Manufacturing Future Healthcare Technologies
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- Specialist in the design, development and testing of biomaterials and medical devices
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Institute of Translational Medicine

- Birmingham Health Partners project
- Aim to accelerate innovation in healthcare
- Improve patient outcomes
- Get ideas to market and clinical practice faster and more cost effectively
- Multidisciplinary and industry focused
- Covers whole Bench to Bedside process
Technology Readiness Levels

1. Universities and Research Organisations
2. Basic Research
3. Translation
4. Collaborations
5. Industry and SMEs
6. Commercialisation
7. Technology Readiness Levels
Support for SMEs

- Three projects to support SMEs to develop medical devices and healthcare technologies
Support for SMEs

1. Basic Idea
2. Concept Developed
3. Proof of Concept
4. Validation in Lab
5. Validation in Relevant Environment
6. Demonstration in Relevant Environment
7. Demonstration in Operational Environment
8. Fully Qualified and Tested
9. Product Launch to Market

Healthcare Technologies Research Institute

MD-TEC Medical Devices Testing and Evaluation Centre

Usability Suite

innovationengine

Trauma Management
Healthcare Technology Co-operative
Innovation Engine

- Unique opportunity to bring together SMEs, clinicians and academics to deliver innovative solutions to healthcare challenges
- Enables SMEs to participate in solving the healthcare challenges of larger organisations, such as University Hospitals Birmingham NHS Foundation Trust.
- Minimum 12 hours of business assistance and consultancy to support SMEs to develop new or existing products/services
Innovation Engine

- Minimum 12 hours of business assistance and consultancy including market and strategic insight, research, technical support and design guidance
- Access to challenges and opportunities identified by partner organisations
- Access to key people within partner organisations
- Training and mentoring geared around innovative problem solving
- Assessment of your organisation’s innovation capability and maturity
- Admission to over 140 events and workshops on the Innovation Birmingham Campus
- Information about other funding and support programmes
Innovation Engine

- Provide technical advice and support from University researchers
- Get your innovation in front of the right people
- Identify external funding opportunities and collaborate on joint applications
- Develop or improve the design of your product
- Help with defining the problem and developing a Product Design Specification
- Assistance with developing and manufacturing a prototype of your device
- Access the University research laboratory facilities
NIHR Trauma Management Healthcare Technology Co-operative
Where does the HTC sits?

Generation and Identification see Fig. 1.4

Prioritising and Selection see Fig 1.5

Evaluation: see Fig 1.6

Post clinical/regulations: see Fig 1.7

Commercialisation and Dissemination: see Fig 1.8
Overview

National Infrastructure to support the NHS to collaborate with industry to develop new medical devices and healthcare technologies for the benefit of patients.

Aims:

• act as a catalyst for NHS “pull” for the development of new medical devices, healthcare technologies and technology-dependent interventions

• improve the quality of life and effectiveness of healthcare services for trauma patients from pre-hospital through to rehabilitation in the home

• work collaboratively with patients and patient groups, charities, industry, clinicians and academics.
Why Trauma?

- 15 deaths every day
- £3.5 bn per annum
- 2020 2\textsuperscript{nd} largest cause of “Life years lost”
- Pain, suffering, loss of dignity, disability
- Technology rich solutions
- Short & long term benefits
Trauma HTC Clinical Themes

The Trauma Management HTC supports the management of trauma patients throughout their pathway from point of injury through to getting people back on their feet …

**Immediate Care**: Decision support systems, better monitoring, better diagnostics and safer transport will all have major benefits to patients and the public.

Theme lead: Professor Antonio Belli

**Secondary Care**: Surgical interventions, better infection control, management of inflammatory response, better pain control, novel respiratory support, monitoring and earlier detection of deterioration

Theme lead: Dr Mark Foster

**Regeneration**: tissue engineering for replacement of cell and tissue. Neural tissue regeneration has huge potential to reduce long term disability from spinal cord and other neurological trauma.

Theme lead: Professor Ann Logan

**Rehabilitation**: Improved prosthetics, the use of robotics, virtual reality and functional electrical muscle stimulation being real-world examples of areas where short term benefits are readily realisable including maintenance of muscle mass.

