

Chief Scientist Office Strategy for Research, Development and Innovation

Ricky Verrall
Head, Chief Scientist Office

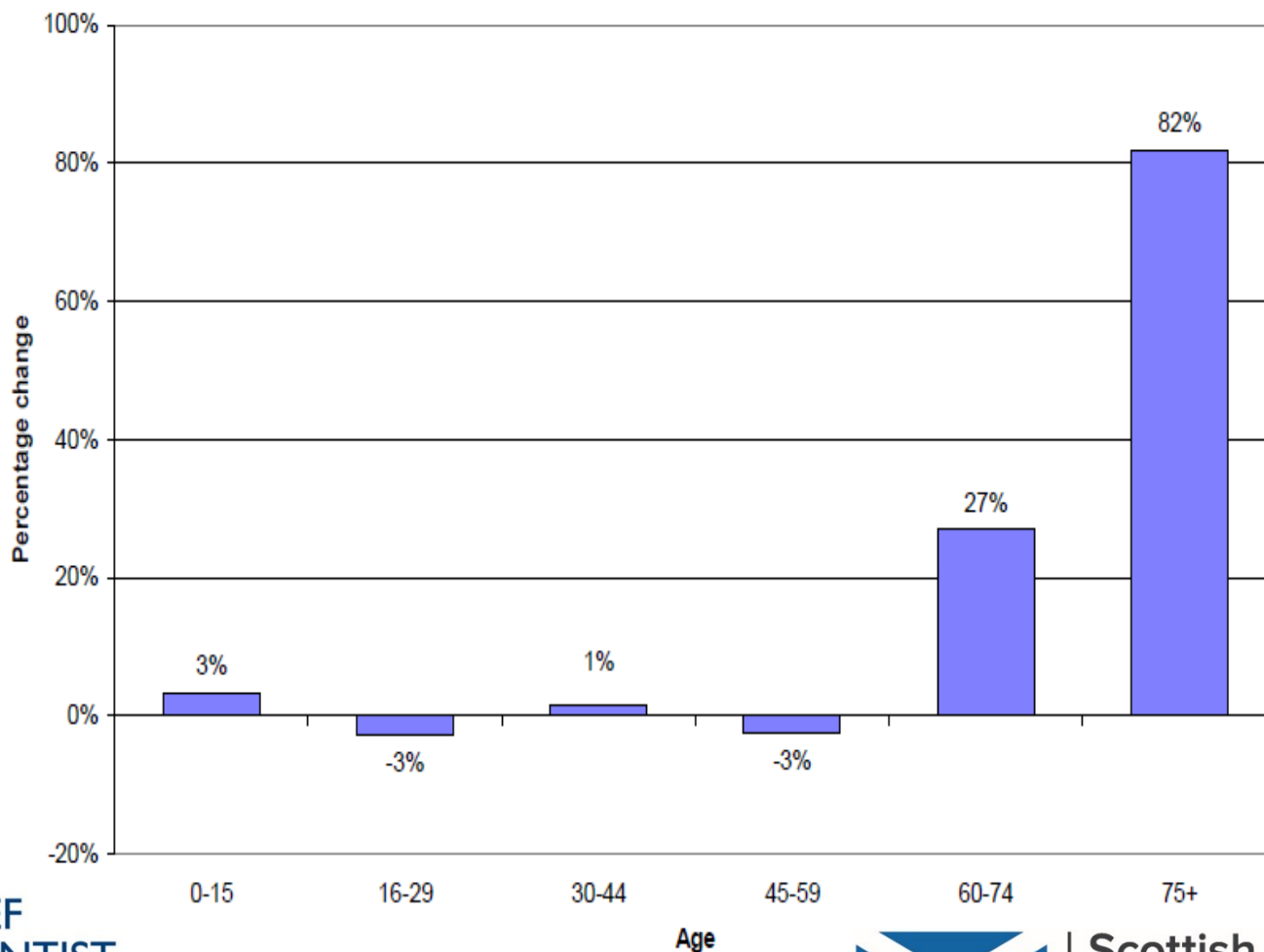


Context



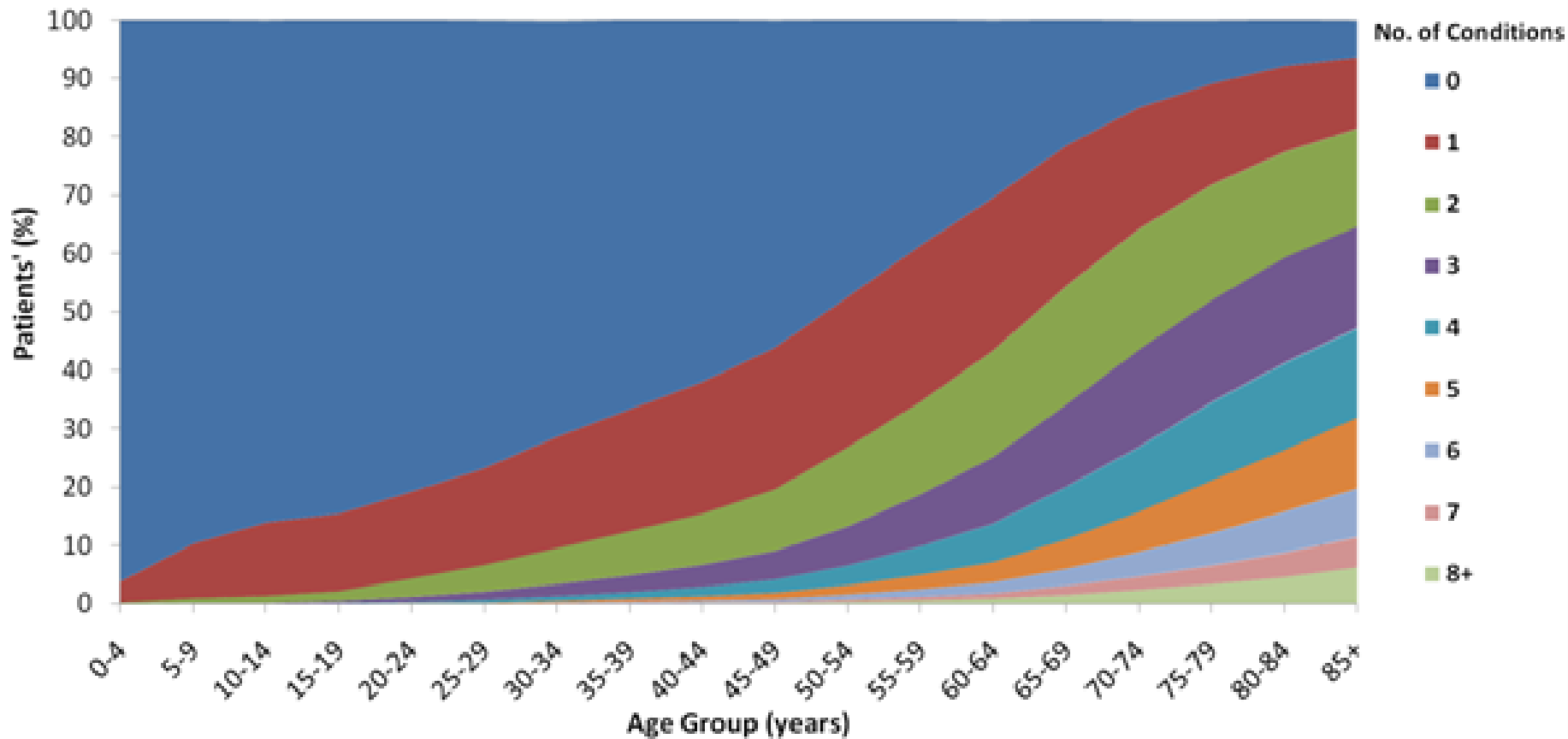
- 5.4m population
- £13+ billion health spend
- 14 NHS Boards
- 8 Support Boards
- 1.2m hospital stays
- 1.6m A&E attendances
- 24m Primary care visits
- Ageing population, co-morbidity, patterns of poor health, increasing demand, tight finances, rising costs

