. Green Spaces Interest Group

The Green Spaces group, co-ordinated by Prof. Zoe Knowles, brings together researchers and practitioners from across psychology, public health, physical activity, geography, outdoor education and primary education. Also collaborating with colleagues from Professional Services such as Student Advice and Wellbeing Services and Estates to enhance the wellbeing of our own LJMU students. This group aims to take a truly multidisciplinary approach to research to improve access and benefits from being outdoors. Members have strong links with local authorities, local NHS Trusts, local Clinical Commissioning Groups, Alder Hey Children's Hospital, Royal Liverpool University Hospital and Liverpool Women's Hospital. Researchers also work with large member and professional bodies, for example the British Mountaineering Council and The Institute for Outdoor Learning. Key activities and outcomes over the 2016-17 period are reported below;

- In collaboration with Mersey Forest researchers supported research on Forest School exploring levels of physical activity, wellbeing and children's psycho-social development. The research is cited in the Mersey Forest plan <http://www.merseyforest.org.uk/about/plan/> which has recently been awarded the UNESCO UK Man and the Biosphere Urban Forum Award for Excellence and informed DEFRA's 25 year plan.
- In spring 2017 LJMU hosted a collaborative event was held with one of our partners to showcase the achievements of the [Natural Health Service](#) (NaHS) Consortium and offer practical resources for commissioners and practitioners to develop the service across the UK. <https://www.ljmu.ac.uk/about-us/news/articles/2017/5/9/improving-health>
- A pilot project with The Walton Centre is ongoing in relation to measuring biomarkers for the health of the liver to reduce the chance of developing Alzheimer's disease. Physical outdoor activity is to be explored to promote the liver health.
- Working in collaboration with World Challenge researchers examined the health benefits (mental and physical) of expeditions for young people in wilderness settings. This was designed to help understand and develop applied practices in improving the health and psychological impacts of these types of interventions.
- In collaboration with Professional Services such as Student Advice and Wellbeing and Estates, the group are investigating how they can utilise and innovate the institution's green spaces in order to enhance the health and wellbeing of LJMU's staff and student community (as well as that of the wider neighbouring communities).
- External collaboration meetings with Alder Hey are ongoing as to on site Forest School and green spaces on new Alder hey in the park site (Summer 17) with potential for LJMU involvement in planning and design as well as evaluation based research to assess impact/use of Springfield Park.
- *Bids*
  - NIHR – 16/07 Interventions to promote health in outdoor green and blue spaces. *Project title:* An evaluation of pathways and mechanisms by which Forest School (FS) influences children's: PA, wellbeing and health inequalities *Bid amount:* £881,894.00 *Principal investigator* Dr Zoe Knowles *Outcome:* Made full review but was unsuccessful

- Development of Winston Churchill Fellowship application in conjunction with LJMU Student Advice and Wellbeing and The Mersey Forest to fund current MSc sport psychology placement student with the Mersey Forest to gather ideas and insight into 'green' university campus' in Europe. (awaiting outcome)
- Mersey Forest are in the very early stages of developing a health / GI type bid with Cartif (Spain) who are leading. Cartif led the successful Urban GreenUP H2020 proposal and are excellent partners to work with. It is probably that the focus city for this proposal will be Chester (since Urban GreenUP is in Liverpool). LJMU through the Centre of Excellence has been invited by the Merseyforest Grant officer who attended an IHR Green Spaces workshop to be to the official research partner for this. (under preparation)

## 2. Cardiovascular Health and Care Interest Group

This group, co-ordinated by Prof. Ian Jones brings together staff from seven different schools across the University with a diverse range of expertise that includes all aspects of health and care, ranging from biomedical science, acute care through to rehabilitation. A SPARK event to determine the range of expertise and interest in cardiovascular research held in November 2016 led to many new discussions and collaborations across LJMU which has resulted in several new projects, funding bids and applications for joint studentships. LJMU researchers have established good relationships with external stakeholders developing new collaborative projects with consultant cardiologists, specialised cardiovascular nurses and cardiac physiologists in the region and acute NHS trust on cardiac surgery, congenital heart disease and the impact of surgery on patients and their families. A joint LJMU/ local NHS trust event took place on 14<sup>th</sup> July and was well attended by potential NHS collaborators and several of those who could not attend have expressed a keen interest to be involved in future activities. Funds available via the MRC P2D funding acquired by the Faculty of Science will support a workshop in Autumn 2017 with industrialists to forge new partnerships and activities in this area. This group has a long-term aim of developing and leading a Liverpool Research Centre for Excellence in Cardiovascular Health and Care.

