

MFOM protocol review

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Processes

Dissertations: process reminder

- **Supervisor** =educational supervisor, or other(s)
- **Protocol** and Form M2 (standard dissertations)
- FOM obtains two independent advisory **reviews**
 - Rapid feedback; formative, not summative
- **Final submission** and Form M3
- FOM obtains a joint **assessment** by two assessors
 - Accept
 - Minor revisions
 - Major revisions & reassessment
 - Reject
- **In difficult cases**
 - Additional assessors, vivas
 - Appeals process

Supervision checklist for standard dissertations

- Educational supervisor
- Project supervisor (if different)
- Any contributors to the project (eg statistician, hygienist, data manager, technician, other)
- Confirmation of adequate resources for project (by educational supervisor's signature)
 - Library and library support
 - Data management/IT support
 - Statistical support
 - Other technical support
 - Assistance in obtaining ethical approval
 - Other permissions (eg to use a database, mail a questionnaires, access data etc)
 - Training necessary for the candidate to complete the project
 - Any necessary project expenses (eg mailing)
 - Any other resources needed to complete the project

Preparations in year 1

- Read FOM web links
- Choose general topic
- Begin literature review and reference management
- Agree academic supervision: by educational supervisor, MSc supervisor, other academic supervisor
- What additional advice or collaboration is needed? (eg statistical advice, occupational hygiene)
- Consider attending relevant course(s)
- Refine topic and specific objectives of research during discussions with supervisor
- Submit for ethics approval, if required
- Obtain other permission(s) required (eg to use data or facilities belonging to employer)
- Agree outline timetable with educational supervisor
- Apply for any funding or resources needed

Protocols for standard dissertations

- 1,000 words limit
- Aims
- Background (context, justification)
- Study design
- Methods for data collection
- Outline of statistical methods (if any), including any power calculations
- Ethical issues (if any)
- Resources required (eg access to data, training, advice, collaboration, consumables, travel)
- Likely areas of policy or practice where work will lead to recommendations

Protocol review proforma

- Scope
- Relevance
- Question
- Study design
- Methods of data collection
- Presentation of results and approaches to statistical analysis
- Ethical issues
- Permissions and resources
- Feasibility
- Major revisions
- Resources
- Other suggestions

What is the question?

What is the question?

- Engage the trainee's imagination
- Relevant to the training organisation
- Is the “*question*” a question, or a design/method? eg:
 - “*Study how the pass-rate of (a test of a work competency) changes with age*”
 - Should older workers' competency be assessed more frequently than that of young workers? Competency to do what task, and to prevent what adverse outcome?



**How will you set about
answering the question?**

Ways of answering questions

- Literature review ± meta-analysis
- Observational study
 - Survey of current practice and expert opinion
 - Epidemiological study
 - Longitudinal
 - Cross-sectional
 - Case-control
 - Qualitative study
- Intervention/evaluation study ± economic evaluation
 - Experimental
 - Non-experimental
 - Clinical audit

Should older workers' competency be assessed more frequently than that of young workers?