Projected % change in Scotland's population by age group, 2010 - 2035



Multimorbidity in Scotland

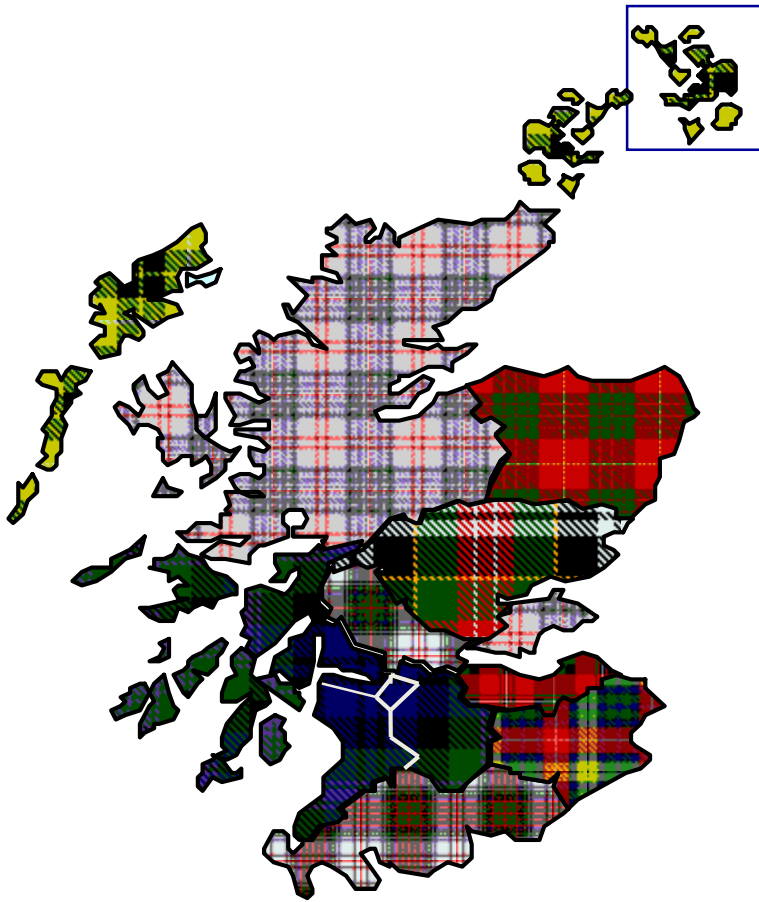
Morbidity (number of chronic conditions) by Age Group



Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study

Karen Barnett, Stewart W Mercer, Michael Norbury, Graham Watt, Sally Wyke, Bruce Guthrie
Lancet 2012; 380: 37–43

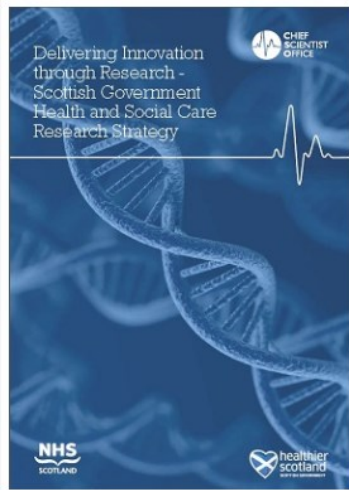
Health & Social Care Delivery Plan 2016



- Research central to high-performing health systems, leading to better targeted and more personalised treatment and improved patient outcomes
- Continue to invest in NRS to support health-related R&D
- Drive a renewed effort in health innovation
- Realistic medicine

Research Strategy 2015-2020

Economic growth and NHS improvement can be driven through Research and Innovation



“Health research is one of this country’s key strengths, and it is essential that we utilise this national resource to the fullest.”

Ms Shona Robison MSP,
Cabinet Secretary for Health, Wellbeing and Sport

Delivering Innovation through Research
Scottish Government Health and Social Care Research Strategy
<http://www.gov.scot/Publications/2015/10/5164>



The vision for Scottish clinical research

“to support and increase the level of high quality health research conducted in Scotland for the health and financial benefits of our population, so that Scotland is recognised globally as a “come to place” for health science.”

