Commissioning Brief
14/46 - Research into organisation of surgical services for the twenty first century
Closing date: 15 May 2014 (two stage - outline to full)

1. Remit of this call: main topic areas identified

There have been radical changes in the practice of surgery and in how services are delivered in the last twenty years. These include the increased use of minimally invasive surgery and new technologies, accompanied by shortened length of stay and rise in daycase surgery, with the development of more stand-alone same-day surgery units. There has been a shift to centralisation of more complex procedures into fewer high volume centres. The patient profile is changing too, with more older patients now receiving surgery despite a range of complex co-morbidities. Restrictions in junior staff have led to changes in team composition and emergence of new roles, such as surgical first assistants.

Despite these rapid shifts in surgical practice and organisation, there has been relatively little research on the delivery of surgical services (as opposed to procedures) which will generate national learning. Research is needed not just to describe and measure the impact of current changes, but to influence and inform the shape of future developments in how surgery is best organised and delivered.

Five particular areas are highlighted below, where research is needed:

(1) New pathways and services for changing patient profile
(2) Patient experience and continuity of care given changes to surgical practice
(3) Impact of organisation of services and theatre efficiencies
(4) Workforce and the operating team
(5) Variation in access, quality and safety in surgery

Researchers may wish to address several of these areas in one proposal – for instance, an evaluation of older peoples' surgery pathway might include new organisational forms (dedicated assessment units), new staff roles (surgery liaison nurses) and research on patient experience and acceptability. All studies should ensure that teams are staffed with range of expertise and sites to deliver learning on a national scale, rather than local audits or service evaluations.

This call complements existing work already funded through the NIHR Patient Safety Translational Research Centres[1].

Further information on the background to this call, including knowledge gaps and relevant research is given in supporting information.

(i) New pathways and services for changing patient profile

Changes in the population have influenced the delivery of surgical services. This includes increases in frail older people with complex co-morbid conditions, and the numbers of the very old who are now receiving surgery. Disease profiles have also changed with a rise in obesity and diabetes and decline in cardiovascular diseases. In recent years, attention has focused on the needs of high risk patients, who account for many of the avoidable complications and morbidity associated with surgery. This poses challenges for surgical teams in delivering safe care. Some services have developed proactive assessment and management services for elderly patients and other high risk candidates for surgery.

[1] http://www.nihr.ac.uk/infrastructure/Pages/patient_safety_research_centres.aspx
The NIHR Evaluation, Trials and Studies Coordinating Centre (NETSCC), based at the University of Southampton, manages evaluation research programmes and activities for the NIHR

Other services have identified care pathways for general conditions, where surgical interventions are just one part of the care pathway. Not enough is known about the impact of different models, including optimal time for referral and treatment along the care pathway.

High quality evaluation is needed of surgical care pathways. Particular gaps exist around the cost-effectiveness of targeted services for high risk patients, such as the frail elderly or severely overweight, to address the needs of a changing population. A good example of a recently funded study in this area is the HS&DR funded evaluation, using quasi-experimental methods, of a new integrated pathway for laparotomy surgery. Robust study designs like this are needed in this area to generate national learning. Much existing evidence in this field is based on single-site case studies with little attention to context and inadequate specification of complex staff-based interventions.

(ii) Patient experience and continuity of care given changes to surgical practice

Shifts in how surgical services are organised have not always been accompanied by robust evaluations of the impact on patients. This might have a number of dimensions, from continuity of care (particularly given shorter lengths of stay and greater reliance on primary and community care to identify and manage post-operative complications) to issues of consent and capacity or nutrition, pain management and personal needs during and after surgery. More high quality empirical studies are needed to explore acceptability to patients and informal carers of recent changes to practice such as enhanced recovery programmes (compared with conventional care), using validated survey instruments and quality of life tools. Some providers have introduced new tools (patient information and passports) to improve communication across the surgical pathway, but these have not been evaluated.

Studies looking at acceptability of new forms of care or technology should be designed to minimise bias, for instance by including matched populations receiving more conventional forms of surgery or surgical care. Many existing studies of patient experience of changes to surgical practice are small-scale and exploratory, often in single-site studies. Note that there has been much interest recently in the use of patient reported outcome measures (PROMs) to measure health gain before and after surgery, for procedures such as hip replacement. Particular methodological research related to PROMs is funded separately by the MRC Methodology Research Programme and is outwith the scope for this call. Other work has focused on patient reported experience measures (PREMs) to measure care processes, such as waiting times and communication. More research could be undertaken to evaluate the use of patient experience data of this kind to shape surgical care.

(iii) Impact of organisation of services and efficiencies

Not enough is known about the cost-effectiveness of different ways of organising surgical services. There have been radical changes in surgical practice which have led to an increased proportion of day case surgery and the growth of particular organisational forms, such as dedicated units for high volume, low risk surgery. More work is needed to examine the impact of different organisations of care, including comparison of stand-alone and integrated day case surgical units; co-location of adjunct and related services (from emergency services to pain management); organisation of 24/7 care in relation to surgery; development of dedicated emergency surgery units; rapid assessment through `hot clinics' and other service innovations. Research is needed to address important questions, such as the optimal catchment population or caseload for a safe, cost-effective emergency surgical service. Quasi-experimental methods may be most appropriate to measure impact of new services as they are introduced, using control sites and populations where possible. This might include studies to evaluate the organisational impact of new surgical technologies, including the infrastructure, workforce and cultural adaptations for organisations adopting new practice. New models of care should be scaleable to the wider service and care should be taken to ensure findings are generalisable.

