Professor Caroline Sabin
University College London
### COMPETING INTEREST OF FINANCIAL VALUE > £1,000:

<table>
<thead>
<tr>
<th>Speaker Name</th>
<th>Statement</th>
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<tbody>
<tr>
<td><strong>Professor Caroline Sabin</strong></td>
<td>Over the past five years, Caroline Sabin has received payment for membership of Data Safety and Monitoring Committees or Advisory Boards from Janssen-Cilag, GSK, Gilead Sciences and Abbvie. She has also received funding for the development of educational materials for Gilead Sciences, Janssen and Viiv Healthcare, and for speaking at company-sponsored events for MSD and Abbvie. She has received a personal grant for attending a conference from Bristol-Myers Squibb.</td>
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**Date** | October 2014
NIHR Health Protection Research Unit in Blood Borne and Sexually Transmitted Infections

Caroline Sabin, UCL
What are HPRUs?

- Department of Health (DH) proposed that all research funding should be overseen by the Research and Development Directorate (DH RDD)
  - Grant-in-Aid funding that supported R&D
  - R&D projects supported by DH
- Estimated £10M per year R&D spend in Health Protection Agency
- DH proposed the establishment of Health Protection Research Units (HPRUs):
  - to be established in priority health protection areas
  - to be partnerships between universities and Public Health England (PHE)
  - to commence operation from 1st April 2014
HPRUs – the vision

• Create environment in which world class health protection research (HPR), focussed on needs of the public, can thrive
• Translate advances in HPR into benefits for patients/public
• Focus on areas with greatest impact on public health
• Provide high-quality HPR evidence to inform decision making by public health professionals
• Increase volume and capacity of multi-disciplinary HPR
• Flexible staff capacity (in case of major health protection incident)
• Responsive research capacity
HPRUs – expectations

• Multi-disciplinary teams including, where appropriate:
  - Health informatics
  - Modelling
  - Health economic analysis
  - Behavioural science

• Research to impact on reduction of health inequalities, including consideration of interventions for hard-to-reach groups

• Communication of findings to policy makers, practitioners and service users via work programmes and dissemination plans

• Collaboration between NIHR HPRUs
Establishing the HPRUs

- NIHR open competition for HPRUs launched November 2012
- Partnerships between universities and PHE
  - Led by academic partner
- Funding for 5 years from 1st April 2014
  - Up to £4million for each of the 12 priority areas
- Two stage application process
  - Shortlisting of academic applicants (June 2013)
  - Partnership and proposal development between academic and PHE partners (October 2013)
  - HPRUs awarded in December 2013 with start date of April 2014
## HPRUs Priority Areas

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<thead>
<tr>
<th>Priority Areas</th>
<th>HPRU</th>
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<tr>
<td>Blood Borne &amp; Sexually Transmitted Infections</td>
<td>University College London</td>
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<tr>
<td>Chemical &amp; Radiation Threats &amp; Hazards</td>
<td>Newcastle University</td>
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<tr>
<td>Development of Modelling Methodology</td>
<td>Imperial College London</td>
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<tr>
<td>Emergency Preparedness &amp; Response</td>
<td>Kings College London</td>
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<tr>
<td>Emerging Infections &amp; Biological Threats</td>
<td>University of Liverpool</td>
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<tr>
<td>Environmental Change &amp; Health</td>
<td>LSHTM*</td>
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<tr>
<td>Evaluations &amp; Interventions</td>
<td>University of Bristol</td>
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<tr>
<td>Gastrointestinal Infections</td>
<td>University of Liverpool</td>
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<td>HCAI - Oxford</td>
<td>University of Oxford</td>
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<td>HCAI - Imperial</td>
<td>Imperial College London</td>
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<tr>
<td>Health Impact of Environmental Hazards</td>
<td>Kings College London</td>
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<td>Respiratory Infections</td>
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Who are we?
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National Institute for Health Research (NIHR) Health Protection Research Unit (HPRU) in Blood Borne and Sexually Transmitted Infections at University College London (UCL)....
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…in partnership with Public Health England (PHE)…
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…in partnership with Public Health England (PHE)…

…in collaboration with the London School of Hygiene and Tropical Medicine (LSHTM)
BBVs and STIs

- **448,422** diagnoses of **STIs** in England in 2012
  - 5% increase from 2011
- **6,280** new **HIV** diagnoses in 2011
  - record levels of new diagnoses in Men who have Sex with Men
- **180,000/215,000** adults with chronic **HBV/HCV** infection
- Many infections in marginalised or disadvantaged populations
- Resistance of major concern
Cascade of Care, 2011, HIV

- HIV infected: 100% (n=94,900)
- HIV diagnosed: 77% (n=72,900)
- Retained in care: 73% (n=69,200)
- On treatment: 64% (n=60,700)
- Undetectable VL: 58% (n=52,200)

