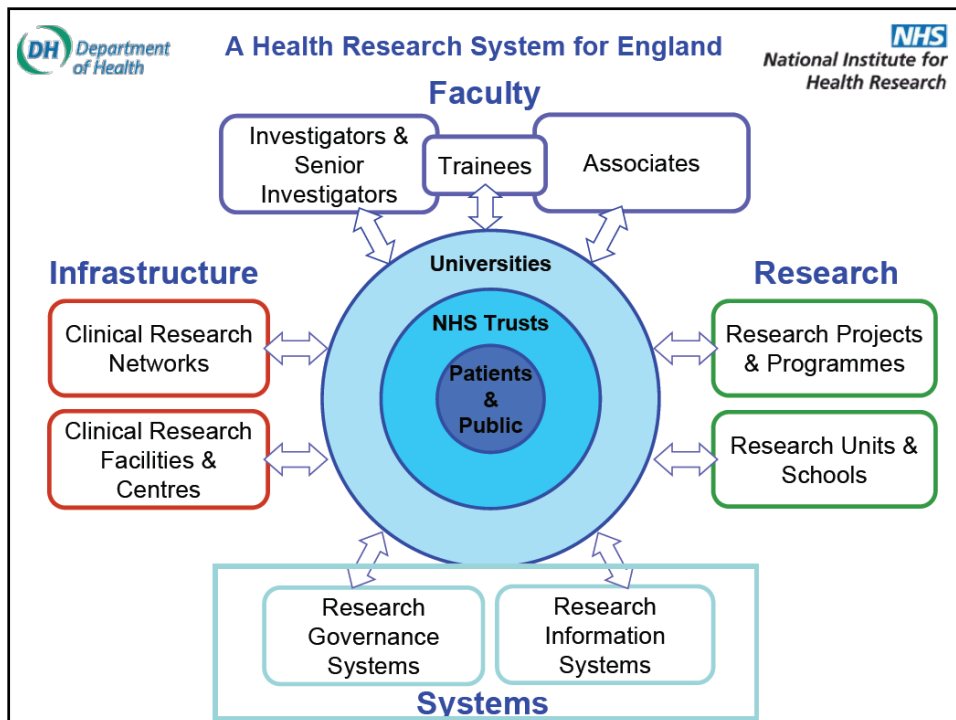


How NIHR infrastructure can help researchers tackle antimicrobial resistance

Professor Saul Faust
Southampton NIHR WTCRF Director
Professor of Paediatric Immunology &
Infectious Diseases

The Southampton NIHR Wellcome Trust Clinical Research Facility is funded by the National Institute for Health Research (NIHR) and is a partnership between University Hospital Southampton NHS Foundation Trust and the University of Southampton



www.one.nihr.ac.uk

- Economy of scale
- Access to “One NIHR”
- Healthy volunteer and patient based research



Access to “one NIHR”

**PUBLIC INVOLVEMENT
FUNDING
SUPPORT**

Discovery science

Med, Biol, Eng, Computing etc
Patient sample and cohort input
Clinical expertise

Translational science - Bench to Bedside

Patient samples
Experimental Medicine
Proof of concept clinical trials

Clinical Trials

Clinical Research Network
Healthy volunteers
NHS

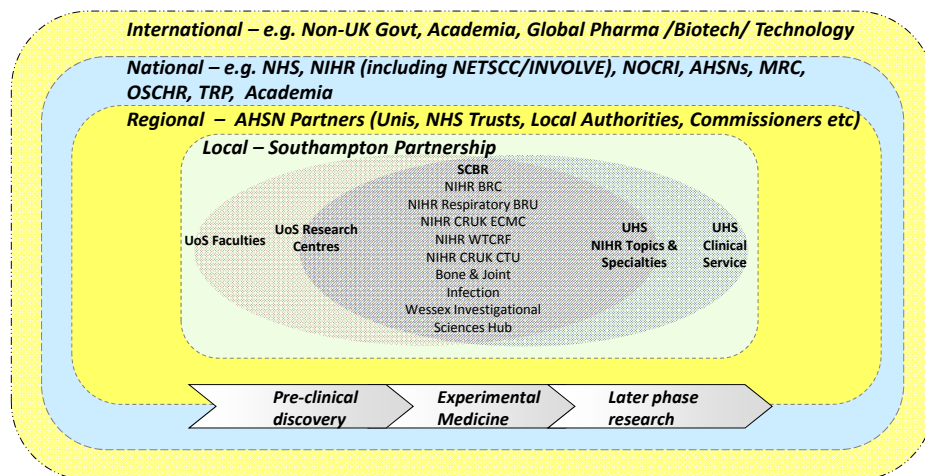
National network

- **NHS Regions with University-NHS Trusts at the centre access 60 million population**
- Variable “infrastructure” units but all linked in experimental medicine networks
 - NIHR Biomedical Research Centres
 - NIHR Biomedical Research Units
 - NIHR Clinical Research Facilities
 - CRUK-NIHR Experimental Cancer Medicine Centres