Clinical research

- is central to the ethos of an evidence-based, person-centred healthcare system
- provides access for Scottish patients to clinical trials
- helps support inward investment to Scotland

Guiding Principles

1. Build whenever we can on the **strong academic base**
 2. Seek out and deliver **collaborative partnerships** with a tripartite mission of research, education and delivery of quality health care, underpinned by a significant infrastructure investment
 3. Exploit our ability to **link information** to support better treatment, safety and research
 4. De-clutter the pathway for the **regulation and governance** of health research
 5. Deliver **collaborative arrangements** with the biotechnology, pharmaceutical, informatics and medical devices industries.
 6. Collaborate across the NHS family, academia and with other funders to position Scotland as a **single research site** when it makes good sense to do so
- ... and 34 separate actions ranging from reviewing NRS CMT to creating a new Advisory Board**

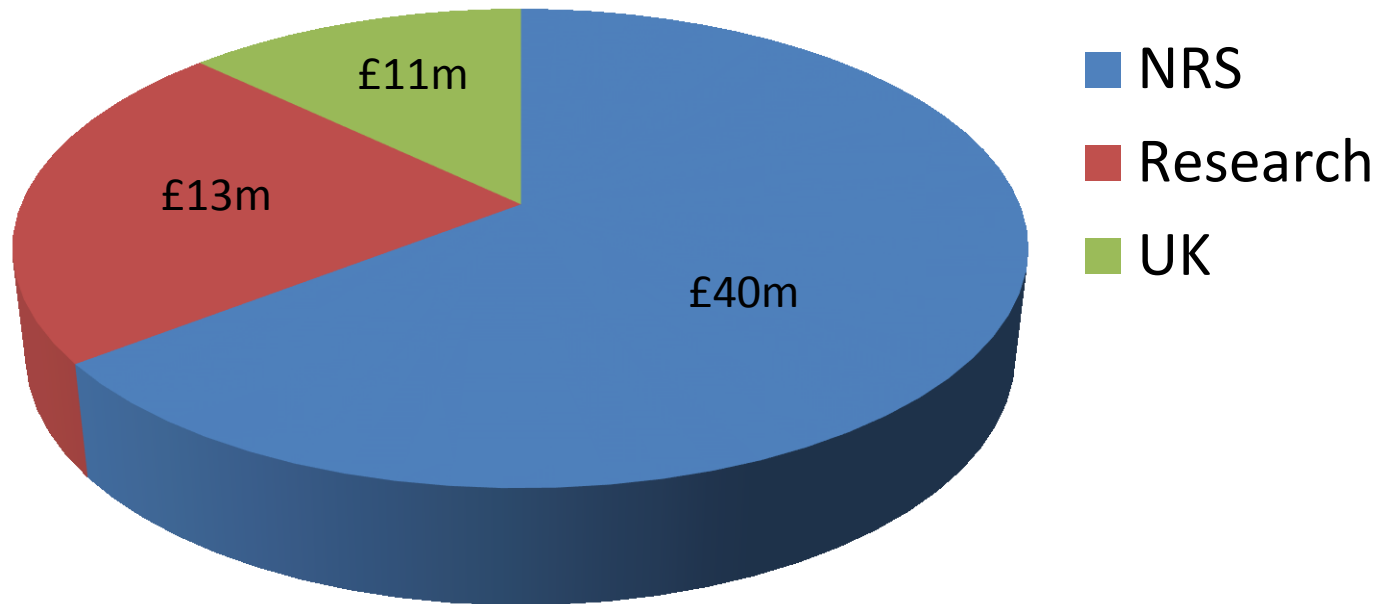
Chief Scientist Office

- £64 million to support research to improve the health of the people in Scotland and the services provided by the NHS
- Supporting research in the NHS through NHS Research Scotland
- Funding high quality research projects
- Building capacity for research
- Ensuring research in the NHS is carried out to high standards



Chief Scientist Office

Research Budget £64m



Research: grants - CSO Fellowships – initiatives – collaboration – research units

NHS Research Scotland Support Budget - £40m

- meets the costs to the NHS of participating in clinical research
 - Supports NRS research infrastructure
 - around 300 NHS posts
 - NRS Fellowship Schemes – around 50
- Partnership between CSO and NHS Boards in Scotland
 - Collaboration with Academic Institutions and Commercial companies

Aim

- Agree & Implement national policy
- Deliver efficiency through pan-Scotland working
- No gap between policy, funding and delivery

NHS Research Scotland

**Stakeholder
Board**

NRS Management Board

**Strategic
Board**

NHS Boards

Health Boards

- Clinical Research Facilities
- Clinical Trials Units
- Safe Havens
- Biorepositories

