

Institution: University of Birmingham
Unit of Assessment: UoA2
<p>a. Context</p> <p>Research within UoA2 at the University of Birmingham (UoB) aims to impact on patients, users of health services, potential users of health services and society more generally. A key audience is policy makers who determine availability of services, making decisions about provision that impact on all of these groups. In the UK, these policy makers include the Department of Health (DoH), the National Institute for Health and Care Excellence (NICE), the Social Care Institute for Excellence (SCIE), GP commissioning groups and indeed individual doctors and other health professionals. Internationally, they include other nations' equivalents of these commissioning organisations, as well as international bodies such as the World Health Organisation (WHO).</p> <p>Impact arises from UoB's UoA2 research through four main routes. First, epidemiological information improves understanding of disease pathways and provides information to patients, potential health care users and society about means of preventing illness or disease or improving outcomes. It may also act as a driver for developing or adapting interventions. A first aim of the work within UoA2 is therefore (1) to ensure speedy dissemination to relevant policy makers, clinicians, patients and society, of information about causes of disease.</p> <p>Second, before the early 1970s little attention was paid to the relative effectiveness of interventions (both health technologies and organisational interventions) introduced into the health services and consequently patients were subject to experimental interventions that were either ineffective or actively brought about harm. Two major aims of UoA2's work therefore are (2a) to ensure that robust information about effective interventions is provided in a timely manner to facilitate the speedy introduction of interventions that can improve people's health and life, whilst at the same time (2b) to ensure that interventions that initially look promising, but that are not effective or safe, are not introduced.</p> <p>Third, prior to the early 1980s, little attention was paid to the relative cost-effectiveness of interventions and consequently interventions were introduced that, whilst effective, were also expensive, imposing high opportunity costs on other patients. UoA2 further aims therefore (3) to ensure the timely provision of robust information about the cost-effectiveness of interventions, ensuring that resources are used to obtain the greatest improvement in health across the population and that investment and disinvestment decisions relate to cost-effectiveness.</p> <p>Fourth, health care interventions need to be acceptable, taking account of cultural and ethnic differences in attitudes to accessing healthcare. As a civic University in a multicultural city, UoB is ideally located for such research. A final aim of the work within UoA2 is therefore (4) to ensure that services provided are culturally acceptable to the full range of recipients.</p> <p>These impacts relate to the full range of research activity within UoB UoA2, which comprises the School of Health & Population Sciences (HaPS) and the Birmingham Clinical Trials Unit (BCTU) based in the wider College of Medical and Dental Services (MDS). Across UoA2 there is expertise in the main community focused clinical disciplines: public health, primary care, occupational and environmental medicine, as well as methodological expertise in biostatistics, clinical trials, epidemiology, health economics, medical ethics and qualitative research. UoA2 has attracted substantial infrastructure investment from a variety of research funders and has made a conscious effort to host significant, large scale activities, whose primary function is to ensure patient impact from research, both conducted in Birmingham and elsewhere, related to (2a), (2b), (3) and (4) above. These include the NIHR Birmingham and Black Country Collaborations for Leadership in Applied Health Research and Care (CLAHRC BBC, to be followed by CLAHRC-WM for the West Midlands) and the Department of Health's National Horizon Scanning Centre. The types of impact identified above relate to the two broad research themes within the UoA:</p> <p>(A) <u>Primary Care and Population Health Research</u>. This includes primary research (i) determining disease aetiology and (ii) evaluating population-based or clinical interventions. All five types of impact are apparent within this research group. A strong example of where research is leading to direct patient impact is the endorsement by the Royal Colleges of General Practitioners, Physicians and Nursing, as well as organisations such as Rethink and Diabetes UK, of the Lester UK Adaptation of the Positive Cardiometabolic Health Resource, for use by General Practitioners (GPs) with psychosis patients on antipsychotic medication to identify and address increased cardiovascular and type 2 diabetes risks. Other examples are contained in the <i>Heart failure, Atrial</i></p>

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fibrillation, *PulseOx* and *Epidural analgesia* case studies.

