

# Scottish Infection Research Network



University  
of Glasgow

# Background

- HAI costs £183M annually
- Occurs in 5% of the acute hospital population
- Major priority policy area for SGHD (VOL etc)
- Changing epidemiology of organisms (*E.coli/S.aureus*)
- AMR is now a recognised threat
- A lot of practice in HAI control has little or no evidence base

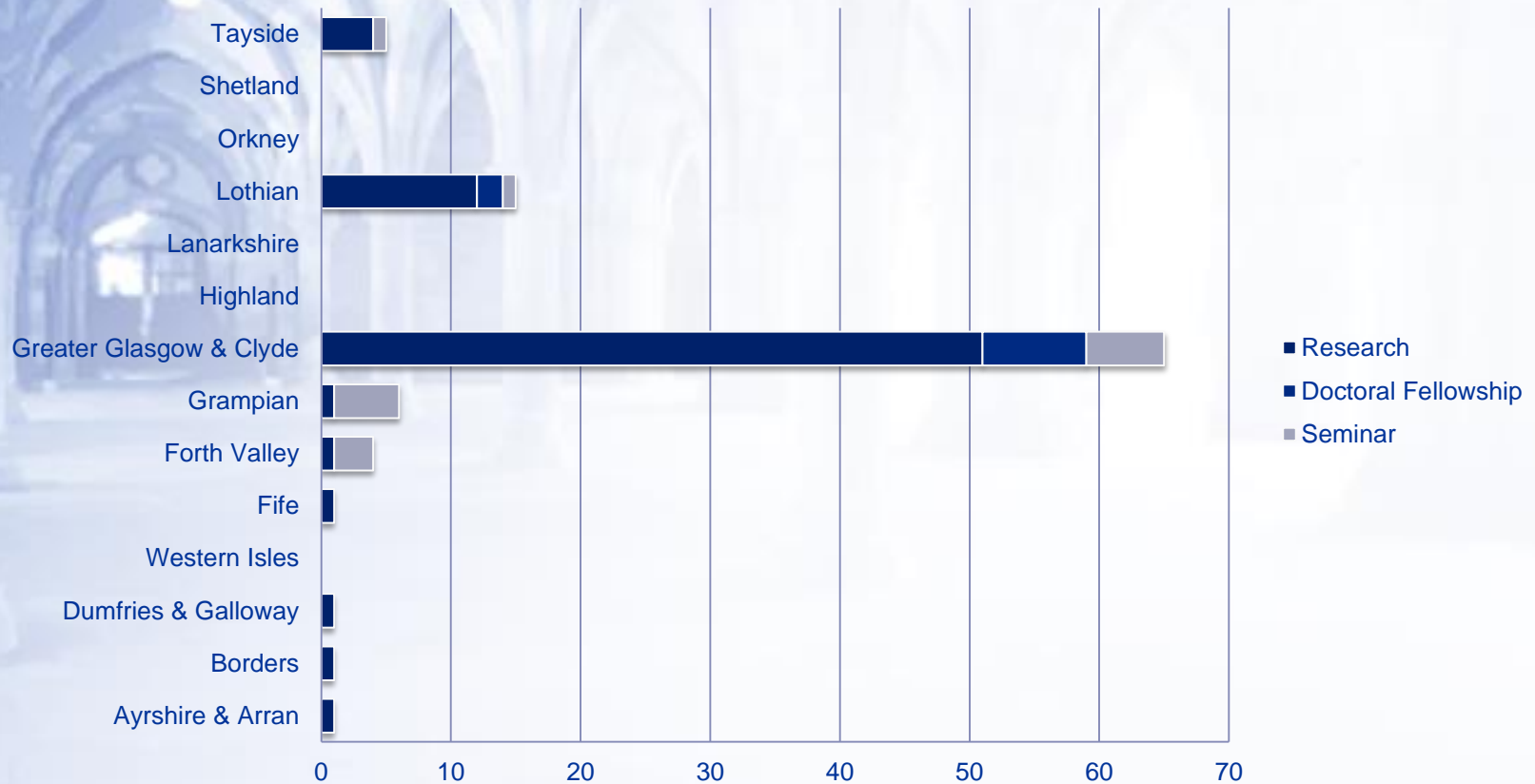
# SIRN Remit

- Formed in 2006 at the request of the SGHD
- Build a sustainable, high quality research infrastructure
- Build capacity within the HAI research community
- Develop and support effective collaborative relationships
- Develop and shape high quality research bids
- Initiate a research stream to evaluate current HAI practice
- Endorse and promote HAI related research that is scientifically credible and has practical application
- Generate, apply and disseminate HAI knowledge that enhances delivery and quality of patient care
- Publish and support an agreed programme of HAI research