National Support

Topic Networks and SGs

SHARE

Permissions Coordinating
Centre

SHIL/Central Management
Team

NHS Research Scotland

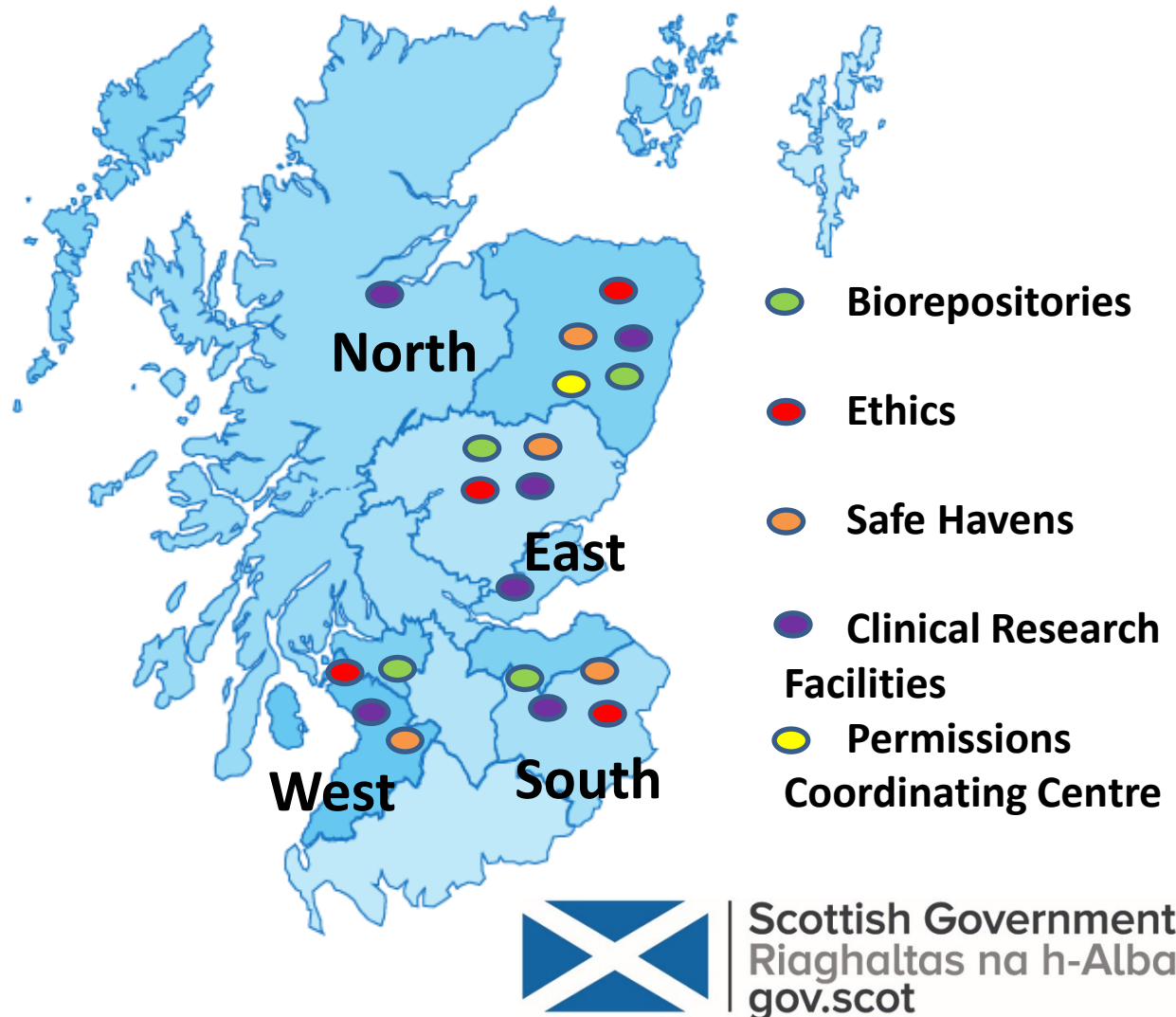


Regional working

4 Nodal Hubs

National Support

- Central Management Team
- Topic Networks and Speciality Groups
- Permissions Coordinating Centre
- SHARE



NHS Research Scotland

The Scottish Offering



Fast, efficient & meaningful feasibility

Reduced start-up times

- Single pricing model
- Agree contracts once for Scotland - reduce contract negotiation time

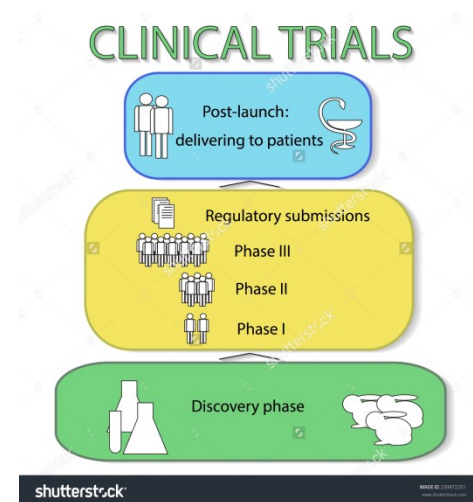
Contracting

- mCTA
- Single costing across Scotland

Management

- All commercial studies are managed
- National oversight of recruitment across Scotland
- NRS Ethics and R&D Management services integrated

Delivery to target



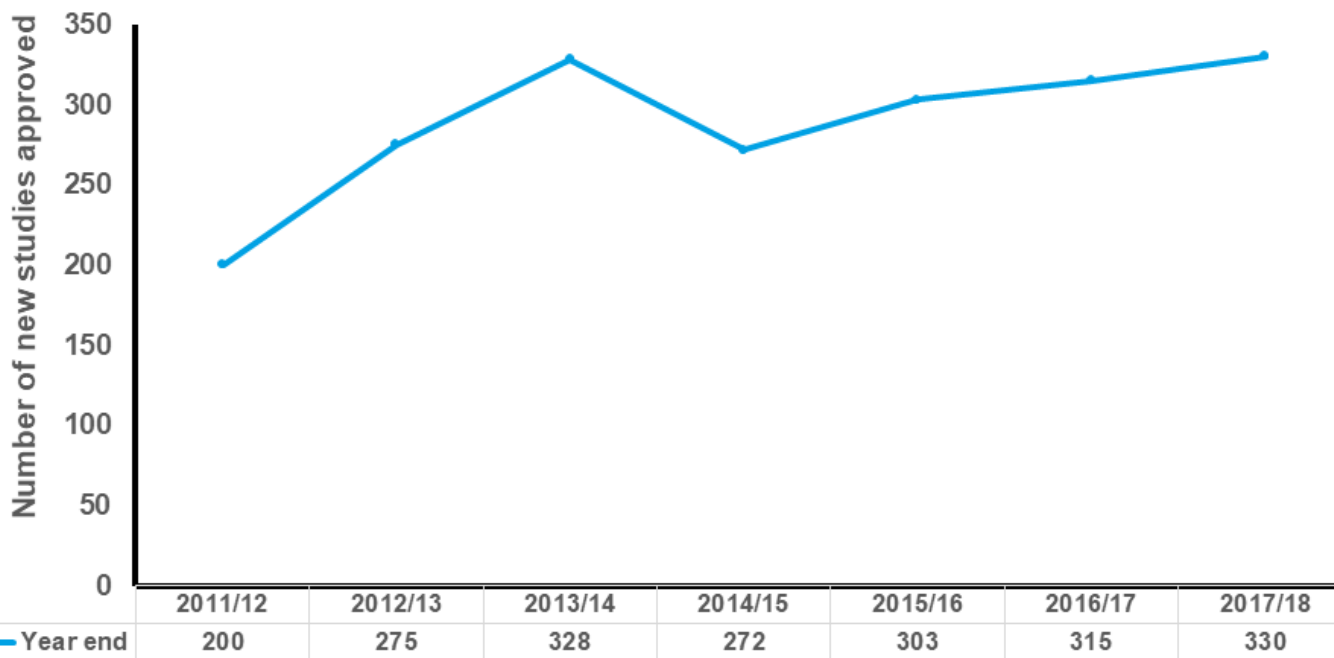
Scottish Government
Riaghaltas na h-Alba
gov.scot