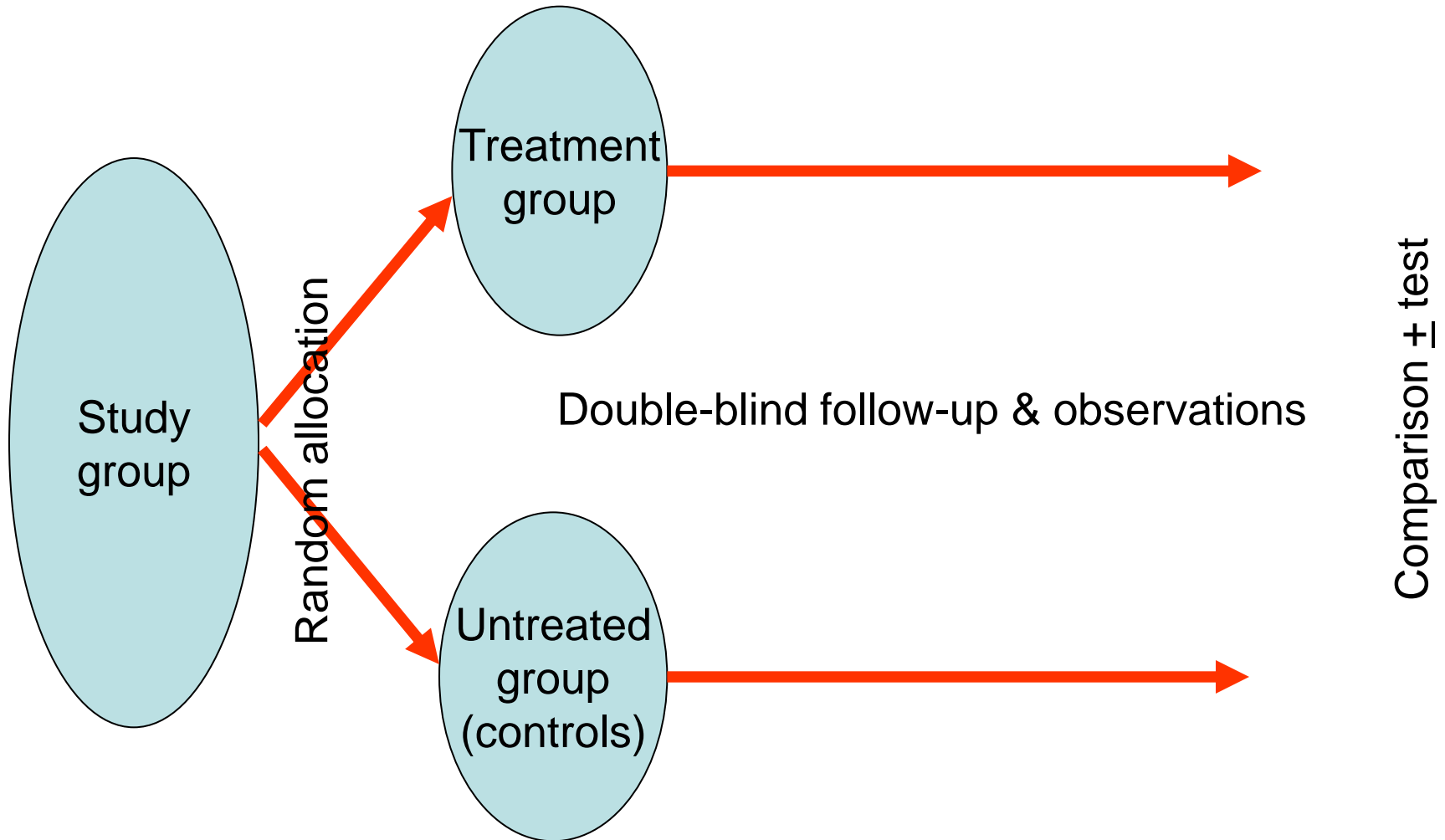
Examples

- Intervene (ie assess them more frequently) and evaluate the outcome
- Literature review ± theoretical simulations
- Follow-up of a work cohort as it ages
- Survey of variation by age in current workforce
- Comparison of age distribution in cases of competency “failure” and controls
- Survey of SOM members
- Qualitative interviews eg of managers, experts, workers

