



*National Institute for  
Health Research*

# NIHR Statistics Group: Imaging Studies Section

# Imaging Studies Section

- Studies using imaging are often interdisciplinary, have complex designs and cut across different clinical areas
- Methods developed in one area of research are likely to inform and benefit studies in other areas


## **Imaging studies section – Main objective**

To promote good design and statistical practice through

- providing a networking group for statistical researchers involved in imaging studies

# Current activities

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- Launch meeting, Oxford 2013 (Imaging in Translation Research)
  - Twice-yearly meetings (since 2014)
  - Meeting reports available online
  - Maintaining a JISC-MAIL mailing list
  - Presentation and dissemination of group at relevant conferences
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# People



## Section co-leads

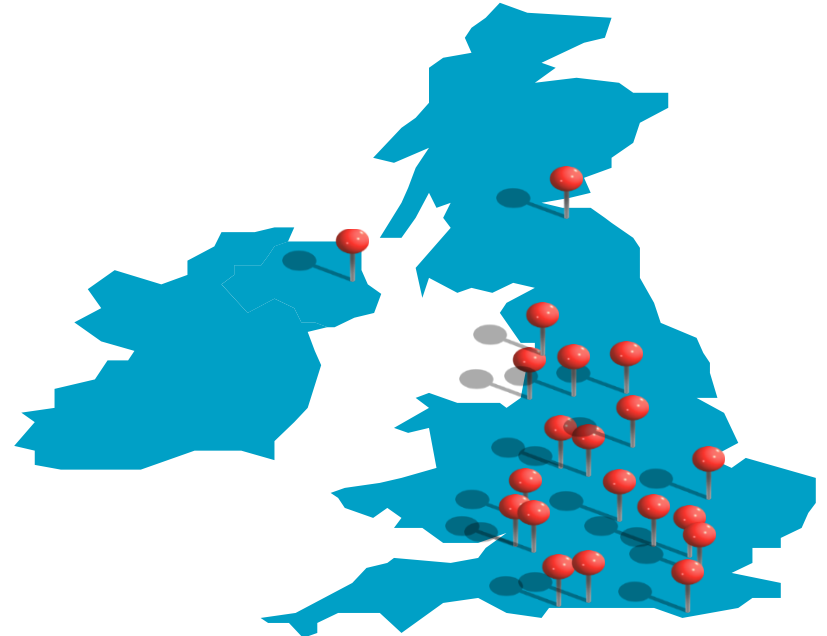
- Dr Sue Mallett (University of Birmingham)
- Dr Sue Dutton (University of Oxford)

## Working group committee members

- Prof Tom Nicols (University of Oxford)
  - Dr Liz Hensor (University of Leeds)
  - Dr Yemisi Takwoingi (University of Birmingham)
  - ... aim to recruit two more to our working group...
  - Thanks to Tom Fanshawe and Julia Forman
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# People

- Organising committee of 5 members, from the Universities of Oxford, Birmingham, Cambridge, Leeds & Warwick
- Meetings have attracted more than 120 attendees, geographically spread across the UK
- Meetings include new and returning attendees




# Feedback from attendees

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- Nice balance of clinical background & presentation of statistical challenges
  - There is little opportunity for me to discuss stats issues in my job, so this was very useful
  - Scenarios very interesting & provocative
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# Typical meeting format



- Lunch networking
  - Clinician summary of a clinical problem
  - Statistician introduction of statistical problems
  - Structured scenario discussion in small groups
  - Whole group discussion of scenarios
  - Discuss plans for future meetings
  - Face to face imaging working group committee meeting
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# Topics from past meetings

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- Statistical Issues in designing a large-scale reliability exercise in ultrasonography of the joint synovium
  - Statistical issues in clinical trials of inflammatory bowel disease
  - Sample size and power in imaging studies
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# Designing a large-scale reliability exercise in ultrasonography of the joint synovium



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Dr Richard Wakefield, Rheumatologist and Dr Liz Hensor, Statistician

Small group discussions

- Design (number of images, prevalence of disease in rarer joint locations, number & expertise of readers)
- Clinical scoring measures
- Statistical measures (kappa, agreement)
- Wider issues (operator and participant aspects of US which may not be covered in reliability study)
- Integration of reliability into main study (rarely done)

# Designing a large-scale reliability exercise in ultrasonography of the joint synovium

## Outputs of meeting

- Gave input into the Leeds Inflammatory Arthritis Continuum (IACON) cohort study
- Meeting report and slides circulated to attendees and also sent to clinical colleagues and statistical colleagues tackling similar issues
- Provoked wider discussion of key methodology issues in reliability studies and raised awareness of shared issues in different areas
- Planned publication to comment on reliability study methods for three example areas

# Evaluating an intervention to improve interpretation of CT colonography images

- 20th July 2017, 12 to 4.30pm. Birmingham
- Free, but limited numbers so please contact for Eventbrite ticket link ([s.mallett@bham.ac.uk](mailto:s.mallett@bham.ac.uk))

Statistical issues for small group discussion :

- Development of a radiology training intervention for use in the bowel cancer screening programme
- Evaluation of radiology training intervention in RCT
- Pros and cons of design and analysis of cluster RCT
- Sample size issues

# Evaluating an intervention to improve interpretation of CT colonography images

## Outputs:

- A fun meeting to network statisticians!
- Discuss statistical problems with colleagues – share ideas, swap references, learn
- Trial will benefit from ideas that feed into trial design (trial is funded by small charity and in preliminary design of intervention)
- Meeting report to share discussion with participants and on website

# Future plans



- Continue the programme of meetings while expanding our membership
  - Publication (overview of designing reliability studies in imaging in preparation)
  - We'd like to join up with another section for a joint meeting
  - Let us know if you are interested in joining or helping to organise a meeting
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