Working with Industry: Key Facts Financial Year 2017-18

- **Active research**
 - 330 new project sites initiated
 - Contract value of new projects: £17,213,532
 - Actively supported 717 study sites (527 studies) during the year
 - Total Contract Value of all studies active during 2017/18 : £45.3M
- **Rapid permissions** – “Best in class contracting times”
 - Generic Reviews: 11 calendar days
 - Local Reviews: 7 calendar days
 - Combined Reviews: 16 calendar days
- **Effective Delivery**
 - Average 66% of recruitment to target over all studies

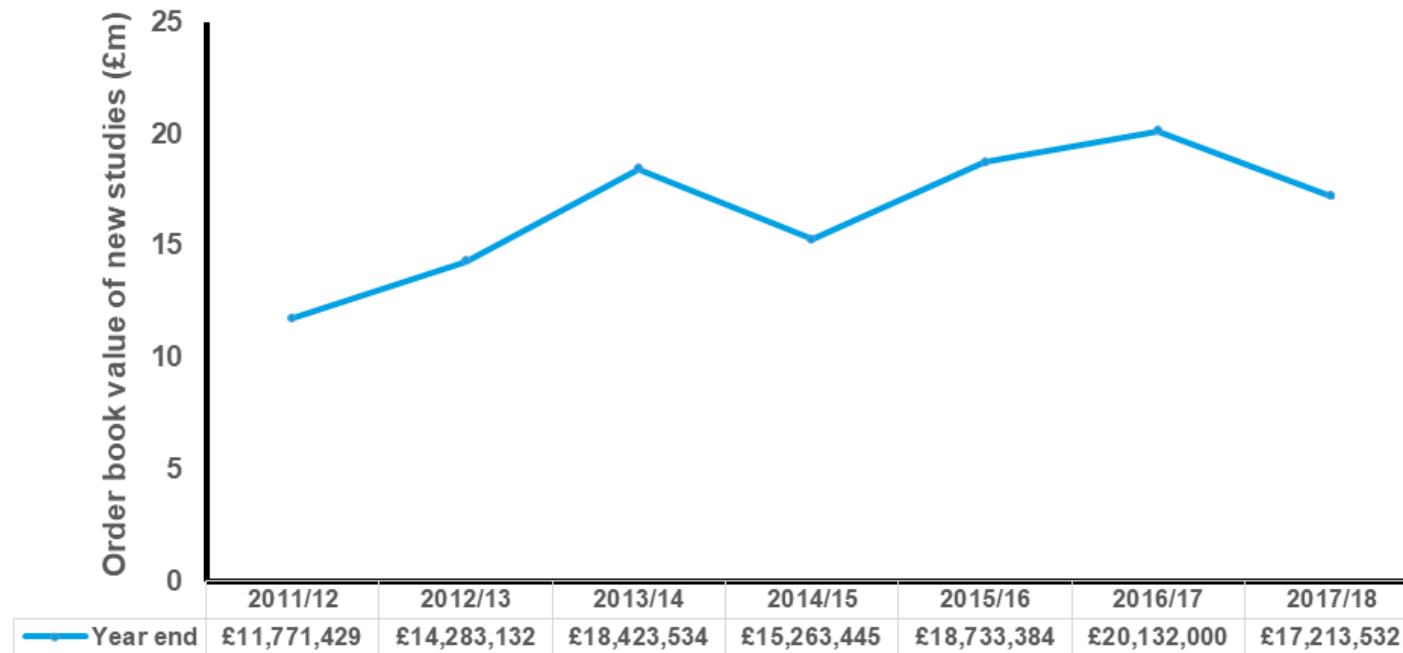
NHS Research Scotland

New studies approved

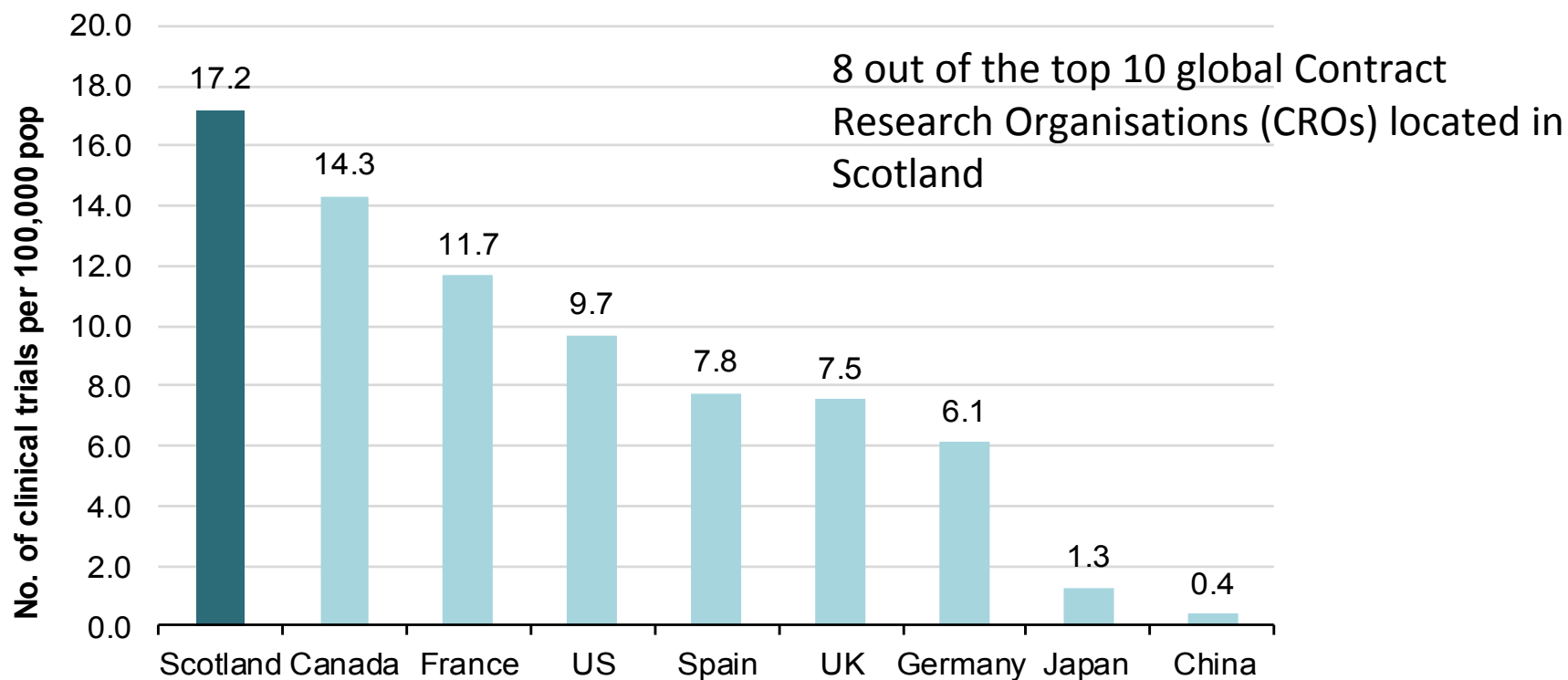


NHS Research Scotland

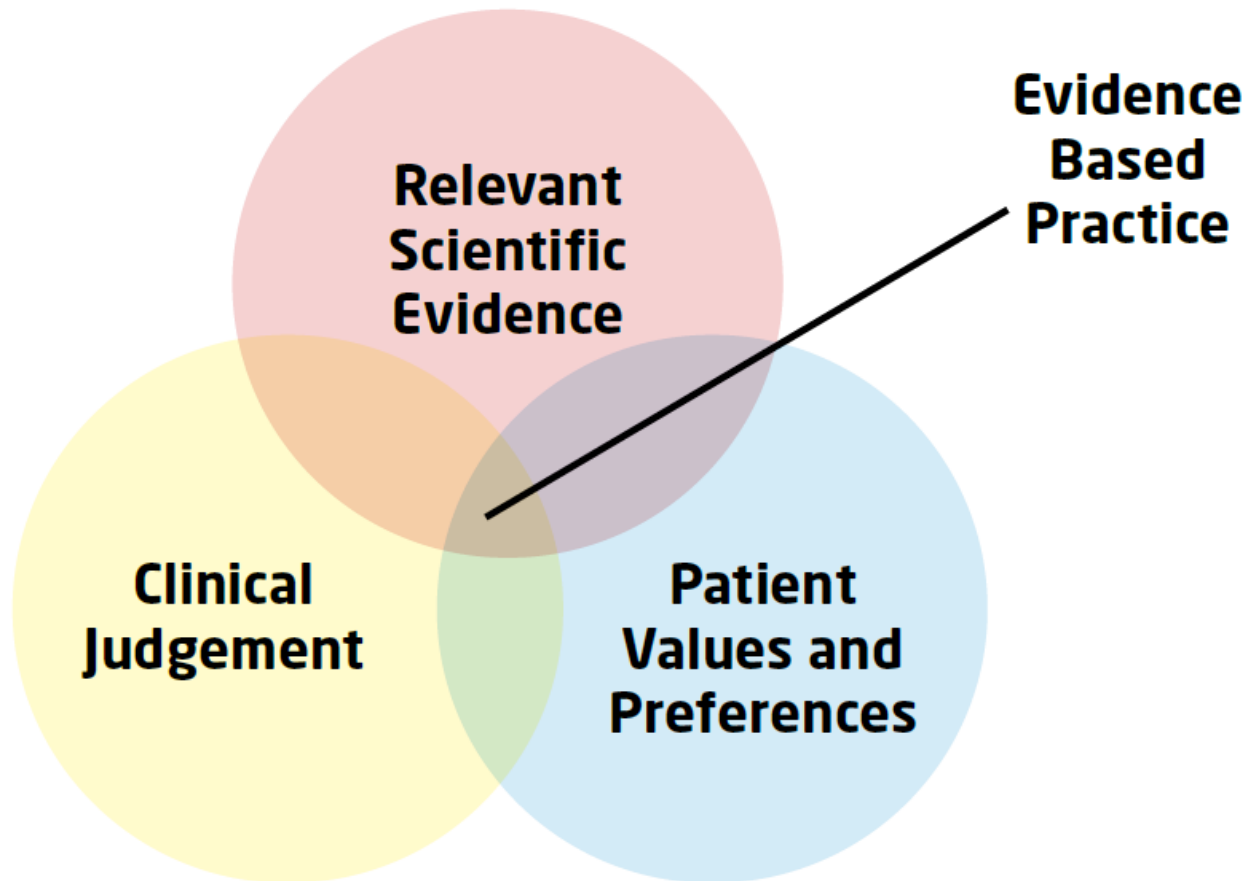
Contract value

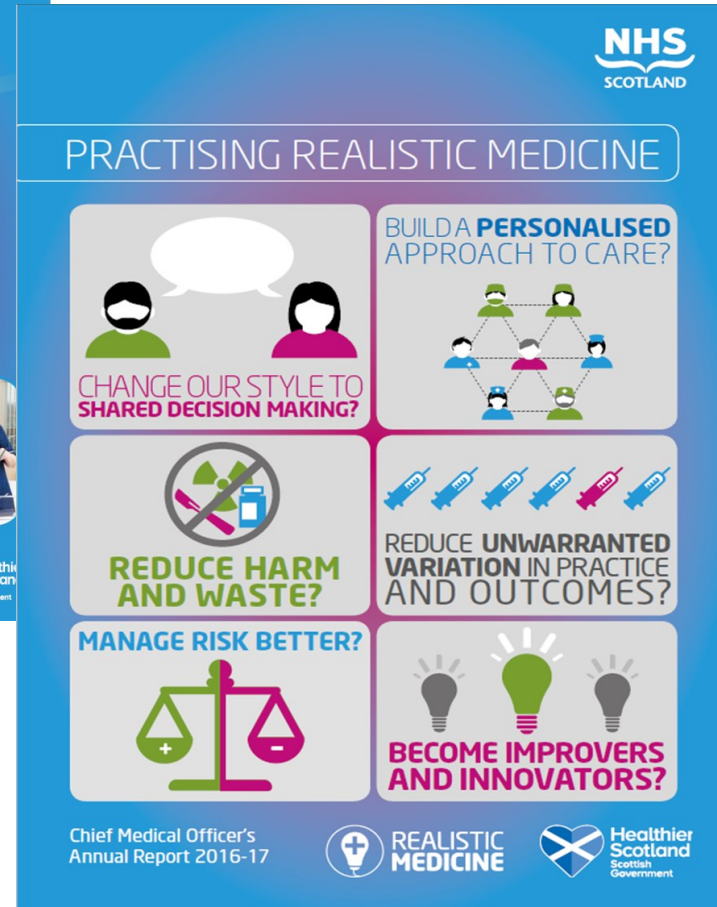
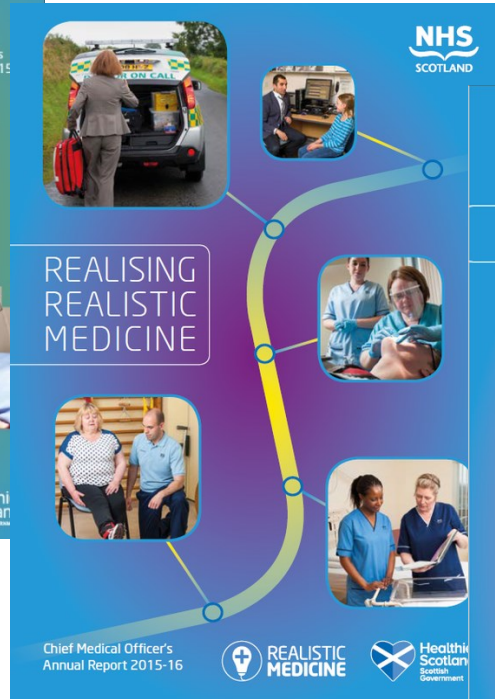
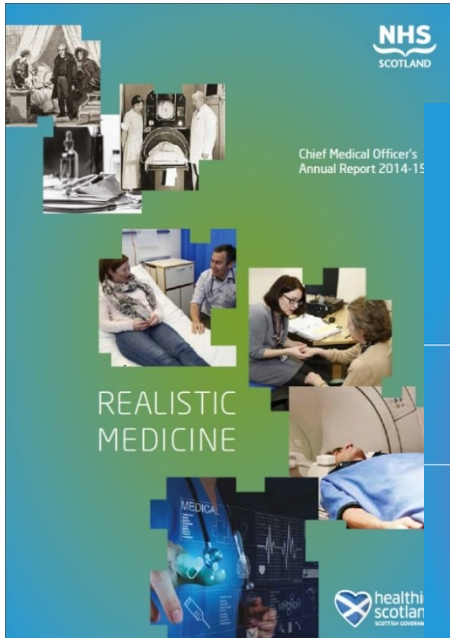


Scale of clinical trial activity per head of population (2013-18)