# SGHD Key research priorities

- **Antibiotic resistance**
- **Informatics and economic evaluation.**
- **The role of screening for MRSA, MSSA and decolonisation in reducing HAI.**
- **Point of care testing and new diagnostic methods**
- **Infection prevention within high risk areas**
- **Emerging pathogens and alert organisms**
- **Research to support evidence based standard infection control precautions.**
- **Research into the barriers to the implementation of Standard Infection Control Procedures**
- **Decontamination of equipment**

# Funding applications received by NHS Region



## **C difficile**

Antibiotic use and risk

Genomic studies

## **Norovirus**

Public perception of visiting affected wards

Identifying how it enters HC environment (WINCL)

## **Antibiotic resistance**

Antibiotic use and patient outcomes (UTI)

## **Environmental**

Light technology (HINS) for hospital decontamination

Hand Washing: trial of two techniques (5 v 3 step)

Reducing the risk of vCJD in neurosurgery (instrument)

Cohorting as an effective IC practice

# SIRN Research Awards

	<b>NO OF AWARDS</b>	<b>TOTAL FUNDING AWARDED</b>
<b>SEMINARS</b>	11	£2,055
<b>MINOR RESEARCH 2008</b>	9	£291,856
<b>MINOR RESEARCH 2011</b>	5	£44,134
<b>MINOR RESEARCH 2012</b>	6	£46,118
<b>MAJOR RESEARCH 2012</b>	9	£1,134,528
<b>FELLOWSHIPS 2013</b>	3	£256,121
<b>CONSORTIUM 2015</b>	1	£4,249,749
<b>TOTAL</b>	44	£6,024,561

# Consortium

- A National consortium over 5 years
- Developing and utilising 3 National strengths
- Based on 9 key priority areas identified by SGHD
- Translational
- Self sustaining



**Biosciences**

**Informatics**

**Behavioural  
Science**



# Scottish Healthcare Associated Infection Prevention Institute (SHAIPi) Strategic vision

To become an internationally recognised Institute for excellence in HAI Research utilising

1. Rapid knowledge transfer
2. State of the art laboratory techniques
3. Informatics
4. Novel interventions
5. Optimising evidence for existing interventions and compliance with these

To tackle the threat to public health from emergent HAI and antimicrobial resistance for patient benefit in a co-ordinated fashion

# SHAUPI



**19 CoIs, 5 HEIs** ( **Glasgow University** (genomics, informatics); **Glasgow Caledonian University** (applied infection prevention, patient experience); **Strathclyde University** (clinical informatics, statistics), **Dundee University** (informatics, pharmacology), **St Andrews University** (genomics,informatics) **3 HBs** **Grampian, Tayside, Fife**

Strategic partners working with this consortium include:

**PHI:** epidemiology and access to European network of 28 countries

**Farr institute:** access to UK health informatics research network, health policy advice

**IPS:** Infection control practitioners and potential for CARC capacity building in Scotland through internships and international partnerships through the Society

**HENs** (Health economics network): developing health economic analysis of interventions

**SMVN** (Scottish Microbiology and Virology Network): microbiology samples, isolates and laboratory data

**SICSAG** (Scottish Intensive Care Society Audit group) and Scottish Critical Care Trials Group: provide a network to develop a National clinical dataset, identify and trial interventions.

**Scottish Reference laboratories:** organism specific expertise, national collections and datasets

**SAPG (Scottish Antimicrobial Prescribing Group):** focussed on optimising prescribing practice and reducing antimicrobial resistance.

**Sanger Centre**

# Years 1-2: Laying the Foundations

- Develop an understanding of the epidemiology of the key organisms.
- Delivery of national linked data from National datasets; SMR, PIS, ECOSS, NRS by PHI/IIP
- Phase 1 risk modelling using existing IIP national data providing initial risk estimates for being a case and risk modelling for the outcome of cases for *C.difficile*, *S.aureus* and *E.coli*
- Evidence for standard infection control precautions: hand hygiene and glove use.
- Evidence for transmission based precautions : risk assessment, screening and isolation