Studies either with current funding or being developed into new bids include;

- CASSPER - Congenital Cardiac Surgery and Parental Perception of Risk. Funder by Florence Nightingale fellowship. PI: Ian Jones in collaboration with Alder Hey.
- Does a decision support tool facilitate advanced life support more effectively than traditional care? PI: Ian Jones funded by European Institution for Innovation and Technology (Health) (£5000)
- How do patients make sense of a diagnosis of cardiomyopathy? Faculty funded PhD in collaboration with Cardiomyopathy UK. PI: Ian Jones
- Developing a new model of cardiac rehabilitation for South Asians. Funded by Liverpool CCG. PI: Ian Jones (£18000)
- Determining the arterial in vivo and in vitro responses to catheterisation-induced damage in patients and exploring the effects of acute/chronic exercise to counteract these effects. LJMU funded PhD in collaboration with Liverpool Heart and Chest Hospital. PI: Ellen Dawson
- Small molecules, big questions. Investigating the complexity of the LDL particle (small molecules attached to the LDL surface, using ultracentrifugation and LC-MS based metabolomics. LeverHulme trust funded PDRA.
- Achievement motive impact on effort-related cardiovascular responses: examining the moderating impact of the achievement motive on the link between task demand and effort-related cardiovascular responses. Funded by Swiss National Science Foundation. PI: Michael Richter

- MicroCT imaging. Funded by Alder Hey Childrens' charity and a Marie Curie Fellowship to former LJMU post Doc Robert Stephenson, now at Aarhus University. but still collaborating with Professor Jarvis.
- 3D LifePrints, a 3D printing Company embedded within Alder Hey Innovation Hub. Recent collaborative paper accepted in Nature Scientific Reports, 'High resolution 3-Dimensional imaging of the human cardiac conduction system from microanatomy to mathematical modelling' (Jarvis and Stephenson)

### **3. Image Enhancing and Performance Drugs Interest Group**

This group, currently led by Jim McVeigh, consists of members from 5 Schools and 3 Faculties although mainly from PHI and RISES. This group plans to annually rotate co-ordinator duties around the different schools to ensure that the focus remains relevant to all researchers

- Seed funding has been acquired to conduct a feasibility study with anabolic steroid users. This will generate sufficient data for a paper and form the basis of grant submission.
- The annual PHI IPED event in October, featuring a speaker from the USA will provide an opportunity for members across other Schools to showcase their research and could act as a launch for this new group. Approximately 75+ external academics, policy makers, practitioners and potential research funders will attend the event.

### **4. Children's Health Interest group**

This group, co-ordinated by Dr Lorna Porcellato, has members from across all Faculties. The first Children's Health workshop in May 2017 brought together LJMU researchers with an interest in a broad range of research areas under this topic and since then there has been a lot of activity in terms of establishing new connections, funding projects and liaising with NHS clinicians. For example;

- The University Spotlight award to Lorna Brookes looking at developing an app towards supporting children of prisoners is being supported by this interest group.
- Gillian Hutcheon (PBS) and Claire van Miert (NAH) speaking with Mathew peak and the Paediatric Medicines Research Unit (PMRU) at Alder Hey regarding the transition of young people with chronic illnesses towards the self-management of their medicines
- There is also a considerable positive overlap and interaction with research ongoing within the cardiovascular health and care group due to collaborations with Attilio Lotto and colleagues at Alder hey looking at aspects of cardiac surgery in young people and congenital heart disease in children.

### **5. Digital health Interest Group**

In response to a fast developing digital health priority across the Liverpool region initiated in January 2017 with an LHP Digital Health Frontiers meeting, a digital health interest group has been established with representation on the LHP task and finish group for digital health across Liverpool. This is important given the four NHS global digital exemplars we have in the city. This group has been developed by Dr Kate Fleming who has now left LJMU and will be replaced by another co-ordinator as soon as possible.

- LJMU instrumental in a bid submitted by LHP alongside UoL for a digital academy to train NHS clinical information officers. This bid was unsuccessful but provides foundations to look at establishing new CPD and MSC programs internally and in collaboration with the UoL/LHP.

- Bid for £100K submitted to Macmillan cancer Support on 'Co-designing digital support tools for people affected by cancer' Deborah Fitzsimmons, Paulo Lisboa, graham Smith and Charles Morecroft plus various external collaborators.
- Established a link with the North West eHealth Cluster; a group of local industrialists with an interest in digital health and sensors.
- Met Joanne Phoenix to explore how we interact with Sensor City and we will arrange to hold an event there with relevant externals to showcase our expertise in this area and establish new relationships.