**How will you cover the basic
FOM research competencies?**

**Which competencies will your
dissertation cover?**

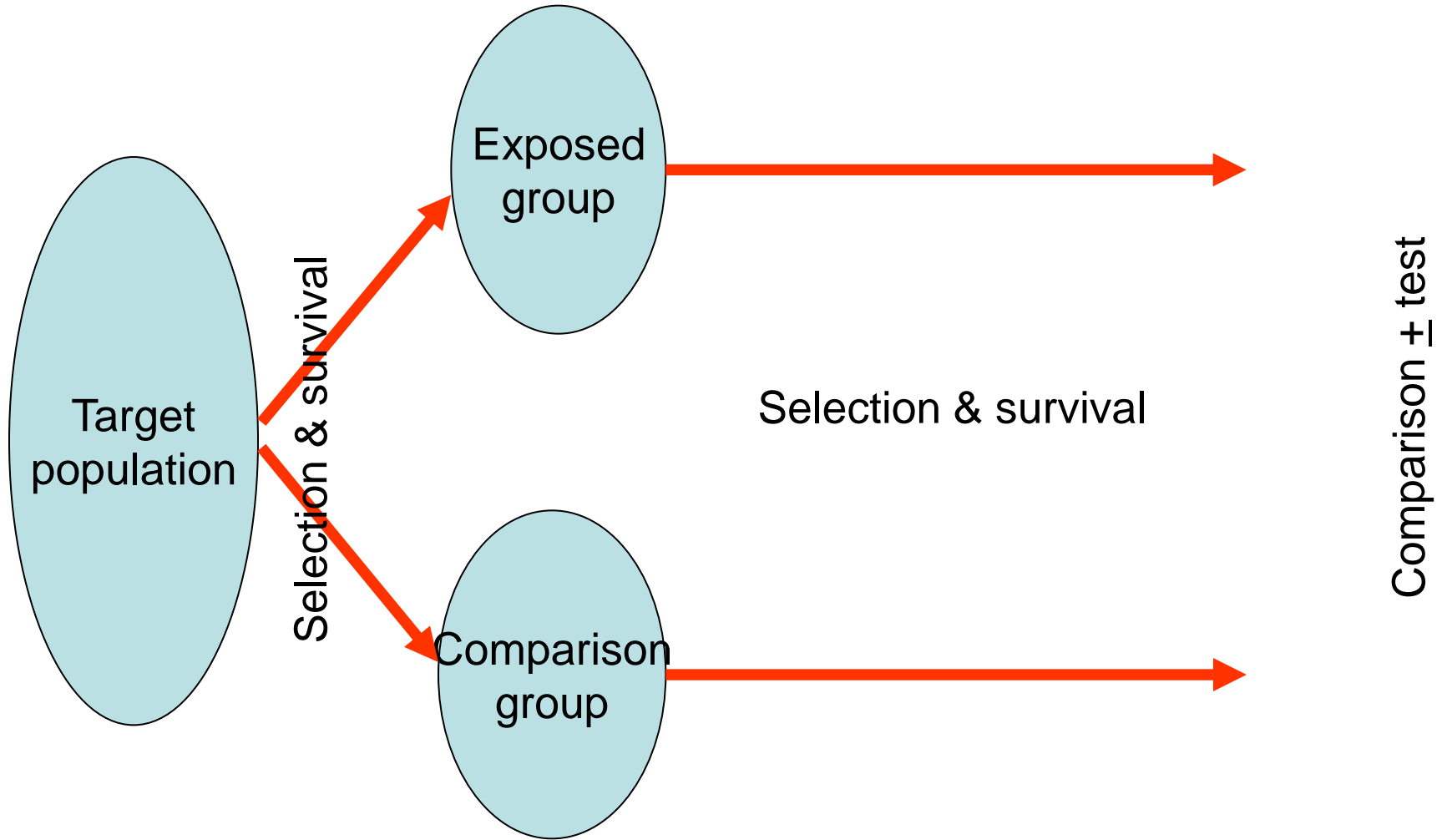
Basic experimental design