(B) **Health Care Evaluation and Methodology**. This includes research focused on patient safety, quality of care, service design and delivery evidence, synthesis of secondary data as well as methodological work. The theme provides impact of types (2a), (2b), (3) and (4). An example is the youthspace initiative (www.youthspace.me) to improve mental health awareness, based on CLAHRC BBC work examining delays in accessing treatment for serious mental health disorders, and a finalist for the 'innovations in mental health' category of the Health Service Journal awards 2010. In relation to evidence synthesis, UoB's UoA2 has informed the National Institute of Health and Care Excellence (NICE) Technology Appraisals Programme, NICE Public Health Guidance and NICE Medical Technologies Appraisal/Evaluation Programme, providing over 20 academic reports during the period, all of which have led directly to national guidance and decision making from NICE and thus impacted on patient and user health in England and Wales. One example among many is a series of technology appraisals (TA 195 <http://guidance.nice.org.uk/TA195>; TA198 <http://guidance.nice.org.uk/TA198>; TA274 <http://guidance.nice.org.uk/TA274>, TA176 <http://guidance.nice.org.uk/TA176s>) that have synthesised and modelled data, from which NICE was able to take cost-effective decisions to extend the range of biologic treatment options available to patients with rheumatoid arthritis as well as influencing decisions to not provide treatments that are not a good use of resources. A further example of evidence synthesis is the *Hypertension* case study. Methodological work contributes impact by improving collection and analysis of data and so improving decision making and leading to patient and user benefit, but pathways can be more difficult to identify. Nevertheless, an example is work on statistical process control and the development of the pyramid model (*Mohammed*) which was used in the Shipman Enquiry, has informed key recommendations about monitoring deaths in general practice, has been used in an investigation to identify credible explanations for high mortality rates in two GP practices and has been adopted by health care organisations in Australia as well as in the UK.

b. Approach to impact

The ultimate purpose of all research conducted within UoB UoA2 is to benefit patients and health care users in the UK and internationally. Approaches to impact are built into planning from an early stage and combine traditional academic approaches to dissemination with more innovative methods of user and public involvement and direct targeted approaches to decision makers. These are facilitated through the Research Facilitators of the MDS Research & Knowledge Transfer Office which provides academics with a direct interface to the NHS, public engagement support and strategic project management, and ensures that new research projects integrate and access pathways to impact as part of their on-going activity. UoB partners with University Hospitals Birmingham NHS Foundation Trust to form Birmingham Health Partners (BHP) and is also part of the recently formed West Midlands Academic Health Science Network (AHSN) which has the principal objective of transforming the health of the West Midlands population through efficient and effective translation of research and innovation into practice. There is a proactive approach to fostering international impact with an International Engagement Oversight Committee and a UoB networking facility based in Brussels. UoB UoA2 promotes research impact through a variety of interlinked support mechanisms:

Traditional approaches to research dissemination include presentations at relevant scientific meetings and conferences, nationally and internationally, as well as publishing peer-reviewed scientific journal articles. Open access publication is preferred and UoB provides financial support. When feasible, publication in general journals with the widest readership is targeted; when not, publication in journals that facilitate information reaching those most likely to use it directly (clinicians or policy makers) is favoured. Evidence for this approach can be obtained from the outputs submission.

Early engagement with end-users enables research projects to address issues important to patients from the design stage, so that research is directly relevant to patients' and decision makers' needs and thus influential in practice. It also facilitates dissemination through improved use of lay language. Long-term collaborative relationships are developed with patient groups, NHS trusts, healthcare professionals and policy makers. These relationships are supported by UoA2 infrastructure, including a new Patient and Public Involvement (PPI) forum meeting twice yearly and well-established PPI within the BBC CLAHRC incorporating a smaller PPI Panel (27 members), a larger PPI Forum (65 members) each meeting twice a year, and smaller monthly

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meetings for each research theme. Groups draw on the UoA's qualitative research expertise and understanding of cultural diversity.

Active dissemination to clinicians and policy makers enables research implementation through direct actions of clinicians and policy change, and also incorporates **active participation in decision making**. It includes: direct engagement in dialogue with policy makers; presentation to clinical meetings, policy workshops, Government committees etc.; direct participation in policy making committees; provision of national Continuing Professional Development (CPD) training; publication of articles for professional journals (e.g. Pulse); and direct service dissemination (e.g. newsletters to GP practices). Work on traditional birth attendants provides an example where impact was facilitated by the efforts of researchers to open debates with WHO at international meetings and through direct engagement with representatives from international organisations including WHO, Royal College of Obstetricians and Gynaecologists International Committee and the International Confederation of Midwives (**Cheng, MacArthur**). Examples of direct committee participation include: membership of the DoH Committee on the Medical Effects of Air Pollutants which produced state-of-the-art reports instrumental in informing and building the UK's Air Quality Strategy and influencing deliberations on air quality in Europe and at WHO (**Ayres**); membership of the NICE Programme Development Group for managing overweight and obesity in adults (**Jolly**); membership of the NICE group developing guidance documents on smoking cessation (**Farley**). An example of CPD training is provided by **Fitzmaurice's** anticoagulation research resulting in the National Centre for Anticoagulation Training (providing accredited training to health professionals for managing anticoagulation patients) within UoB, as well as BMJ learning modules.

