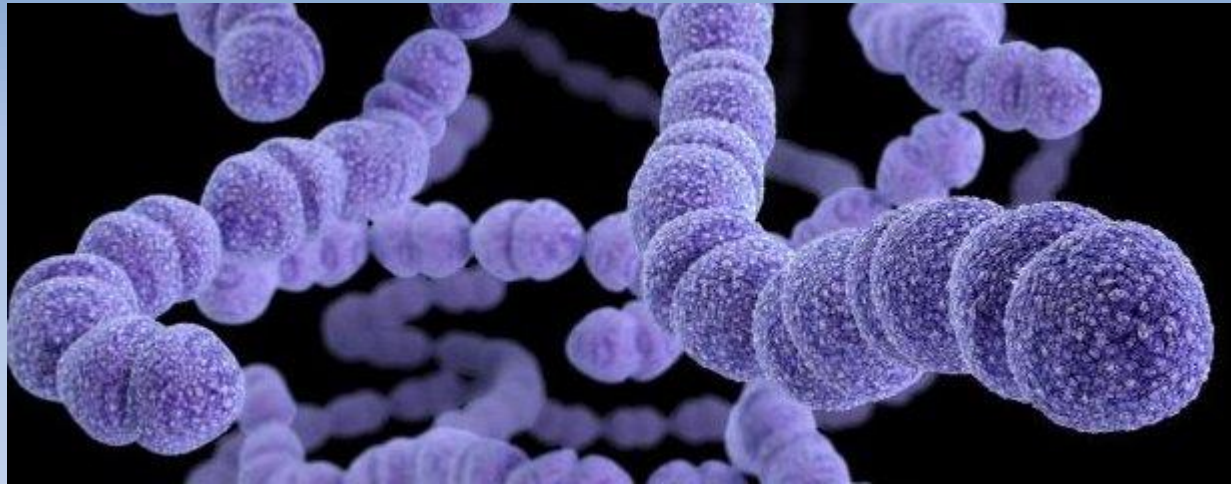


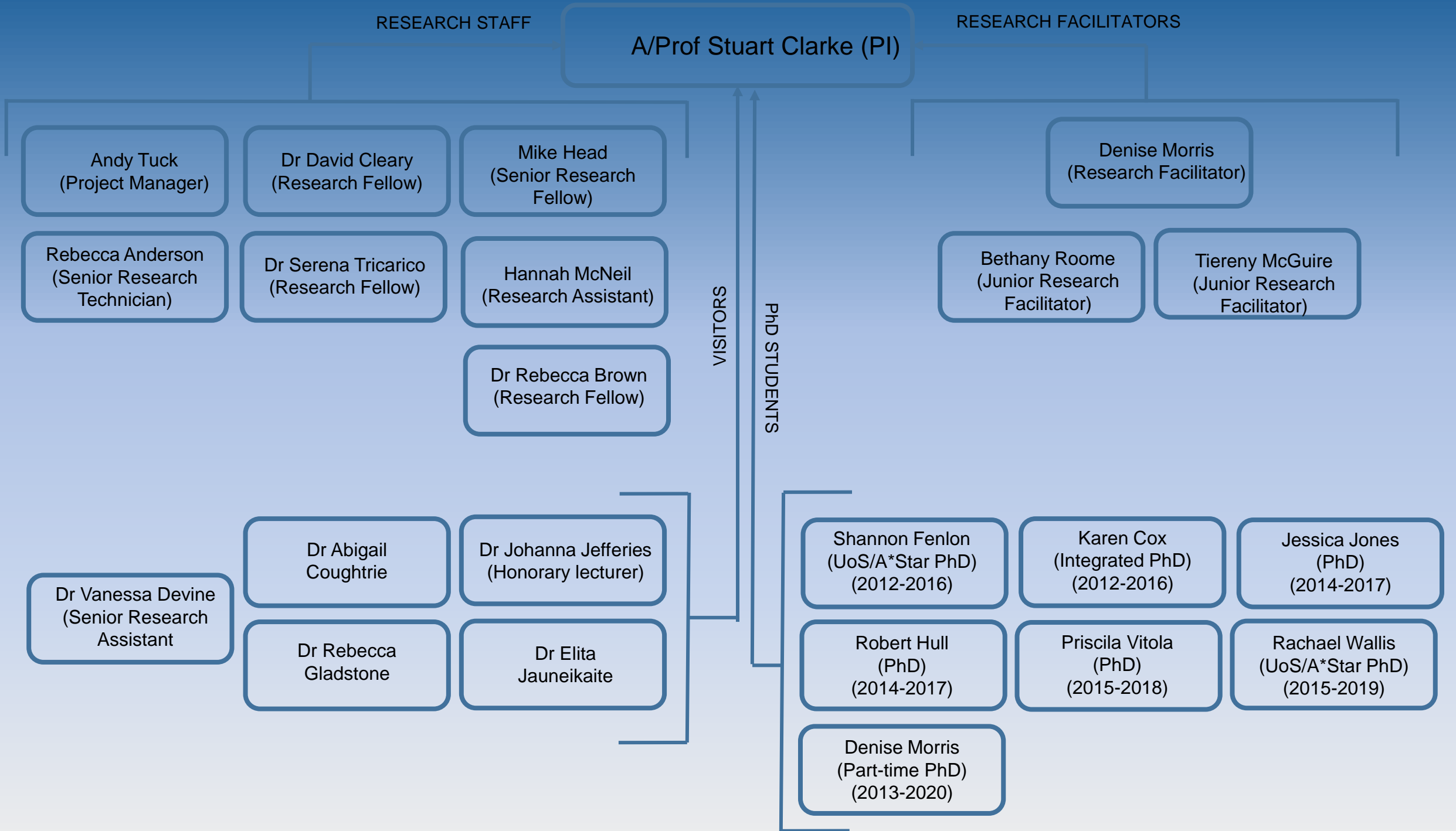
# Pneumonia research – global implications



**Presentation by Michael Head**

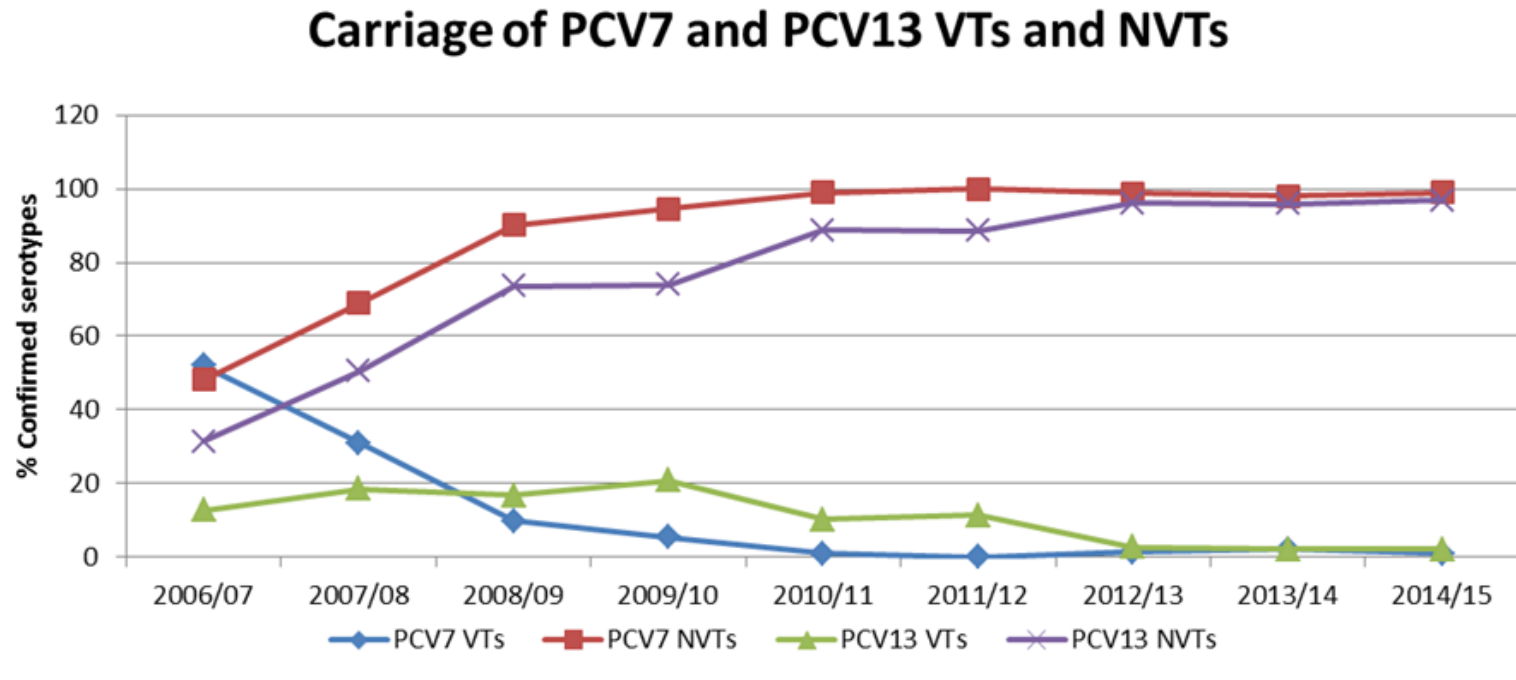
**On behalf of the Stuart Clarke research group  
Academic Unit of Clinical and Experimental Sciences,  
Faculty of Medicine, University of Southampton**