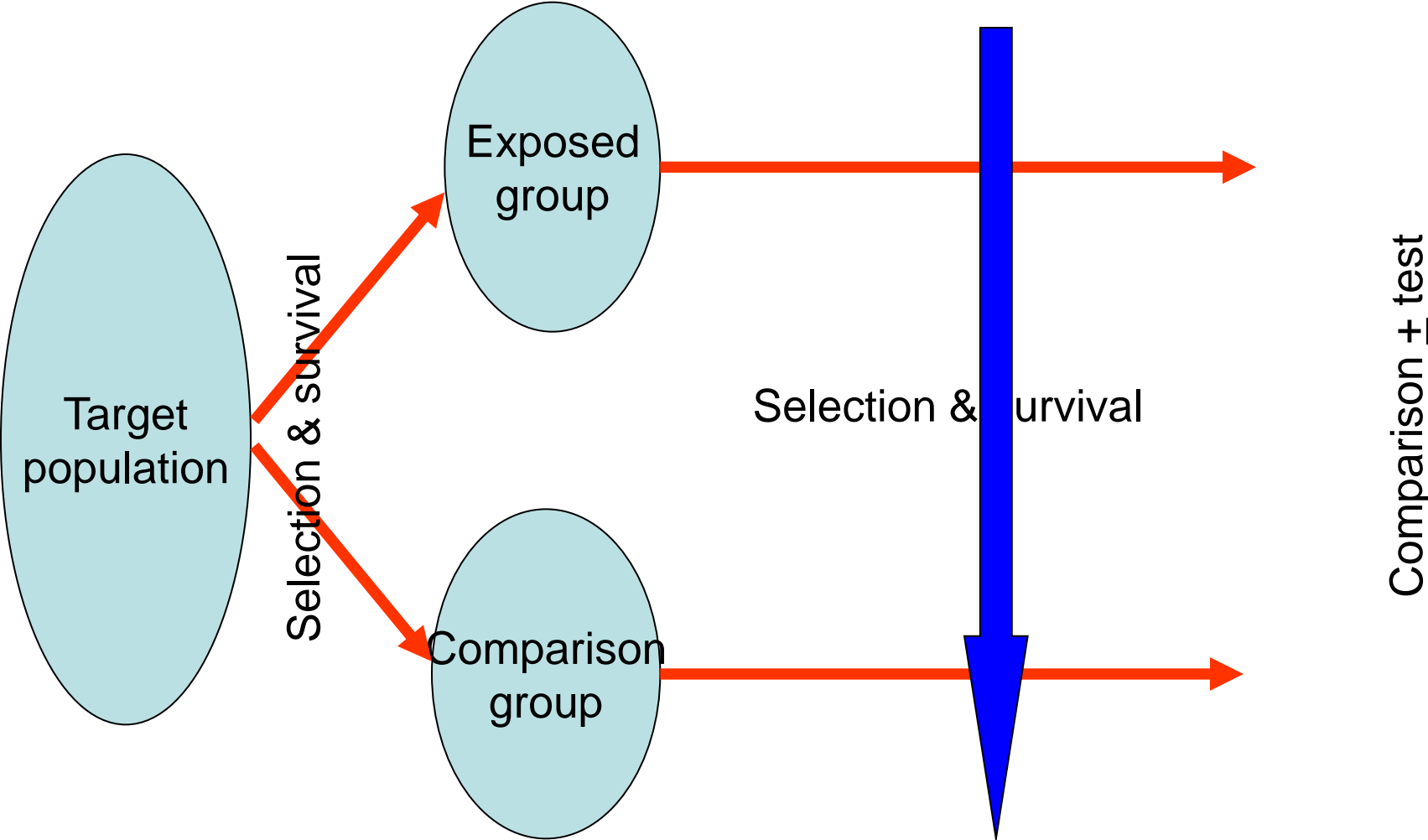
Strengths of experimental design

- Random allocation into sub-groups
- Inclusion of untreated control subjects
- Double-blind observation