HPRU themes

A. Understanding risk and risk reduction for STIs and BBVs

B. Reducing burden of undiagnosed STIs and BBVs

C. Improving care and management of those with STIs and BBVs
HPRU themes

A. Understanding risk and risk reduction for STIs and BBVs

B. Reducing burden of undiagnosed STIs and BBVs

C. Improving care and management of those with STIs and BBVs

Reduce incidence

Increase testing

Reduce morbidity/mortality
HPRU aim

To improve the health of the nation by:

• Conducting research to address key public health priorities
• Translating the research into interventions
• Supporting health policy development
• Creating a culture of working across pathogens, populations, disciplines and institutions
How?

Disciplines
- Cohorts
- Behavioural/surveillance
- Intervention/evaluation
- Laboratory research
- Biostatistics
- Epidemiology
- Qualitative/mixed methods
- Modelling
- Health Economics
- Primary care
- Clinical Management
- Diagnostics

Populations
- Gay men
- Pregnant women/offspring
- Adolescents
- Older people
- Persons who inject drugs
- Ethnic minority groups
- Prison populations
- Sex workers/clients
- General practice attendees

Pathogens
- HIV
- Hepatitis B virus
- Hepatitis C virus
- Chlamydia
- Gonorrhoea
- Syphilis
- LGV
- HPV
- Rubella
- HTLV
The HPRU

Director: Professor Caroline Sabin
PHE Lead: Dr Anthony Nardone

Theme A: Understanding risk and risk reduction for STIs and BBVs

Joint leads:
- Dr Gwenda Hughes (PHE)
- Dr Catherine Mercer (UCL)

Theme B: Reducing the burden of undiagnosed STIs and BBVs

Joint leads:
- Prof Jackie Cassell (PHE)
- Dr Greta Rait (UCL)

Theme C: Improving the care and management of people with STIs and BBVs

Joint leads:
- Dr Samreen Ijaz (PHE)
- Prof Tim Rhodes (LSHTM)

Theme Management Groups (TMGs)
The HPRU

Theme A: Understanding risk and risk reduction for STIs and BBVs

Theme B: Reducing the burden of undiagnosed STIs and BBVs

Theme C: Improving the care and management of people with STIs and BBVs

HPRU Academy

HPRU PPI, Public Engagement and Dissemination

HPRU Cross-cutting methodology groups

Theme Management Groups (TMGs)
Governance

PHE: BBI Programme Board
(Samreen Ijaz)

PHE: HIV Sexual and Reproductive Health Programme Board
(Anthony Nardone)

HPRU Steering Committee

Theme Management Group A
PWG 1
PWG 2
PWG 3

Theme Management Group B
PWG 4
PWG 5
PWG 6

Theme Management Group C
PWG 7
PWG 8
PWG 9
To improve our understanding and knowledge base of the behaviours, attitudes and factors that influence the risk of STI and BBV acquisition and transmission in key population groups.
Key population groups

• Black Caribbean (BC) populations
  - Highest rates of STI diagnosis
  - 12 to 20-fold more likely to be diagnosed with gonorrhoea than general population, not explained by socioeconomic deprivation
  - Causes poorly understood
  - Information on partnership types, attitudes to risk, and partner notification urgently needed

• MSM
  - Greater risk of acquiring HIV, other STIs and BBVs
  - Recent emergence of epidemics (LGV, *Shigella flexneri*)
  - Increasing role of sero-adaptive behaviours, dense sexual networks, simultaneous casual contacts, sex parties, recreational drug use etc.
  - Need for development of relevant and timely interventions
The evidence gap

- World class national surveillance and behavioural research data
  - GUMCADv2 (Genitourinary Medicine Clinic Activity Dataset)
  - GRASP (Gonococcal Resistance to Antimicrobials)
  - Natsal 1-3 (National Survey of Sexual Attitudes and Lifestyles)

- Despite this, limited information on:
  - contextual factors which influence risk and risk reduction capacity
  - how sexual risk interplays with partnership types, social and sexual networks, drug and alcohol use

- Need for:
  - evidence on potential for social, behavioural and clinical interventions, to foster behaviour change
  - health protection messaging tailored to BCs and MSM
Theme A – Aim and projects

To improve our understanding and knowledge base of the behaviours, attitudes and factors that influence the risk of STI and BBV acquisition and transmission in key population groups

**Short-term**
Develop system for in-depth exploration of behaviours, attitudes, decision-making, and risk factors related to STI and BBV in key population groups

**Medium-term**
Pilot and demonstrate implementation of translational bio-behavioural rapid risk assessment tool (RRAS)

**Long-term**
Identify strategies for enhancing health promotion messaging and improving service-based prevention activities
Theme B – Aim and projects