Research in this area could also look at particular initiatives to improve theatre efficiencies. This includes particular attention to scheduling lists, stocktaking and reducing number of cancelled operations. An initiative by the NHS Institute - the Productive Theatre – has been widely adopted and an interim evaluation was commissioned which suggested some effect in achieving efficiency savings, although data was limited to five sites. Further national evaluation of this and other initiatives using robust mixed-methods assessments would be welcome.

(iv) Workforce and the wider operating team

Recent years have seen important changes to how operating teams work. These include restrictions in hours of junior staff, greater sub-specialisation, increased use of support technical and nursing staff and growing numbers of interprofessional teams with overlapping responsibilities for patients. We do not know enough about the impact of changes in skillmix and balance of senior/junior staff on performance and outcomes. Research is needed which examines the cost-effectiveness of substitution and changes in skillmix – from the role of the surgical first assistant or surgical care practitioner to theatre support worker. Other changes in team composition need to be studied, such as the use of two-consultant operating for complex major cases. As well as robust research to provide better evidence on clinical productivity, studies should consider the impact on team and organisational culture from shifts in team structures and roles and how change is implemented. There are also important workforce questions arising from the change in patient profile – for instance, how should surgeons work with specialists in care of the elderly? How should surgical training respond to future changes in the burden of disease that can already be anticipated?

Mixed methods studies are needed to address questions relating to optimal team size and impact of staff substitutions and shifts in skillmix and grademix. Researchers should draw on academic human resource and management literature to provide theoretical frameworks to analyse shifts in professional and role boundaries. This research should complement other important research on teamworking, simulation, communication and decision-making in surgery, using human factors and other techniques, already funded through NIHR programme and other investment.

(v) Variation in access, quality and safety in surgery

We know that there are substantial differences between and within hospitals and health-care systems, but the relationship between these organisational and team-level characteristics and outcome is difficult to establish. High-level analytic work could help in understanding the relationships between different process and organisation factors and patient outcome. At a more basic level, we need to understand better patterns in the use of surgical services and determinants at a patient, clinician and service level which may affect thresholds for surgery. Studies are needed which explore variation and access to surgery, looking at population characteristics (such as ethnic diversity, age and deprivation), and the availability of alternative medical treatments. This includes identifying modifying factors and solutions for minimising inappropriate variation in surgery.

Robust analysis of secondary data can also be used to understand better variations in process – such as proportion of procedures done as day case or day of surgery admission – and other important variables, such as length of stay and readmission rates. There is scope for modelling work and analysis, using routine data including surgical-appropriate clinical audit resources such as the national joint registry, as well as hospital episode statistics and other secondary data sources. This is needed to provide national learning on equity and access in relation to surgical activity and to identify process factors which may improve patient outcomes and performance.

2. Purpose of call

This topic emerged as a priority for and NIHR themed call in 2012. Four substantive studies were commissioned by the HS&DR programme following that call, as well as trials and other studies funded by other NIHR programmes. However, some important questions relating to organisation and quality

of surgical services remain. A seminar was held at the Royal College of Surgeons in April 2013 to consider new opportunities and challenges for research for surgery in the twenty first century. A number of important service uncertainties were identified during and after this event in discussion with researchers, surgeons, managers, patients and clinical leaders against the current research portfolio.

3. Notes to Applicants

The NIHR Health Services and Delivery Research (HS&DR) programme aims to produce rigorous and relevant evidence on the quality, access and organisation of health services, including costs and outcomes in order to improve health and health services. It is focused on research to support decisions by frontline managers and clinical leaders on the appropriateness, quality and cost-effectiveness of care.
The NIHR HS&DR programme is funded by the NIHR, with contributions from NISCHR in Wales, the HSC R&D Division, Public Health Agency in Northern Ireland, and case by case contributions from the CSO in Scotland.
The programme operates two funding streams; researcher-led and commissioned. Researchers in England, Wales and Northern Ireland are eligible to apply for funding from either workstream under this programme. Researchers in Scotland may apply to the researcher-led workstream but are not eligible to respond to the commissioned workstream and should contact the CSO to discuss funding opportunities for healthcare delivery-type research

4. Application process and timetable

Please ensure you have read the supporting documents and application guidance notes provided to support this call.

Should you have any questions or require any further clarification please refer to the NETSCC FAQs at HS&DR programme - FAQs, if the answer to your question cannot be found please email your query to hsdrinfo@soton.ac.uk with the title for the call for proposals as the email header. Applicants should be aware that while every effort will be made to respond to enquiries in a timely fashion, **these should be received at least two weeks before the call closing date.** The process of commissioning will be in **two stages** and applicants should submit **outline proposals** via the HS&DR website by **1pm** on **15 May 2014**. All proposals will initially be checked for remit and competitiveness[2]. No late proposals will be considered. No paper-based only submissions will be considered.
Applicants will be notified of the outcome of their outline application in **July 2014**
Shortlisted applicants will be invited to submit a full proposal via the HS&DR website (a link will be sent to shortlisted applicants). Applicants will be notified of the outcome of their full proposal application in **Dec 2014**. Please note that these dates may be subject to change.

5. Transparency agenda

In line with the government's transparency agenda, any contract resulting from this tender may be published in its entirety to the general public. Further information on the transparency agenda is at:

http://transparency.number10.gov.uk/
http://www.ogc.gov.uk/policy_and_standards_framework_transparency.asp
http://www.contractsfinder.businesslink.gov.uk/

[2] '***Non-Competitive***' means that a proposal is not of a *sufficiently high* standard to be taken forward for further assessment in comparison with other proposals received and funded by the HS&DR programme because it has little or no realistic prospect of funding. This may be because of scientific quality, cost, scale/duration, or the makeup of the project team.