Basic longitudinal design



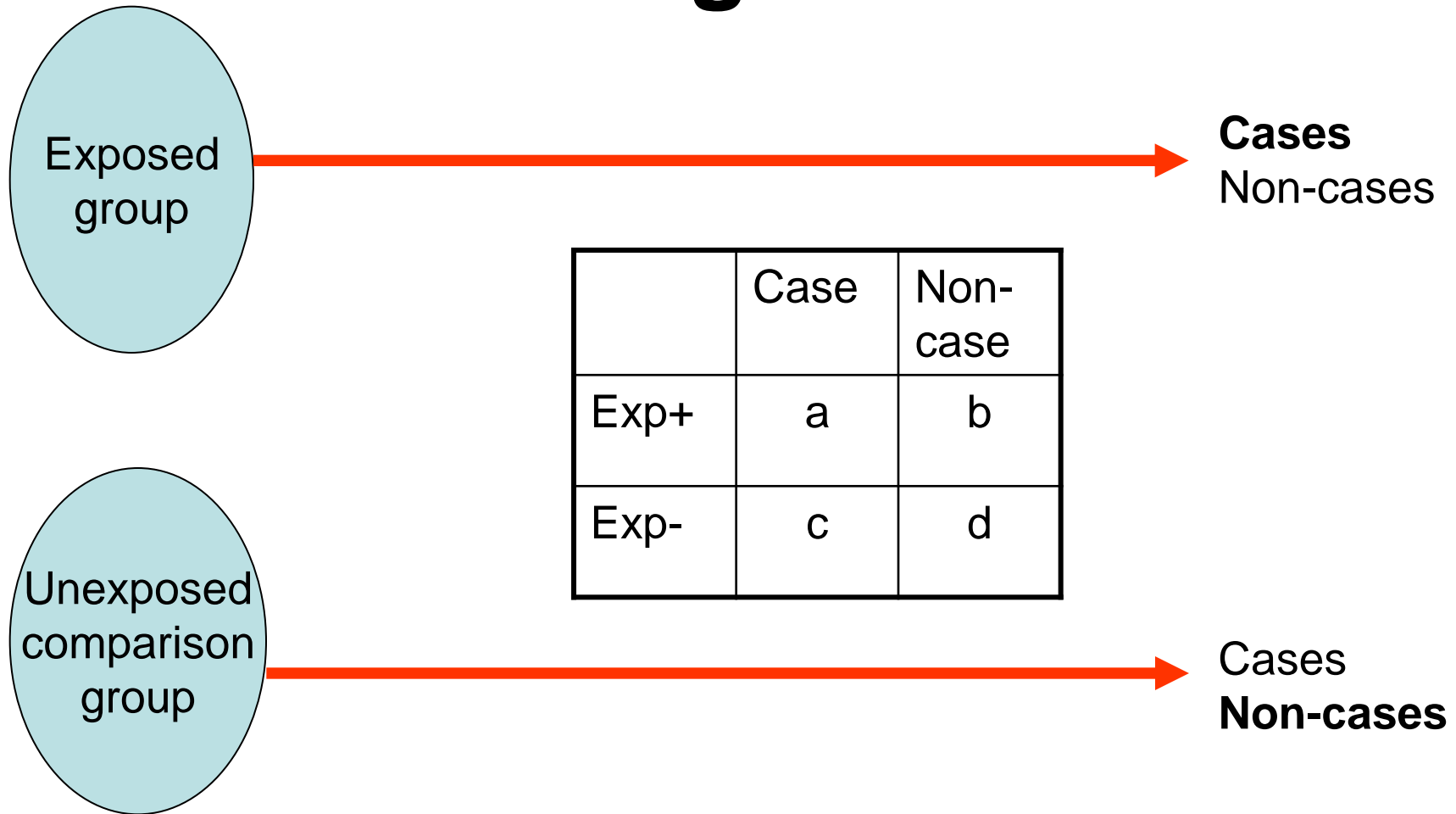
Basic epidemiological design



Selection and survival

- Selection into a job
 - Workplace factors
 - Worker factors
- “Survival” in a job
 - Workplace factors
 - Worker factors
- Selection into a study
 - Availability of records
 - Participation
 - organisations
 - Individuals
 - Selection criteria
 - inclusion
 - exclusion

Longitudinal and case-control designs



Longitudinal vs case-control design

- Longitudinal – how common is the disease of interest amongst the exposed, relative to unexposed?
- Case-control – how common is the exposure amongst cases with disease, relative to non-cases?

**What do you know about
your topic?**

Is there an accepted study design or method?

A REVIEW GROUP OF



THE COCHRANE COLLABORATION*

MRC

Medical
Research
Council

NHS

BMJ

<http://osh.cochrane.org/>

- <http://www.bmj.com/>
 - eg How to read a paper
 - eg Clinical management guidelines

• <http://www.nres.npsa.nhs.uk/>

• <http://www.nice.org.uk/>

• www.mrc.ac.uk/complexinterventionsguidance



Networking for niche topics

- FOM database of MFOM abstracts
- Special interest groups
 - eg ANHOPs
 - eg ALAMA
- Industry/employer groups
- SOM, FOM, RSM meetings

What data will you collect?

Types of variable

- Determinant
 - eg exposure, OH intervention
- Outcome
 - eg disease, sickness absence
- Modifying variables, including confounders
 - eg age, sex, smoking

Measurement of variables

- Time relations?
- Natural format/scale of the variable
- Definitions
 - Concrete, unambiguous
- Independent data collection
- Information quality
 - Valid, repeatable
- Procedures
 - Acceptable, safe, practicable

