

The London IDRN's Food-Borne Infection Workshop
Co-Hosted with the Health Protection Agency



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July 12th, 2005

Wilson Lecture Theatre
Health Protection Agency
Centre for Infections
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Preface

The Infectious Disease Research Network (IDRN) established a planning group in July 2004, to develop a research workshop that could identify the key areas of research in relation to food-borne infection.

The aim of the workshop was to define multidisciplinary, collaborative, priority research projects in this area, and to take first steps in establishing working groups that would meet subsequently and draft protocols.

The output from the meeting would be a prioritised list of suggested research projects or project areas that the research community should develop. One collaborative project, or project area would be identified that the IDRN could facilitate post-workshop.

Acknowledgements

The IDRN would like to thank Dr Gordon Nichols and Professor Martin Woodward for agreeing to chair the morning and afternoon sessions of the workshop (at very short notice), and Dr John Threlfall and the Health Protection Agency for hosting the event. The IDRN would also like to thank all the speakers and break out group leaders, the participants and the organising committee.

Infectious Disease Research Network website

The Infectious Disease Research Network is www.idrn.org. Further copies of this report, plus the speaker's presentations, can be downloaded from <http://www.idrn.org/researchworkshops.php>.

List of participants

Bob	Adak	Health Protection Agency
Emma	Best	Health Protection Agency
Eric	Bolton	Health Protection Agency
Paul	Gayford	DEFRA
Irene	Gonsalvez	Health Protection Agency
Jim	Gray	Health Protection Agency
Melody	Greenwood	Health Protection Agency
Andrew	Hayward	Infectious Disease Research Network
Michael	Head	Infectious Disease Research Network
Jay	Hinton	Institute of Food Research
John	Lee	Health Protection Agency
David	Lewis	St George's Hospital
Jim	McLauchlin	Health Protection Agency
Bob	Mitchell	Health Protection Agency
Niamh	Murphy	Health Protection Agency
Gordon	Nichols	Health Protection Agency
Sarah	O'Brien	Hope Hospital, Salford
Bharat	Patel	North Middlesex Hospital
Satnam	Sagoo	Health Protection Agency
Nandi	Simpson	Imperial College
Mina	Singh	Imperial College
Katherine	Smollett	Imperial College
Susanne	Surman	Health Protection Agency
John	Threlfall	Health Protection Agency
David	Tomkins	Health Protection Agency
Barry	Walsh	Health Protection Agency
Linda	Ward	University of Oxford
Madeleine	Ward	Infectious Disease Research Network
Siouxsie	Wiles	Imperial College London
Martin	Woodward	Veterinary Laboratories Agency

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Programme – speakers and breakout groups

- 09:30 Registration & coffee**
- 10:00** Opening address – the public health perspective on food-borne infection
Prof. Sarah O'Brien, Professor of Epidemiology, Manchester
- 10:30** Molecular epidemiology and discovery of new pathogens – gastroenterology of unknown aetiology
Dr. Jim McLauchlin (Health Protection Agency)
- 10:45 Coffee**
- 11:00 BREAK-OUT GROUPS**
Objective – define 3 key questions from the public health perspective
- 12:30 Rapporteur feedback**
- 13:00 Lunch**
- 14:00** Mouse Model of A/E pathogen transmission
Dr Siouxsie Wiles (Post-doctoral researcher, Centre for Molecular Microbiology & Infection, Imperial College, London)
- 14:15** Immunological perspectives including whether there is a case for vaccines
Dr. David Lewis (Reader in Infectious Diseases, St. George's Hospital Medical School)
- 14:30 BREAK-OUT GROUPS**
Objective – define 3 key questions in the area of pathogenesis and immunity
- 16:00 Coffee**
- 16:15 Rapporteur feedback**
- 16:45 ROUND-UP**
Emerging key issues and recommendations
Dr Andrew Hayward, Senior Lecturer, University College London
- 17:00 Cheese and wine**

Summary of Recommendations

There was some overlap between workshop suggestions regarding projects. However, a summary of the areas of research considered most important by the group were:

- Burden of disease
- Seasonality
- How much disease is food-borne?
- Communication research
- Carriage, immunity and virulence
- Role of the environment
- Vaccination

The specific questions raised under each area were:

Burden of Disease

- What are the aetiological agents causing IID?
- What is the long term morbidity and mortality associated with IID?
- Is sentinel surveillance feasible/desirable?
- Can we build a “vaccine investment case” for Salmonella, Campylobacter or Norovirus?