Theme lead: Dr Michael Grey
Support

Generation and identification/Regulations

Prioritising, Selection and Evaluation

Commercialisation and Dissemination
Project summary

• HTC has supported 86 proposals
• Current success rate - 45% success rate with grant application
• 39 successful awards
• 209 interactions with industry and academia, 60 have resulted in strategic partnerships with work going forward
• 87 CDA’s signed with industry, 49 of which are UK based SME’s
ISO/IEC 62366 and Usability evaluation

CONSIDERATIONS

Users
Use environment
Device / interface

OUTCOME

Safe & effective
Unsafe, ineffective

Device use

MD-TEC
Medical Devices Testing and Evaluation Centre

Trauma Management
Healthcare Technology Co-operative
NIHR TRAUMA MANAGEMENT MIC - JANUARY 2018

CLINICAL THEMES

1. ACUTE RESPONSE TO INJURY AND STABILISATION (Prof Antonio Belli)
   - POINT OF IMPACT, CRITICAL CARE, SEPSIS

2. REPAIR, REGENERATION AND RECONSTRUCTION (Prof Ann Logan)
   - SURGICAL INTERVENTIONS, BURNS & ACUTE WOUNDS

3. RE-ENABLEMENT AND REHABILITATION (Prof Deborah Falla)
   - PROSTHESIS, ROBOTICS, MUSCLE STIMULATION

PAEDIATRICS (Dr Heather Duncan)

PPI/E/P (Ms Hilary Brown)

PROs (Prof Mel Calvert)

HEALTH ECONOMICS (Prof Richard Lilford)

HUMAN FACTORS (Dr Tom Clutton-Brock)

CROSS-CUTTING

1. MIC GENERATION & IDENTIFICATION
   Initial Engagement, user-defined needs (patient, clinical & industry), horizon scanning, collaborations (MICs)

2. MIC PRIORITISING & SELECTION
   User-led workshops, Patient reported outcome measures,
   Identifying resources, External funding, Systematic review, Health Economics

3. MIC EVALUATION
   Proof of concept studies, Prototype development, Clinical Investigations,
   Safety Testing, Usability Studies, Human Factors

4. MIC POST CLINICAL/REGULATIONS,
   CE marking, FDA Approval
   Post market clinical follow up

Supporting Infrastructure
NIHR Inflammation BRC, NIHR SRMRC, NIHR Wellcome CRF,
NIHR CLAHRC WM, NIHR TRCs, NIHR CRN, NIHR Innovation Observatory,
NIHR MICs, ECMC, PM Catapult, NICE, CPROR

Industry Engagement
AHSN, NOCRI, Medilink, MidTECH, KTN, DIT
So where and what are we?
MD-TEC sits within the Institute of Translational medicine and its objective is to enable Life Science SMEs to bring products to market quickly, at less cost and with reduced risk. The ERDF element allows funded interaction to eligible SMEs.
• £7.3 Million investment
• 3 Major Research partners
• Access to one of the best clinical research bases in UK
• Unique State of the Art facilities
• Mirror image of acute environment
• Workshops & 1:1 support
So what can we do for Life Science SMEs?

Funded* support for the following

- Human Factors & Usability Testing, Simulation & Evaluation
- Usability and simulation areas for both acute and primary care with AV capability.
- Product testing and evaluation in terms of usability and safety for medical products focused on class 2 and 3 devices (ISO characterisation)
- Access to a growing research pipeline around the development of healthcare technologies ranging from dressings and cell therapies through to novel diagnostic devices.
- Direct support from Research Experts in:
  - Manufacturing and regulation
  - Trial design/IMPD preparation
  - Regenerative medicine/ ATMP
  - Medical product development and regulations for medical device commercialisation and compliance/manufacturing ISO 13485

* Eligibility criteria apply
Any questions?
And now

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2017-2018

Sandy Purewal, Skills Development Consultant, Careers in Business
Email: s.purewal@bham.ac.uk
The Programme

4-5 MBA’s – consultants for a succinct project
8 Wednesday afternoons – approx. 100 hours
Meet your consultants 4 times
Final presentation and report – 21st March
Apply by 8th December 2017
To apply

Email Sandy Purewal
s.purewal@bham.ac.uk

Deadline for application : 8\textsuperscript{th} December 2017
Centre for Responsible Business

Treasure, the Key and a Refreshing Pint

Dr Yan Huo

y.hao.1@bham.ac.uk
Lloyds Banking Group Centre for Responsible Business
Birmingham Business School

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• Contact: Professor Ian Thomson, Centre Director i.thomson@bham.ac.uk
Thank you to our speakers and for your attention
2018 Business Club Events

Upcoming Breakfast Briefings:

8 February 2018
Know your business, grow your business

This Breakfast Briefing, will provide businesses and academics with the opportunity to discuss new collaborative R&D funding avenues as well as the regional and national opportunities that are available and the support that the University of Birmingham can provide in accessing funding.