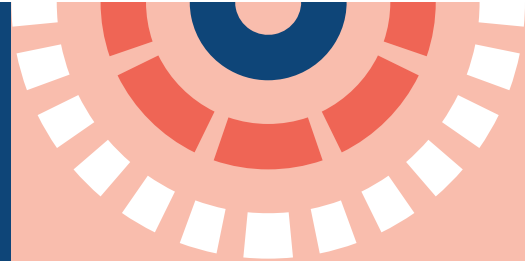




**Public Empowerment
through
Patient Inspired
Innovation**



About us

The **NIHR Brain Injury MedTech Co-operative** is one of the eleven MedTech and In Vitro Diagnostic Co-operatives (MICs) funded by the NIHR across the country. The MICs facilitate collaboration with patients, carers, NHS, charities, academia, inventors, SMEs, business angels and medtech companies.

The MICs catalyse innovation in clinical areas of unmet needs for NHS patients and are committed to develop new concepts, demonstrate proof of principle and devise research protocols for medical devices, healthcare technologies and technology-dependent interventions.

The NIHR Brain Injury MIC builds on the significant achievement of the NIHR Brain Injury Healthcare Technology Co-operative (HTC).



The clinical need

Head injury is the commonest cause of death and disability in people aged 1-40 years in the UK. Each year, 1.4 million people attend emergency departments in England and Wales with a recent head injury. Between 33% and 50% of these are children aged under 15 years (NICE Guidance on Head Injury: Assessment and Early Management: 2017). This lead to a range of disabilities including complete dependency and vegetative state. Even mild injuries may result in significant cognitive and emotional disability with implications for return to work and family harmony.

The UK has had a major role worldwide in the study of the management of brain injury to which the MIC contributes by establishing a collaborative environment and network between clinicians, scientists, Industry/SMEs and patients.

FIND | unmet needs

70 unmet needs have been prioritised through the various structured initiatives facilitated by the MIC to create an *Unmet Needs Directory*.

→ **PATIENT CENTRED**

780 participants recruited to support projects.

FACILITATE | funding competitions

Since 2014, the NIHR Brain Injury MIC have seed funded 53 national projects that address the unmet needs identified.

233 → **91** → **53**
Expressions of interest Applications Awarded projects for a total of £426,335

External funding leveraged with partners **£8,257,166**

FOSTER | SME engagement

72 links with SMEs during 2018-19.

Including SMEs, start-ups and project teams showcased technological innovations to a panel of patients, carers, clinical and academic experts.

Our approach

The NIHR Brain Injury MedTech Co-operative aims to **FIND, FACILITATE** and **FOSTER** ideas for early stage evaluation to meet the needs of those who have been affected by brain injury.

For more information, please visit our website: brainmic.nihr.ac.uk/about/approach

► FIND

Identify areas of unmet need throughout the brain injury pathway that might be amenable to a technology-based innovation.

1 Identification of unmet needs

Proactive

1. Horizon scanning
2. Road mapping
3. Gap analysis
4. Competition

Reactive

1. NIHR clinical research infrastructure (NOCRI)
2. National Institute for Health and Care Excellence (NICE)
3. Surgical Technology Evaluation Portal (STEP)

2 Triage

Sense check

1. Validate need
2. Market analysis/Health economics
3. Technology screen
4. Intellectual Property Rights
5. Regulatory issues
6. Peer review

► FACILITATE

Promote the generation of innovative solutions through the facilitation of interdisciplinary communication and collaboration between the NHS, academia, industry and public organisations.

3 Catalyse early R&D

1. Inform competitions
2. Pump priming
3. Team building
4. Identification of networks
5. Grant application
6. Industrial partnership

4 Catalyse early Proof of concept

1. Inform competitions
2. Pump priming
3. Team building
4. Identification of networks
5. Prototype
6. CE marking
7. Grant application
8. Industrial partnership

► FOSTER

Support the translational pathway of viable solutions from initial concept to successful market adoption and sustainable clinical impact.