To inform the development of interventions and diagnostic tools that will facilitate effective and efficient early access to care and treatment for STIs and BBVs
Undiagnosed infections

- **STIs (chlamydia)**
  - Most infection is asymptomatic (70% of women, 50% of men, 7-8% of 15-24 year olds)

- **HIV**
  - Around a quarter of people remain undiagnosed

- **BBV**
  - HBV: 10.7/1000 tests in antenatal clinic attendees, almost half of which were new diagnoses
  - HCV: half of those living with HIV in UK undiagnosed; 3% of those diagnosed receive treatment each year
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- Mainly affect marginalised or ‘hard to reach’ groups

- High costs of not diagnosing these individuals
Theme B – Aim and projects

To inform the development of interventions and diagnostic tools that will facilitate effective and efficient early access to care and treatment for STIs and BBVs

**Short-term**
Identify methods to increase diagnosis rates for STIs in primary care and community settings, with a focus on young people

**Medium-term**
Develop and evaluate evidence based interventions aimed at reducing undiagnosed BBV in A&E, while assessing phylogenetic and serological approaches to evaluation

**Long-term**
Assess public health impact of testing interventions for STI/BBV in primary care/A&E
Theme C – Aim and projects

To define the care pathways for people living with HIV, HBV and HCV, to identify key factors influencing their care, and to develop recommendations for care improvements, if needed
Sentinel Surveillance of BBV Testing (DENOM)

- Collects all testing undertaken for hepatitis A, B, C, D & E, as well as HIV and HTLV
- 26 laboratories across England
- 150,000 tests each month
- Since 2002, 6 million individuals, 8 million tests
- Each test mapped to specific service provider (GPs, GUM, prison etc.)
- Tests for individuals linked over time to provide comprehensive testing histories
Sentinel Surveillance of Blood Borne Virus Testing

New HIV diagnosis

ONS Mortality Data

The UK Collaborative HIV Cohort Study

SGSS

Sciensus

SystmOne (Prisons)

Patient demographic service

HES

Clinical Practice Research Datalink

GUMCAD

HepSeq

Trent database

Sentinel Surveillance of Blood Borne Virus Testing

National Cancer Data Repository

SOPHID

Maternity & Child Dataset

National Treatment Agency for Substance Misuse

UK HIV resistance database

ODT & King’s Liver Centre

NHS Blood and Transplant

SGSS (Prisons)

NHS Blood and Transplant
Additional studies

• Qualitative longitudinal study among ‘harder-to-engage’ and ‘vulnerable’ to care disruption groups
  - People living with HIV, HCV and HBV
  - Young people transitioning from paediatric to adult care
  - People who inject drugs with HIV and HCV co-infection
  - Adults >50 years with long-term HIV care experience
  - Women who are pregnant
  - People of ethnic minority identity

• Molecular characterisation studies to determine:
  - Rate of TDR in ART-naïve HIV-positive people
  - Description of majority/minority virus populations
  - Phylogenetic analyses to identify nationwide transmission networks and the dynamics of TDR mutations
Theme C – Aim and projects

To define the care pathways for people living with HIV, HBV and HCV, to identify key factors influencing their care, and to develop recommendations for care improvements, if needed

**Short-term**
Define the care pathways for people living with HIV, HBV and HCV and identify key factors influencing their care

**Medium-term**
Establish validated HIV/HBV/HCV database linkages and algorithms and undertake virological studies of drug-related motifs

**Long-term**
Establish functional database, linked with surveillance/research datasets, to assess the potential for early diagnosis/intervention in HBV/HCV/HIV
HPRU contributors


Theme A: Gwenda Hughes, Cath Mercer, Judy Breuer, Fiona Burns, Jackie Cassell, Paul Crook, Tony Nardone, Tim Rhodes, Lorraine Sherr, Peter Weatherburn, Rebecca French, Graham Hart, Anne Johnson, Lucy Platt, Greta Rait, Alison Rodger, Pam Sonnenberg, Claire Thorne, Pat Tookey, Jo Waller, Kaye Wellings.

Theme B: Jackie Cassell, Greta Rait, Julia Bailey, Judy Breuer, Kevin Dunbar, Sema Mandal, Autilia Newton, Mary Ramsay, Alison Rodger, William Rosenberg, Tariq Sadiq, Kate Soldan, Jo Waller, Kaye Wellings, Fiona Burns, Rebecca French, Samreen Ijaz, Sam Lattimore, Cliodna McNulty, Tamyo Mbisa, Danielle Mercery, Tony Nardone, John Parry, Richard Tedder, Claire Thorne, Pat Tookey, Sarah Woodhall.

Further information

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