Source: SQW/Technopolis analysis of data from clinicaltrials.gov

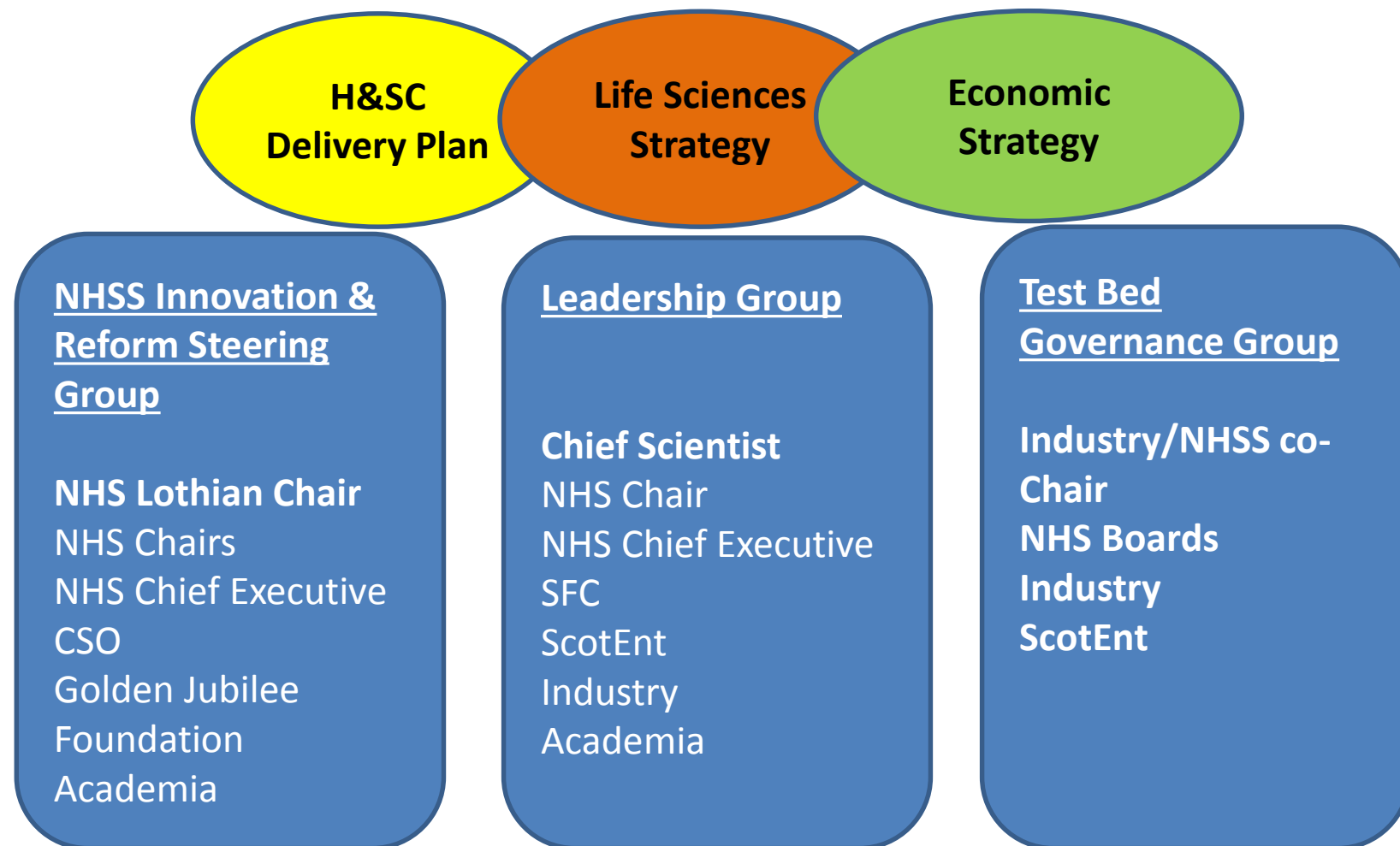






Innovation

2011 Statement of Intent: Scotland is a world leading centre for innovation through partnership working between Government, NHSS, industry and the research community



Innovation Budget £3m

- One Stop Registration, Signposting and **Procurement Accelerator** via NHS National Services Scotland
- Funded **Test Beds** for Innovation-Clinical Backfill and Project Management
- Building on existing **Health Innovation Partnership Projects**, Open Innovation Competitions and Consortiums for Innovation
- develop **health technology assessment and medical technology overview processes** to evaluate the properties and effects of innovative non-medicine health technologies
- Local, National and International initiatives
- Evaluation of NHS/IJB Innovation built in from 2019 via NHS Health Improvement Scotland
- Blended funding between public and private investors

Open Innovation Project-SBRI: Dermatology Patient Assessment and Referral



- Machine learning to optimise the 3 Hour Clinic Session
- £500k for Industrial Innovation- 7 contracts for industry led innovation
- 2 Companies chosen to go from proof of concept to working prototypes in 4 Test Beds
- Test Beds in NHS Greater Glasgow and Clyde, NHS Forth Valley NHS Highland and NHS Lothian
- Adoption initiatives integral to approach-NHS looking to procure solutions that work
- Positive experience for NHS Dermatology services and the two companies chosen-GPC from Wales and Storm ID from Leith, Scotland



Scottish Government
Riaghaltas na h-Alba
gov.scot

Health Innovation Partnerships



MSYS245 Medical System

60601 compliant 100W 2.45GHz Microwave Generator



Emblation microwave treatments/interventions in dermatology/podiatry/ new areas under exploration -based on immune modulation (IM®) - subtle, non-ablative treatments that induce, enhance, or suppress immune responses, triggered by microwave-delivered heat

- Scottish company from Alloa