## 6. Diagnostics and Therapeutics

This group, co-ordinated by DR Darren Sexton, focuses on some of the fundamental research required to gain an understanding of the detection and mechanisms of disease and the discovery and design of new therapeutics. RIS working with PBS and SCI recently secured a MRC Proximity to Discovery (P2D) grant to encourage and help LJMU researchers work with SMEs and industry. The first event was a life sciences showcase event organised by Bionow with a small amount of funding available for academics to establish collaborations with industry. The first call of bids are set to be approved very soon Several members have also met with researchers from Bets-y Health Board in Wales who are interested in collaborating on basic science such as biomarker identification and a molecular understanding of disease. A visit to Wales is being planned for Autumn 2017 to establish collaborative research activities potentially resulting in an application for the LJMU PGR match funding scheme.

### Partnerships

The IHR aims to explore all potential opportunities for effective external engagement and establish productive partnerships with local, national and international organisations. In addition to the increasing collaborative activities growing between academic, clinical and industrial researchers, we are also establishing new and stronger partnerships and collaboration with agencies across Liverpool City and the North West. Over the past year, the IHR has been interacting with many more local partners and agencies.

Discussions with the Innovation Agency (IA) has resulted in LJMU being awarded a funding for a project looking at patient discharge from hospital to pharmacy and it is likely more projects will evolve in this and other areas. The NWC clinical research network (CRN) are keen for us to engage better with them as they can offer support to any competitive funded project that utilised patients or individuals within a population. An event for LJMU staff has been arranged for September 7<sup>th</sup> September for CRN representatives to introduce themselves and their resources to researchers.

In terms of industrial stakeholders, we have links with the digital health ecluster and Bionow where the recent life sciences showcase was very successful in demonstrating our capability to work with industry. The IHR also intends to be a key collaborator with Sensor City and has met with Joanne Phoenix to discuss this with them. An IHR event with Industry to take place at Sensor City will be scheduled for Autumn 2017.

**Liverpool Health Partners:** Since December 2016, the Head of the IHR has been a member of the Liverpool Health Partners (LHP) clinical and academic leads board and the LJMU alternate for the LHP Board. Taking over from the Dean of EHC in July 2016, the IHR worked alongside the existing LJMU working group to prepare a brochure outlining what the strengths and USP of LJMU Health would be within the partnership; Interventions and behaviour change for health and well-being with a focus on lifestyle diseases and workforce development. This was then presented to, and was very well received by members of the LHP Board in December 2016.

Membership of LHP offers many benefits and has ensured that the local NHS trusts, UoL and LSTM are aware of our vast range of research expertise and capability in health-related research,

particularly in the area of lifestyle diseases and the use and evaluation of interventions that can reduce their occurrence within the population. Membership also means that we are at the table when local health strategies are devised and discussed and also enables direct interactions with Directors of Research across the region. As the LHP undergoes a strategic review of its research vision and priorities, this partnership will increasingly benefit LJMU by providing a mechanism for us to direct, participate in and gain a better understanding of the research and professional development priorities across the Liverpool region leading to participation in large multi-centre projects with NHS partners. The IHR will encourage researchers to work together with LHP partner organisations to expand and develop the IHR research portfolio by successfully apply for prestigious funding such as NIHR calls. This will demonstrate our ability to undertake substantial research programmes of clinical relevance and our reputation as a valuable research partner will grow.

### **Dissemination**

An IHR website has been developed and content is being added regularly (<https://www.ljmu.ac.uk/IHR>). A Brochure describing research towards Understanding and Changing Behaviour has been distributed with a second one under preparation on Understanding and Treating Disease and Illness. A new pull up banner will also be utilised to market the IHR internally and externally. An abstract has been submitted to the NHS Let's talk Research 2017 meetings to describe the IHR ethos and activities in working together.

**IHR Biannual Conference:** It is proposed that the IHR biannually hold a one-day conference for both internal and external researchers to showcase our expertise, collaborations and ability to obtain funding and also explore external research priorities and establish new collaborations. External keynote speakers and research partners will be invited to give presentations in addition to LJMU researchers. It is proposed to hold this event during reading week in February 2018 and an organising group is being established.

### **IHR PhD studentships**

In September 2016 six Cross-Faculty PhD students within SCI and EHC started their studies and the next round have been allocated to staff for recruitment of students for September 2017. This year the opportunities to develop new collaborations have increased because of the greater integration of staff via participation in the workshops. The first cohort of students is progressing well and they are all on track to complete their studies at the end of 2019. Most have presented their work at Faculty and/or graduate school conferences and over this next year external presentation of their work will occur alongside published abstracts and potentially papers. These students and supervisors are also expected to disseminate their research at IHR events and participate in the relevant interest groups. Over the next academic year PhD students in general will be encouraged to attend IHR events to bring their expertise to the table and also to broaden their research knowledge beyond their immediate field.