



Meeting tomorrow's healthcare challenges *today*



World class research to
improve healthcare through
better infrastructure

HaCIRIC partners



Our Challenges

Shift care patterns to the most appropriate care settings

Example: We study how to embed new systems of remote care – telecare – across the NHS and social care, to achieve high quality, personalised, cost effective services.



Rethinking the use of technological and physical infrastructure to improve the patient experience

Example: We seek answers to reducing healthcare associated infection – is it more wash hand basins, single rooms, controlled movement of people, better cleaning or integrated staff training?



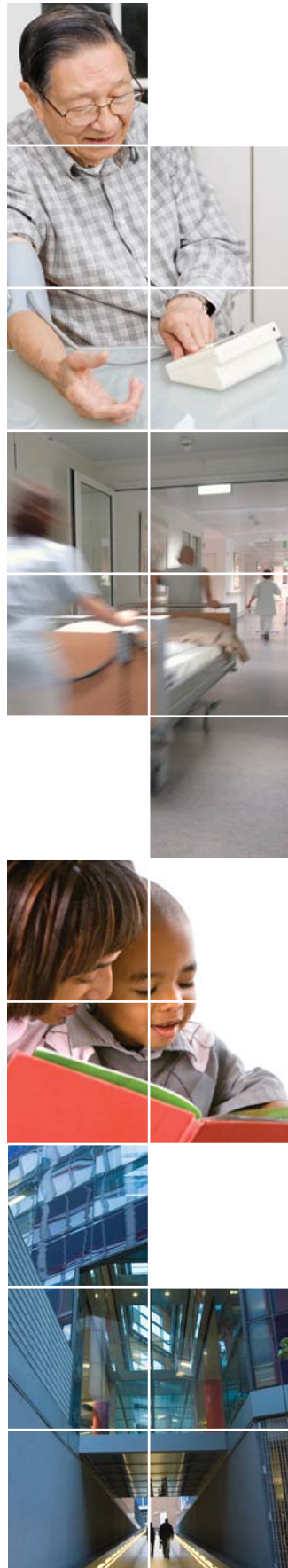
Develop new organisational and funding models to make that change possible

Example: We are helping redesign buying methods to embed innovative healthcare, sifting the best from PPPs, PFIs and other models from around the world.



Encourage change by producing accessible evidence that change really works

Example: Using modelling, simulation and visualisation, as well as Benefits Realisation tools, we develop fresh approaches to complicated decision-making - planning buildings and services to get the best from technology, people and infrastructure.



What HaCIRIC is doing

Britain and other major developed countries face significant challenges in the provision of health and social care. Our systems are aiming to meet expanding demand while controlling costs, improving quality and raising productivity – all at the same time.

Business as usual is not a long-term option. Fundamental and lasting solutions will require system redesign, combining technology, services and infrastructure in new ways.

Uniquely, HaCIRIC's research programme focuses on the relationships between all these three elements of modern care systems. Our work is essential, because we not only research key questions. We also model potential solutions and disseminate the learning, ensuring that care systems can accomplish vital structural innovation.

We see four steps in tackling the global challenges. First to shift care between different settings, often closer to home. Second, to use technological and physical infrastructure creatively to support that change. Third, to develop new organisational and funding models to make that infrastructure work. Finally, to generate clear evidence showing what really works and how it can be embedded.

Innovation is vital. It involves much more than simply creating new healthcare technologies or physical infrastructure. Embedding these technologies sustainably in mainstream practice is essential. We investigate the barriers to change, the innovations that are cost-effective and their impact on the care system. Missing out one link can be fatal to lasting change. We make sure they are all in place.

How HaCIRIC can help

We can work in innovative ways and bring to you a multi-disciplinary knowledge base, built up over decades.

By viewing problems from a range of perspectives we can provide analysis of need, service redesign and infrastructure implementation. Through modelling and simulation, we can help to show how to integrate new services with the required infrastructure to improve patient services, and we understand the challenges and processes of implementing innovations.

Prof. Colin Gray
Programme Director, HaCIRIC

Tackling big issues

01 Home not hospital

We study how to embed new systems of remote care – telecare – across the NHS and social care, to achieve high quality, personalised, cost effective services.

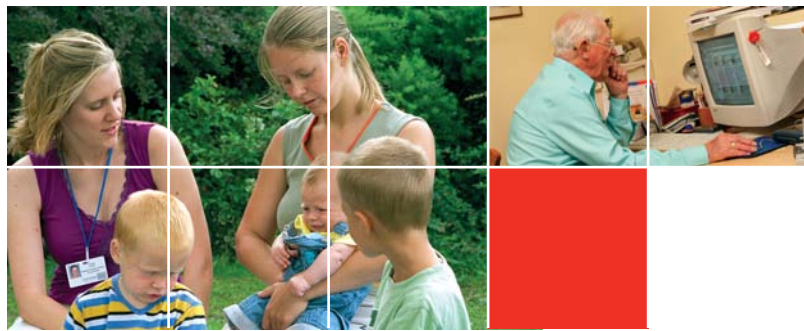
Remote care could potentially improve the quality and personalisation of care, while also increasing efficiency and controlling costs. It is becoming a key vehicle for achieving whole system change within the UK's emerging health and social care infrastructure. However, the big challenge is not only to test whether this new technology actually works. HaCIRIC is playing an important role in tackling a second major challenge: understanding how remote care could be successfully adopted and embedded into healthcare systems in a sustainable way.

We were invited by the Department of Health to help form a consortium to evaluate the Government's £30m 'Whole System Demonstrators' (WSD) programme. This is the world's largest randomised control trial of remote care services, introducing telecare into three sites and exploring the impact across the local care system.