Active public engagement brings issues directly to the public and patient population enabling them to manage their own health issues and seek help as necessary. It includes dissemination through the media supported by UoB's press and marketing offices and showcasing research at public events and venues. Examples include: dissemination through the media of work by **Daley** and **Deeks** on effects of exercise on breast milk, with features by both press and social media including the Chicago Tribune, Reuters, Bangkok Post, Straits Times, US News Report, Yahoo! and MSN Health; participation of UoA2 staff in the Birmingham Thinktank Science Museum Cafe Scientifique lecture series; inclusion of the 'Lighten Up' trial in Hello magazine; filming of a television programme for Channel 4's 'Embarrassing Bodies' about misdiagnosis and under-representation of skin conditions among people with pigmented skin (Hyland, Jones).

c. Strategy and plans

The Research Impact Strategy (RIS) is an integral element of the HaPS Research Strategy and is extended to the rest of UoB UoA2 through the formal and staff links between the School and the BCTU. It focuses both on generating impact from research and developing research in areas that can have greatest impact. Inevitably, however, the RIS is an evolving approach that has to respond both to knowledge generation about how best to achieve impact from health research and to perceived shortfalls within the UoA. The RIS is generated through the HaPS Strategic Research Committee and implemented through the leadership of senior academics via their own work and their line management activities within the UoA.

Goals

The overall goal of the RIS is to maximise both likelihood and extent (reach and significance) of impact of all research conducted within UoB UoA2, through achieving the following objectives:

- (i) To ensure that all early career researchers within UoA2 receive training in (a) patient and public involvement (PPI) and (b) generating impact from research, within a year of starting within UoA2;
- (ii) To ensure that investigators explicitly consider the likely reach and significance of new research work, and that this is taken into account in deciding whether ideas should be pursued;
- (iii) To ensure that each new research project proposal within UoA2 includes a diversity of approaches to impact as an integral element of the research activity;
- (iv) To continue to foster a climate of citizenship among senior academics within UoA2 in which active participation in policy generation (such as participation in committees of NICE, UK Government, EU, national and international NGO or clinical decision making bodies) is both expected and supported;
- (v) To continue, and further develop support for, user engagement activities learning from best

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practice within the UoA and from outside.

(vi) To actively monitor impact for all research projects on an annual basis.

Plans for supporting and enabling impact

It is vital that researchers within UoA2 are fully engaged with achieving impact. Plans for supporting and enabling impact are related to the specific objectives and will be facilitated as follows:

(i) Training on generating impact can best be developed through HaPS, given the routes for generating impact within this type of work. Similarly, expertise on PPI resides within HaPS. The School is therefore generating training open to all within the UoA, which will incorporate the four routes to impact described above. The training is being developed and co-ordinated through the HaPS School Research Committee. The meeting of this objective will be monitored through the University's newly developed Personal Development Review (PDR) process.

(ii, iii) Within the College, all new research is required to meet certain requirements, evaluated by a senior academic at least 12 weeks prior to submitting a proposal through the completion of an 'Intention to Submit' form. This has been adapted to include information about aspects of research relevant to impact including PPI and dissemination activities. Agreement to develop research proposals will be refused if pathways to impact are unclear or proposed research is likely to generate little impact. Researchers will also be advised how to maximise research impact of research and funding for active dissemination will be prioritised within the UoA's budgets.

(iv) Active participation in policy generation is being encouraged through line management and School committees; such roles are informing the allocation of other aspects of workload. Monitoring will be through the PDR.

(v) Support for current user forums will be maintained, and development of more specific user forums/ user engagement is being encouraged for each aspect of the School's research themes. Focus is on generating research ideas, designing and conducting research, and improving dissemination of research findings to users through the use of more appropriate language.

(vi) Active monitoring of impact generation from research projects will be undertaken annually by the HaPS Strategic Research Committee. Those leading research themes will be asked to provide information both about activities undertaken to increase research impact, and evidence of any impact achieved.

d. Relationship to case studies

The case studies presented reflect the use of diverse approaches to generating impact and their successes have been important in informing the development of the overall strategy.

As with most of the research conducted in UoB UoA2, certain aspects of ensuring impact have been rigorously pursued. These include publication in general medical journals with high readership (with all case studies having achieved publication of the underlying research in NEJM, Lancet and/or BMJ; a good example is the Heart failure case study, published in NEJM and cited more than 2,700 times) and active media engagement (for example, interviews for the PulseOx and Hypertension case studies with local, national and international media).

Other aspects of ensuring impact within these case studies have been more innovative and focused, including active dissemination to clinicians, direct dialogue with policy makers, and involvement of patients and the public. These successes underline the importance of further developing these methods of ensuring impact more widely across the UoA. The value of active dissemination to clinicians is highlighted by the Atrial fibrillation and Hypertension case studies, both of which have been involved in developing BMJ learning modules for clinicians. The importance of direct dialogue with policy makers is emphasised by the PulseOx case study (which involved participation by the lead clinician as an advisor to a working group of the Secretary's Advisory Committee on Heritable Diseases in Newborns and Children) and the Hypertension case study (where the research group engaged extensively with the relevant Guideline Development Group at NICE through individual meetings, presentation of model structures, provision of draft reports and collaborative working on the economic model). This latter case study also demonstrates the importance of early engagement with stakeholders. The importance of working with patients and the public is underlined by the PulseOx case study which, in disseminating its findings, has successfully linked with patient organisations such as Little Hearts Matter.