# Paediatric carriage study

- Running for 10 years. since the introduction of pneumococcal conjugate vaccines in the UK. Takes
- Swabs paediatric *Streptococcus* upper airways pneumococcal
- 2,680 young children
- Findings to date Vaccine serotypes (Gla serotypes (Gla



ried in the  
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10 years  
table.  
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# SMART - Swab Study for the Microbial Analysis of the Respiratory Tract

- Carriage study of respiratory bacteria in community and primary care
- Considered optimal method for sampling (self-swab or swab by healthcare worker)
- In 2011/12 alone, recruited >2,300 patients who provided >3,500 samples (large proportion of total recruited to clinical research in Hampshire).
- Data from these studies is providing reassurance for the introduction of pneumococcal conjugate vaccines and informing national vaccine policy
- “Higher participation and lower costs of self-swabbing as well as sensitivity of self-swabbing favour this method for use in large population-based respiratory carriage studies.” Coughtrie et al, BMJ Open, 2014
- “Carriage of *S pneumoniae* and *H influenzae* were associated with recent respiratory infection” Coughtrie et al, The Lancet, 2012

# Malaysia pneumococcal carriage and disease studies

- Newton Fund award to examine role of weather and industrial pollution in the prevalence of pneumonia and related respiratory disease
- Multi-centre microbial carriage study across Malaysia
- Looks into how the number and range of bacterial species naturally carried by humans are affected by temperature, humidity, rainfall and air pollution

# Acute Exacerbation and Respiratory Infections in COPD (AERIS)

- 5 year programme of work
- Aims to generate epidemiological data to further explore determinants of Chronic Obstructive Pulmonary Disease (COPD)
- Also the contribution of bacterial and viral pathogens to acute exacerbation of COPD episodes e.g. *Haemophilus influenzae*
- Whole genome sequencing from a range of sample types (e.g. sputum, nasal swabs)
- Implications for vaccine efficacy in COPD patients