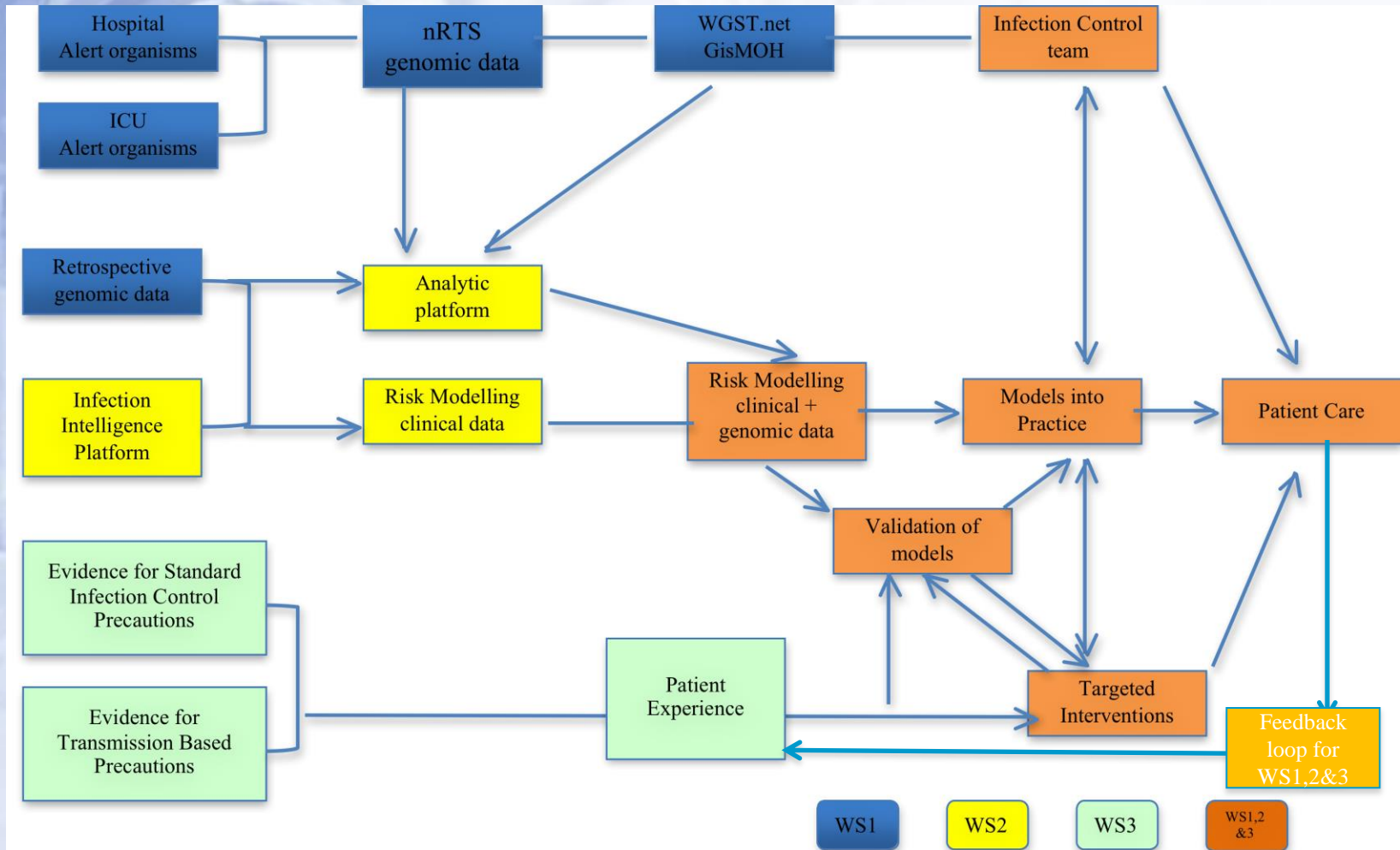
# Years 3-5: Patient centred outputs

- Provide a responsive typing facility that will be used for outbreak control
- Development of typing tools to support and interpret IC intervention practices within the Hospital setting
- Understanding the effect of targeted interventions on the epidemiology of causative HAI organisms and how such knowledge can be used for focussed patient management
- Phase 2 risk modelling highlighting patients at highest risk of HAI.
- Integration of risk models in service delivery, for patient benefit, through translation of research into IIP by PHI.
- Risk estimates of *E.coli* /*S.aureus* outcomes in infected patients as a direct result of strain identification. These will be used to developing targeted interventions (evidence based, behavioural based and cost effective) for optimising infection prevention and control
- Evidence of the patient experience and acceptability of IPC related interventions