5 Growth

1. Linkages to funding initiatives
2. Crowd sourcing
3. Source investment
4. Support grant applications
5. Experimental clinical research (phase 0 to II)
6. Inform Randomized Controlled Trial Design (phase III)

6 Evaluation

1. Brain Injury Den (BID)
2. Brain Injury Technologies Think Tank (BITT)
3. Expert review

7 Handover, dissemination & early adoption

1. NICE evaluation
2. Revision of clinical pathway
3. Publications and presentations
4. Wider innovation landscape
5. Industrial development

The core team

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Key themes

The NIHR Brain Injury MIC provides a “go-to” centre of expertise for understanding the clinical care pathway. Our work is divided into eleven key themes led by internationally renowned experts in their respective field:

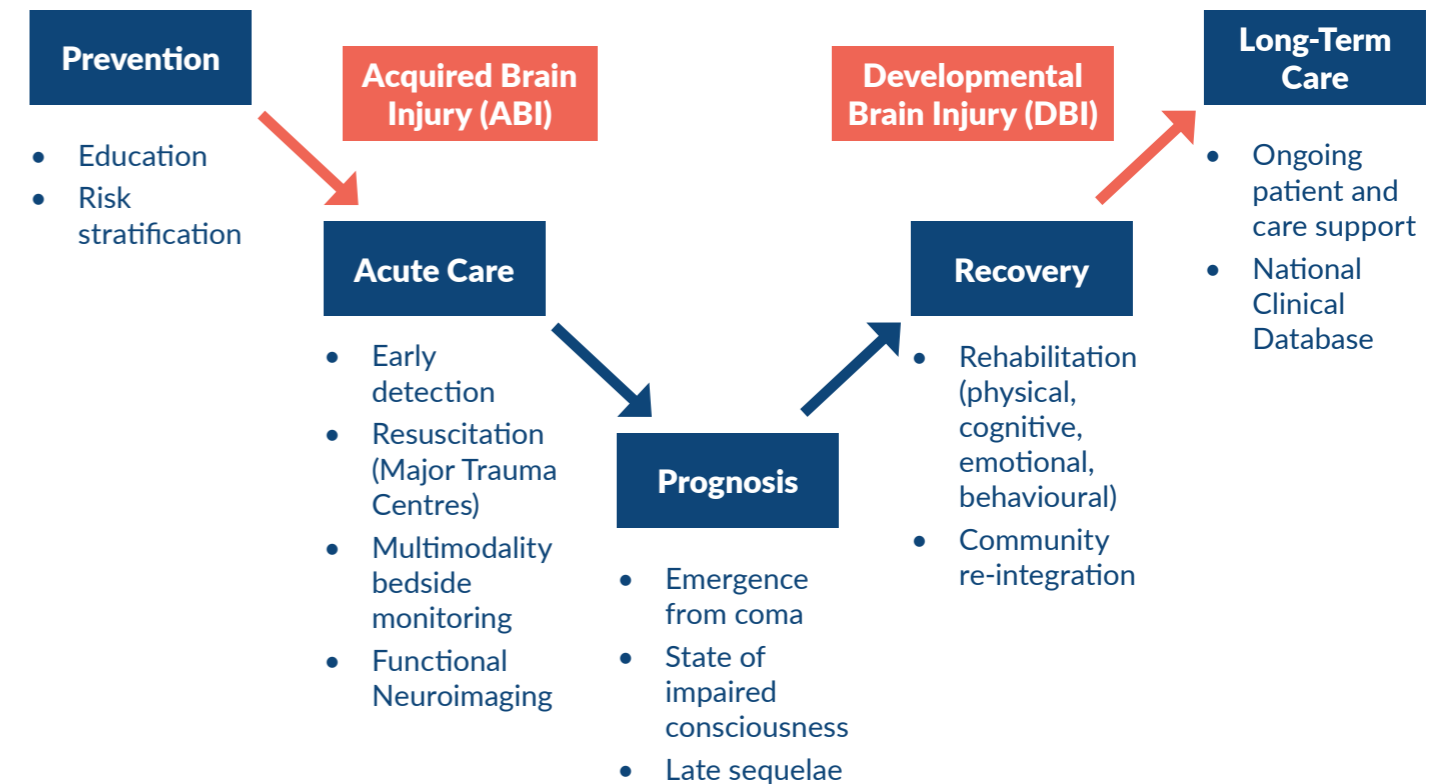
- **Pre Hospital and Prevention** - Professor Mark Wilson
- **Neurocritical Care** - Professor David Menon & Dr Ari Ercole
- **Multi-Modal Monitoring** - Mr Adel Helmy and Dr Keri Carpenter
- **Intracranial Dynamics and Shunt Technology** - Professor Marek Czosnyka & Dr Peter Smielewski
- **Functional Neuroimaging and Neurophysiology** - Professor Franklin Aigbirhio
- **Neuro-oncology** - Mr Stephen Price
- **Paediatrics and Neurodevelopment** - Professor David Rowitch & Professor Topun Austin
- **Regenerative Neuroscience** - Dr Mark Kotter
- **Neurorehabilitation** - Professor Val Pomeroy
- **Cognition and Mental Health** - Professor Barbara Sahakian
- **Neuropsychological Rehabilitation** - Dr Andrew Bateman