# Global Pneumococcal Sequencing



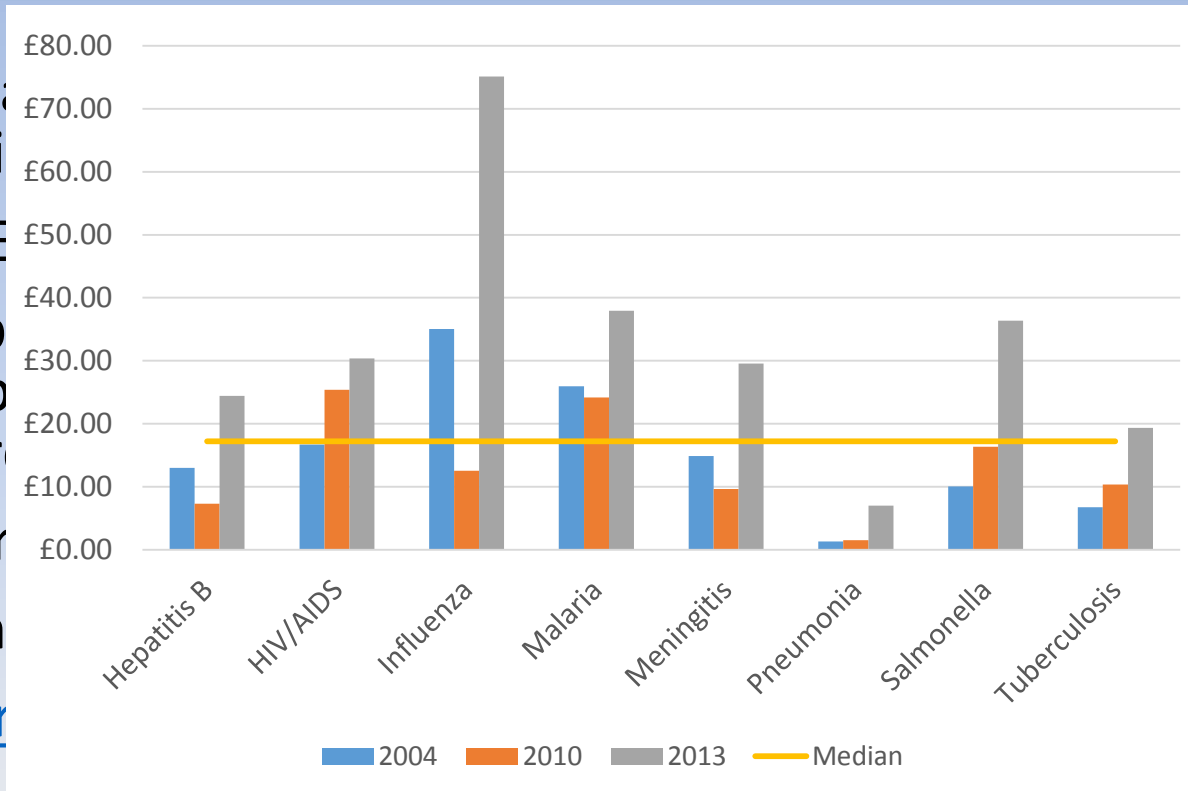


# Biofilms

- Prevention of urinary tract infections via an improved understanding of biofilm-derived variation of *E. coli*
- Diversification of *Streptococcus pneumoniae* during multispecies biofilm formation with *Haemophilus influenzae* and *Moraxella catarrhalis*
- *In vivo* models using wax moth larvae

# Research Investments in Global Health (ResIn) study

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 1997-2013  
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### **Key collaborators in Southampton**

Professors Saul Faust, Jeremy Webb, Marie-Louise Newell, Paul Roderick, Michael Moore, Patrick Doncaster, Nuala McGrath

Drs T. Wilkinson, L. Kraaijeveld, Topher Woelk

### **Key international partners**

Singapore (A\*Star and National University of Singapore)

Malaysia (University of Malays, International Medical University, Universiti Sains Malaysia, Universiti Malaysia Sarawak, Universiti Sultan Zainal Abidin)

Thailand (Mahidol University)

Hong Kong (Chinese University of Hong Kong).

USA (Harvard University, TH Chan School of Public Health)

- Stuart will be coming back to the UK in July 2016 but hopes to maintain a group in Malaysia to continue the research links.

# The Stuart Clarke group

## Contacts

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