Research impacts

Our data is probably the most comprehensive ever collected on the factors that influence the adoption of remote care, from first proposal to mainstream implementation.

This research will greatly increase government and NHS understanding of how complex organisational innovations across health and social care can be successfully implemented and managed. It will help to decide whether remote care is a cost effective solution that should be implemented nationwide.



02 Safer patients

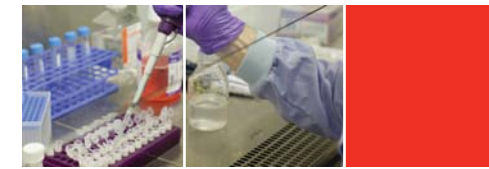
We seek answers to reducing healthcare associated infection – is it more wash hand basins, single rooms, controlled movement of people, better cleaning or integrated staff training?

Tackling healthcare associated infections (HCAI), such as MRSA, demonstrates the breadth of HaCIRIC's mission. Our focus on 'whole systems' is helping to unravel the complex relationship between technology, medical practice, service delivery, the built environment and HCAI. Success could offer global improvements. It could help to cut costs and demand on healthcare systems as well as raising quality of outcomes and influencing building redesign.

In Britain, HCAIs are generally falling, but we don't know what works best. That's why HaCIRIC is examining which initiatives are most effective and whether redesign of the underlying built infrastructure could also make a difference.

Research impacts

We are investigating which are the most effective common initiatives to combat HCAIs – from more clinical basins with sensor taps, new bedside curtains and separate staff changing facilities to building single rooms and different methods of cleaning. We will publish a design guide to ensure our findings impact on facilities. We are also testing whether the physical design of healthcare facilities influences movement and if it could cut the spread of infection. Our work also includes how to embed learning into ward level practice, as well as strategic advice.



03 Smarter purchasing

We are helping to redesign buying methods to embed innovative healthcare, sifting the best from PPPs, PFIs and other models from around the world.

Across the world, the use of service contracts and performance-based contracting for capital projects has expanded widely since the 1990s. In the UK there was a shift away from using government funds to procure healthcare infrastructure towards involving the private sector via the Private Finance Initiative (PFI). Despite the PFI's current decline, private sector engagement in the delivery and management of public sector healthcare projects is likely to continue in the foreseeable future. Moreover, its use outside the UK is growing.

HaCIRIC projects are exploring how these public-private partnership models have impacted on healthcare infrastructure, focusing especially on their role in stimulating innovative design and construction, and in performance improvement. This work provides useful lessons for future approaches to financing and procurement.

Research impacts

We have found a lack of innovation in PFI projects as well as the need to ensure that the purchasers have more power and knowledge at key moments of leverage – usually at the start of a project. Clients also need greater power to influence the supply chain. Further issues include a tendency for building planning to reflect the rivalry of clinicians for operational space and the execution to reflect poor knowledge among contractors of clinical matters. We aim to identify the best in PFI examples – as well in British and international examples of PPPs – to create innovative models in this area.



04 Better decision-making

We develop fresh approaches to complicated decision-making: planning buildings and services to get the best from technology, people and infrastructure.

Improving healthcare, while also cutting costs, can demand a wholesale redesign of services and infrastructure use. But developing the business case and involving multiple stakeholders can be difficult and risky. The relationships between technology, services and infrastructure are complicated, with potential benefits poorly evidenced. Additionally, today's preference for 'local solutions' means decision-makers often lack expertise in tackling such tricky issues. The result can be an aversion to innovation. We are tackling this in two ways – through our highly successful Benefits Realisation programme, BeReal™, and through the use of modelling, simulation and visualisation (MSV) to help predict innovation impacts on stakeholders and the system as a whole.

Research impacts

BeReal™ has already been used by several healthcare organisations to support their decisions on the configuration of healthcare services and built infrastructure. At a more strategic level, we are using MSV to test new ways to deliver stroke care in the UK and the United States. The two countries have different approaches and outcomes, offering lessons for each and potentially major improvements in disability and mortality rates. We are using modelling techniques to help architects and planners to remodel infrastructure to support changing services to take account of diverse stakeholders, new treatments and medical advances. And we are evaluating our own methods – examining how simulation is actually used in real-life settings.



We can help with: Business strategy • Modelling + simulation • Benefits realisation • Rethinking infrastructure • Quality outcomes support • Community engagement • Horizon scanning • Patient safety • Value for money • Service redesign • Performance management • Innovation management • International networking • Knowledge management • Policy discussion • Change management • Decision advice • Procurement help • Bespoke packages on emergent issues

The HaCIRIC Team

HaCIRIC is a collaboration between existing research centres at Imperial College London and the Universities of Loughborough, Reading and Salford. Additional partners from other universities, industry and the care system are involved in specific research projects.

We can help you

Members of the HaCIRIC team are leading university research groups in the UK with decades of experience working with companies and organisations in healthcare and the built environment. Through its partners, HaCIRIC can bring the best international practices to you as part of our analysis. We can:

- ↳ **Assist** in the rethinking of the infrastructure for new services
- ↳ **Help** redesign existing services and facilities
- ↳ **Cross** boundaries between professions and organizations
- ↳ **Model** existing and future practices to develop effective briefs for projects
- ↳ **Design** effective procurement to ensure innovative thinking from all parties
- ↳ **Develop** implementation approaches to embed the delivery of innovative practices and healthcare.

To access the HaCIRIC team - and benefit from the world's largest research programme in healthcare infrastructure - contact:

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