Cross cutting themes

In addition to the key themes, the NIHR Brain Injury MIC approach is also applied to core activities which are grouped in four cross-cutting themes overseen by an expert in the field:

- **MedTech Regulation & Developmental Support** - Dr Peter Jarritt
- **Clinical Informatics and Registries** - Dr Alexis Joannides
- **Patient and Public Involvement / Public Engagement** - Professor Christi Deaton
- **Health Economics & Internationalisation** - Professor (Emeritus) John Pickard

The brain injury care pathway



Patient and Public Involvement, Participation and Engagement (PPIPE)

Register for Healthcare Involvement and Technology Evaluation (RHITE)

The NIHR Brain Injury MIC has initiated the implementation of the 'Public Empowerment through Patient Inspired Innovation' vision and is committed to engaging patients and carers throughout its work programme. We believe strongly that research should focus on questions that are important to people with brain injuries, and those who care for them. To ensure that patients and carers have a voice, we invite people whose lives have been affected by a brain injury to get involved in our work.

Get involved in the work of the NIHR Brain Injury MedTech Co-operative!

We have developed a volunteer register for patients, carers and anyone interested to assist in the advancement of healthcare technologies. If you are interested in the work of the NIHR Brain Injury MIC, we invite you to join our Register for Healthcare Involvement and Technology Evaluation (RHITE). Joining the register does not commit you to do anything. Periodically we will send you our newsletter and details of any opportunities there may be to take part in Brain Injury MIC activities. These may include:

- taking part in surveys;
- taking part in workshops;
- getting involved in other NIHR Brain Injury MIC activities and events.

You can register online on: orioncloud.org/rhite or by downloading a form from our website and posting a printed copy or emailing an electronic copy to us. You can also contact us at involve@brainmic.org and we will send you a hard copy of the form. For more information and frequently asked questions about joining our register please visit: brainmic.nihr.ac.uk/rhite

Get involved in research!

Outreach focus groups

The NIHR Brain Injury MIC is offering exciting opportunities for patients and carers to get involved in research and to have their say in helping to shape future patient involvement on the many projects, workshops and panels that we host.

Clinicians and companies are looking to share their work with people with brain injuries and those who care for them, and get their feedback on studies and products that they are developing.

Why should I get involved?

You might want to get involved in research to:

- learn more about a condition that affects you;
- make a difference, by helping to improve treatments and quality of life, now and for future generations;
- support medical research for a particular condition or disease that you care about;
- access new treatments;
- take an active role in your own care.



Public participation has helped provide valuable knowledge to help people live healthier and better lives now and in the future.

In order to get involved and have your say, register your interest at involve@brainmic.org.

The unmet needs directory

The Brain Injury Unmet Needs Directory was developed by the NIHR Brain Injury Healthcare Technology Co-operative (HTC). It aims to illustrate some of the possible unmet needs that may exist in the brain injury patient pathway. It is the result of 5 years of unmet need identification activities including workshops, surveys and competitions.

The directory of unmet needs is available to download at this link: brainmic.nihr.ac.uk/unmet-needs-directory

Contacts

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The NIHR Brain Injury MedTech Co-operative is delivered in partnership between Cambridge University Hospitals NHS Foundation Trust and University of Cambridge.