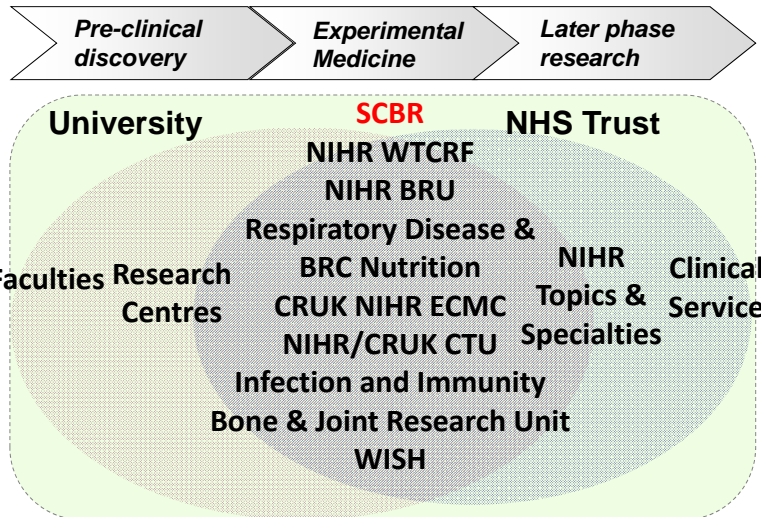
 - NIHR Clinical Research Network

 - Collaborations in Leadership and Applied Research Centres
 - Academic Health Science Centres

The Southampton Clinical Research Partnership



Southampton Centre for Biomedical Research



Southampton
NIHR Wellcome Trust Clinical Research Facility

UNIVERSITY OF
Southampton | University Hospital Southampton **NHS**
NHS Foundation Trust

The Southampton National Institute of Health Research Wellcome Trust Clinical Research Facility

- One of first 5 UK Clinical Research Facilities
- In heart of University hospital, full emergency and adult/paediatric intensive care support
- Opened 2001, 1000th study 2014
- 2014: one of only 4 public / 12 commercial funded (only NIHR unit) with full MHRA Phase 1 Clinical Research Unit Accreditation



Training and hosting researchers

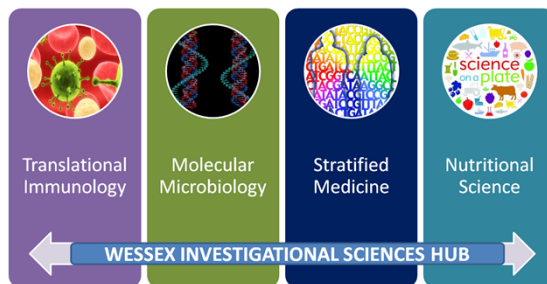
- Senior Investigators, Investigators
- Fellows
- Research Nurses
- Medical Students
- Medical and non-medical Research Fellows
- PhDs and Postdocs “cross-disciplinary translational scientists”
- Phlebotomy for engineering etc.

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NIHR WTCRF integrated with Wessex Investigational Sciences Hub (WISH)

Inter-disciplinary Model

Shared Resource Facility



Multi-partner Funding

Guarantees laboratory regulatory science in cutting edge experimental medicine and early phase trials

Unique co-localisation of MHRA Phase 1 facility and regulatory standard investigational laboratory

Finding new anti-bacterial biofilm treatments

The NIHR WTCRF, Respiratory BRU and NHS cystic fibrosis clinical service jointly:

- established standardised analyses of clinical biofilms
- delivered proof of concept clinical studies
- provide access to national, deeply phenotyped CF populations via Southampton's CF programme leadership for the national NIHR respiratory rare diseases translational research cohort

Finding new anti-bacterial biofilm treatments

2015 €3.9 million Wellcome Trust Seeding Drug Discovery award made to French biotech firm Antabio, to develop new anti-pseudomonal biofilm agent for cystic fibrosis

NIHR infrastructure was critical:

- a) the national NIHR funded cohort and Southampton laboratory experimental medicine capability in lead drug optimisation (UoS and NIHR WTCRF labs)
- b) the NIHR WTCRF and wider Respiratory BRU network in the delivery of early phase trials of their new anti-pseudomonal drug.

What this study demonstrates

- Importance of integrated national NIHR infrastructure for experimental medicine & early phase clinical trial delivery
- Capability of combined Southampton NIHR infrastructure to lay the ground for a new area of drug discovery
- Added value in leveraging/providing access to national NIHR initiatives, cohorts and initiatives
- SME interaction and major wealth generation

CRF Experimental Medicine Facilities

- Experimental medicine and clinical trials
- MicroCT scanner
- Humidity/temperature controlled room
- Negative pressure facilities
- Integrative physiology laboratory (Grocott group)
- Laboratories
 - Cell culture
 - Wessex Investigational Sciences Hub (WISH)

Case Study – Copper to prevent AMR

- Bill Keevil
- Behavioural aspects of infection control
- Clinical infectious diseases and infection control

- NIHR Research Design Service
- Wessex Institute (Health Economics)
- NIHR WTCRF

Southampton Research Biorepository

- Regulatory framework (delegates NHS REC approval) to support specific highly phenotyped collections
- support experimental medicine across University eg phlebotomy training to engineering postdocs
- Links to UoS Biobank (shared QA)

- Can be used to support cross-Faculty grant applications requiring clinical samples

Southampton NIHR AMR case studies

- Diagnostics and devices
- Bacterial pathogenesis
- New drugs
- Vaccines
- Human behaviour
- Healthcare systems

NIHR – Public Health England links

The National Institute for Health Research Health Protection
Research Unit in Healthcare Associated Infections and
Antimicrobial Resistance at Imperial College London

[Research Programme](#) | [People](#) | [About Us](#) | [Patient and Public](#) | [Work With Us](#) | [NIHR HPRU Open Day](#) | [Videos](#) | [ASAT](#)

- “One NIHR” aim

Research infrastructure integration

- Economies of scale
- Responsive
- Expertise sharing
 - Local, Regional, National



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NIHR infrastructure 2017-22

- One NIHR
- **What do you need to tackle AMR?**
 - Local or National Collaborations?
- s.faust@soton.ac.uk



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