Occupational exposure indices

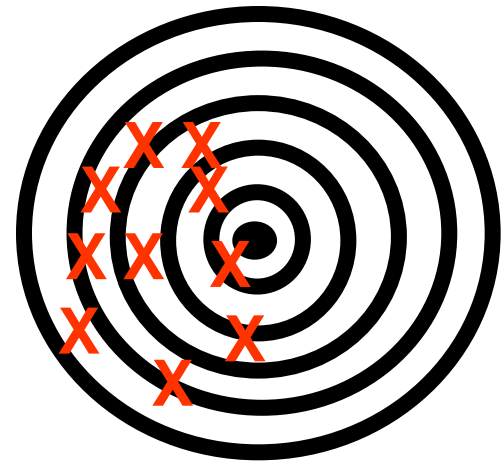
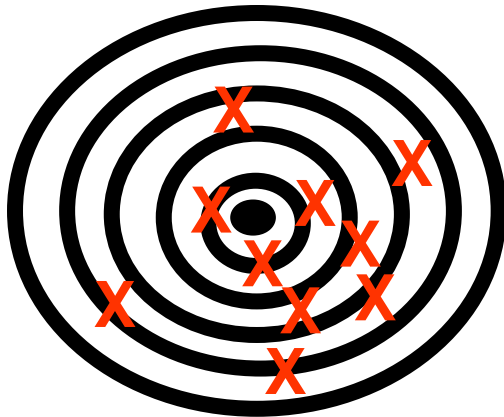
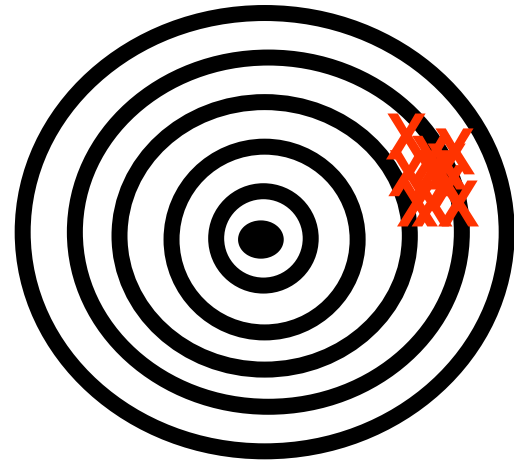
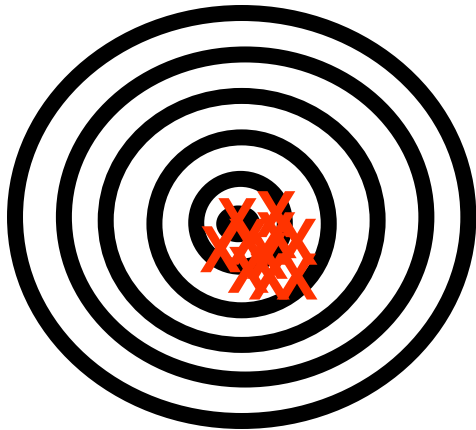
- Body burden eg kidney cadmium
- Measured personal exposure eg radiation film badges
- Area measurements eg asbestos fibre counts
- Modelled/estimated exposure
- Job-exposure matrices
- Ordinal scales of exposure
- Categories eg job titles
- Duration of job
- Ever/never worked in industry

Validity and repeatability of chosen index



Validity and repeatability of chosen index

- **Validity:** does the index measure what it is supposed to measure?
 - eg criterion validity – compared with the “gold standard”
 - eg consensus validity
- **Repeatability:** does it give similar findings on different occasions?



Minimising unwanted variation

- Subject
 - Design study to minimise sources of variation
eg do tests at same time of day
- Instrument
 - Same instrument, calibration, adjustment
 - Use average of repeated tests
- Observer
 - Eliminate where possible, simple instructions, training

Planning and organisation?

Speculate about the likely study findings

- Implications of range of likely findings
- Skeleton tables and figures
- Headings & sub-headings (IMRAD)
 - What did I do?
 - How did I do it?
 - What does it mean?

It is never too early to think about document presentation

- Word limit – 10,000 words
- Referencing software
- Indexing
- Pagination
- Appearance of tables and figures
- Photographs
- English style, grammar, spelling

Timetabling

- Preparations
- Outline protocol → FOM
- Data collection and analysis
- Drafting
- Final drafting
- Assessment by FOM
- Revision, resubmission



I... NEED...
HEEEEEEEEEELLLP!

Reserve slides

FOM research competencies: knowledge

Be able to understand:

- How to design a research study.
- How to use appropriate statistical methods.
- The principles of research ethics.
- How to write a scientific paper.
- Sources of research funding.
- The principles and application of epidemiological methods in research and in problem solving
- The application of medical statistics and the interpretation of statistical analysis methods in scientific research.
- Computer based systems for data collection and analysis.
- Ethical considerations in research.

FOM research competencies: skills

- Be able to define a problem in terms of needs for an evidence base.
- Be able to undertake systematic literature search.
- Be able to undertake a systematic and critical appraisal and review of scientific literature.
- Be able to produce an evidence based digest of the literature.
- Be able to frame questions to be answered by a research project.
- Be able to develop protocols and methods for research.
- Be able to execute an appropriate study design.
- Plan data collection for simple surveys including sample selection and methods of recording and storing data.
- Be able to use databases.
- Be able to accurately analyse data statistically.
- Have good written and verbal presentation skills.
- Present investigation and results in the format of a research based report.
- Be able to write a scientific paper for peer-reviewed publication.

FOM research competencies: attitudes

- Demonstrate curiosity and a critical spirit of enquiry, and where appropriate a critical attitude towards current practice.
- Acceptance of the need for critical review and for research so as to found a solid base for good practice.
- Ensure patient confidentiality.
- Demonstrate knowledge of the importance of ethical approval and patient consent for clinical research.
- Respect individual confidentiality when presenting data.
- Disposition to cooperation and liaison with statisticians and other research colleagues.