Seasonality

- Are seasonal variations affected by:-
 - Food preparation practices?
 - Food preferences in different seasons?
 - Seasonality in where food is imported from?
 - Seasonality of infection in animals?
 - Travel?
- Will climate change affect seasonality?
- Is seasonality the same in different high-risk groups?

How much disease is food-borne?

- What are the risk factors for sporadic infection (as opposed to outbreak associated infection)?
- Can web-based self reporting of acute infections and risk factors help to identify suspect foods, e.g. “Food-Watch”
- How much infection is related to imported foods as opposed to home grown?
- What is the effect of different food processing techniques on risk of infection?

Communication research

- How can risk about food born illness and messages about safe food handling best be communicated?

Carriage, immunity and virulence

- Can virulence/pathogenicity factors be identified for e.g. Campylobacter – should these form the basis of typing systems?
- What is the significance of carriage of GI pathogens for future disease and transmission dynamics (e.g. Norovirus)?
- What is the importance of multiple infections?
- Why do some people become ill and others not when challenged with GI infection?
- What is the role of probiotics in preventing GI infection?
- What is a healthy gut flora?
- What bacteriocins do healthy gut flora produce?
- When does a commensal organism become a pathogen? e.g. opportunity in host, gene acquisition/loss/change

Role of the environment

- Can environmental factors be studied better using geographical information systems and postcoded data?
- Do basic hygiene interventions affect risk of infection (e.g. handwashing in health care settings)
- Role of sewage contamination via irrigation in human disease.

Vaccination

- Research into animal vaccines for zoonotic food borne infections
- Why do cholera and typhoid vaccines work in travellers from the west but not in endemic countries? (Due to variation in immunity or natural gut flora?)
- What should be candidate antigens for norovirus vaccine?

Speakers and Break-out Group Leaders

To view the complete presentations that were delivered at the workshop, please see the IDRN website, <http://www.idrn.org/researchworkshops.php>

The speakers were:

- Prof. Sarah O'Brien, Professor of Epidemiology, Manchester – *The public health perspective on food-borne infection*
- Dr. Jim McLauchlin, Health Protection Agency - *Molecular epidemiology and discovery of new pathogens – gastroenterology of unknown aetiology*
- Dr Siouxsie Wiles, Post-doctoral researcher, Centre for Molecular Microbiology & Infection, Imperial - *Mouse Model of A/E pathogen transmission*
- Dr. David Lewis, Reader in Infectious Diseases, St. George's Hospital Medical School - *Immunological perspectives including whether there is a case for vaccines*

The breakout group leaders for the morning session, concerning key questions from the public health perspective were:

- Dr Eric Bolton, Health Protection Agency
- Dr Jim Gray, Health Protection Agency
- Dr John Threlfall, Health Protection Agency

The break out group leaders for the afternoon session, concerning key questions in the area of pathogenesis and immunity, were:

- Dr Jay Hinton, Institute of Food Research, Norwich Research Park
- Dr John Lee, Health Protection Agency
- Professor Martin Woodward, Department for the Environment Food and Rural Affairs

After the Workshop

- Participants completed an online survey to indicate which of the summary of recommendations (see pages 6 & 7) should be given highest priority.
- The results of this are available at http://www.idrn.org/documents/calculatedaverages_000.xls
- The research question that was considered to be of highest priority was “What is the long term morbidity and mortality associated with IID?”
- The IDRN is therefore to form a protocol development group to discuss this further.
- A second research question that was also considered high priority was “How can risk about food-born illness and messages about safe food handling best be communicated?”. If there is sufficient interest in this question, then the IDRN will put people with appropriate expertise in touch with each other.
- The other research questions have been entered onto the IDRN website, at <http://www.idrn.org/collaborations.php>. If a researcher is interested in being involved in a study, then he/she can have their name, email address and project(s) of interest indicated on this webpage. The page can be used to identify those who are interested in being involved in specific studies. The researchers database, <http://www.idrn.org/findaresearcher.php>, can also be used to find appropriate multi-disciplinary expertise, for those interested in collaborative work.