- Collaborating with NHS Test Beds (IJB's and Health Boards) to learn about care pathways, deployment, procurement models for their Swift product
- Testing, researching, developing and commercialising
- Manufactured in Scotland at ZOT Engineering in Musselburgh



Scottish Government
Riaghaltas na h-Alba
gov.scot

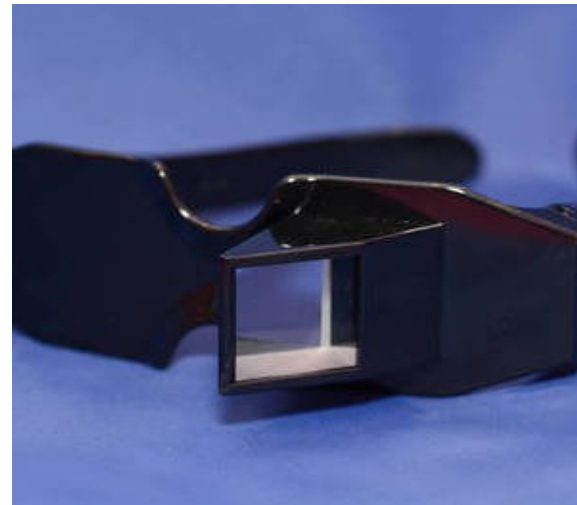
Scottish Health innovations Ltd - SHIL



SCRAM® Bag 2



Ambulance Child
Restraint®



Prism Glasses
™

Scottish Health innovations Ltd



Consortium for Innovation –iCAIRD

Industrial Centre for Artificial Intelligence Research in Digital Diagnostics

PHILIPS
Healthcare



Canon

CANON MEDICAL SYSTEMS



Scottish Government
Riaghaltas na h-Alba
gov.scot

Consortium for Innovation -iCAIRD

A Scottish centre of excellence with sites across Scotland, to enable joined up NHS/Social Care, academic and commercial technology development and research, locally and nationally.

Making use of the capability of modern computers to process the large amounts of data gathered in healthcare clinics iCAIRD will enable better and earlier diagnosis of conditions, sooner treatment and better outcomes for patients.

£16m Starting Budget- Hub in Glasgow



Scottish Government
Riaghaltas na h-Alba
gov.scot

Twelve Features of High Performing Health Systems

Baker et al 2015

http://ihpme.utoronto.ca/wp-content/uploads/2016/03/Baker-OHA_HSR-Creating-High-Performing-Healthcare-System_policy_paper_oct...Final_.pdf

- Focus on **QUALITY AND SYSTEM IMPROVEMENT** as the Core Strategy
- Developing **LEADERSHIP SKILLS**
- Enhancing **SYSTEM GOVERNANCE**
- **ENABLING COMPREHENSIVE INFORMATION INFRASTRUCTURES AND WHOLE SYSTEM INTELLIGENCE**
- Improving **ACCOUNTABILITY AND PERFORMANCE MEASUREMENT**
- **INVESTING IN DATA SCIENCE, INNOVATION AND RESEARCH– TO SUPPORT ECONOMIC GROWTH, AND POPULATION IMPROVEMENT**
- Strengthening **PRIMARY CARE**
- **IMPROVING INTEGRATION** and Care Transitions
- **ENGAGING CLINICIANS**
- **ENGAGING PATIENTS**
- Attending to **ACCESS AND EQUITY ISSUES**
- Considering **POPULATION HEALTH AND CHRONIC DISEASE MANAGEMENT**