# Wider Deliverables

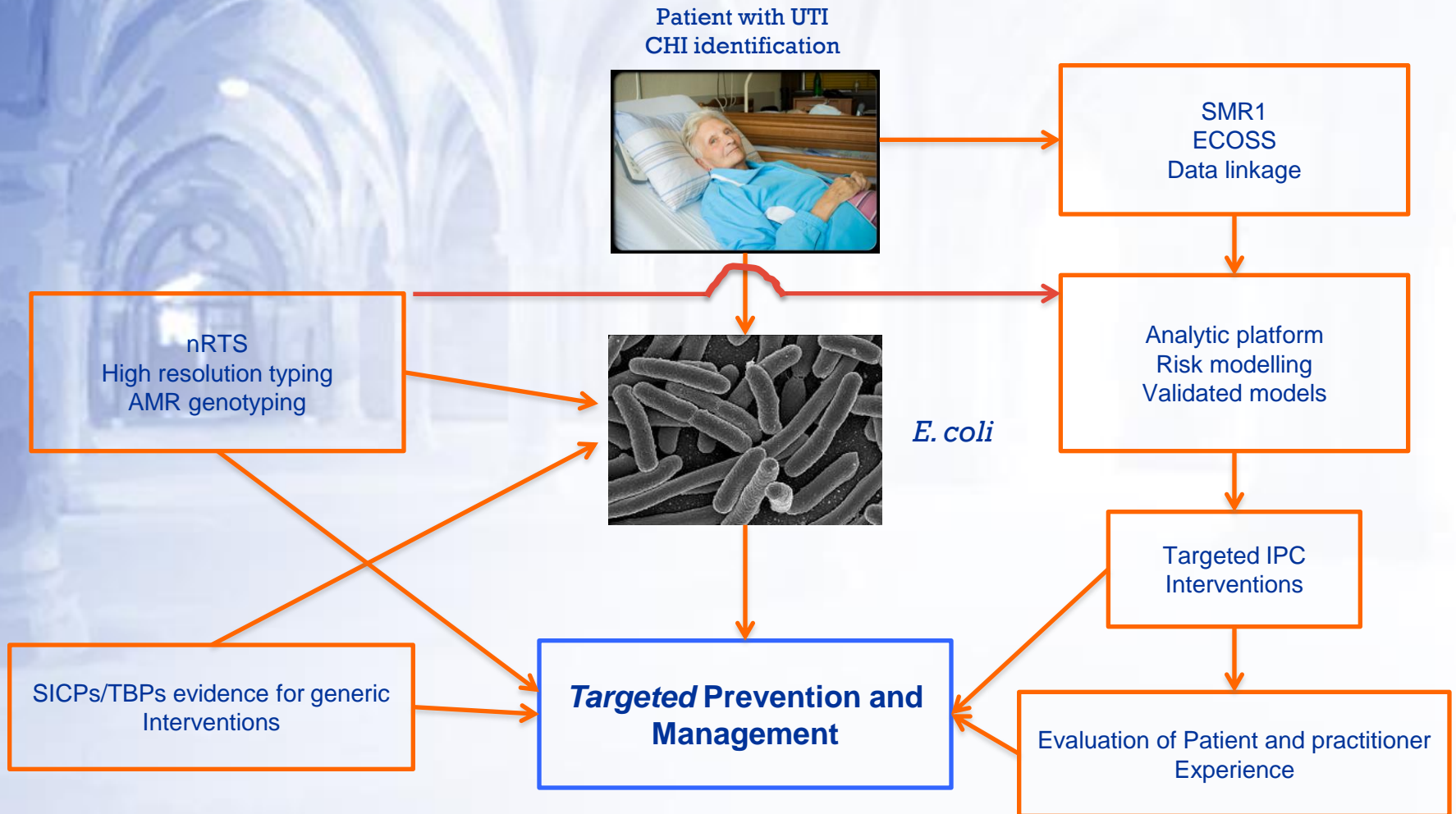
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- Strengthened HAI translational applied research capacity within Scotland via development of researchers at various career stages
- Improved capacity to capture externally funded research grants
- Produce REF 2020 returnable research outputs of 3 and 4 star
- Translate research into learning opportunities for under-and postgraduate students and NHS practitioners
- Build international research reputation and collaboration in HAI
- To translate findings from basic science research into clinical practice
- To demonstrate impact on public health by economic and social benefits of reducing HAI
- Influence SGHSCD policy to implement safe, effective, patient centred clinical practice related to key HAI and emerging antimicrobial resistance (AMR)
- European and international collaboration in world leading research

# Interconnections of Workstreams



Appendix 2: Consortium Inter-relationships

# Example of Patient Analysis Pathway





# Consortium

- Potential exemplar themes

- 1) Bacteraemias; *S.aureus*, *E.coli*
- 2) Alert organisms *C.difficile*, Norovirus, etc
- 3) Antibiotic prescribing primary care
- 4) Whole genome sequencing
- 5) Environmental cleaning, sampling
- 6) Hand decontamination
- 7) Knowledge based assessments of practice.
- 8) Assessment of new information technologies

Utilisation of informatics, typing, genetic analysis and practice based interventions with clear public health and patient gains

# How can Scottish Microbiologists help?

Three main areas:

1) Isolates

2) Enhanced information

3) Investigation of outbreaks



# [www.glasgow.ac.uk/sirn](http://www.glasgow.ac.uk/sirn)

- People involved in, or wishing to become involved in, research into healthcare infection
- Information on sources of funding and useful links
- Details of funding applications being prepared or in the pipeline

Information, feedback and suggestions to:  
[Sirn@bio.gla.ac.uk](mailto:Sirn@bio.gla.ac.uk)



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