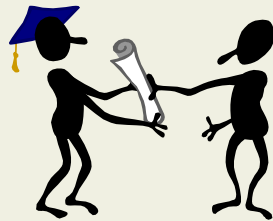# Research within NLR – types of research projects and related knowledge, skills and competencies
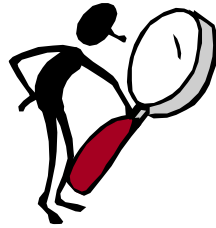
Wim van Brakel

Medical Director

until
No Leprosy Remains

Classification of current and recent research projects

- Clinical trials/intervention studies
- Implementation studies
- Cohort studies
- Tool development studies
- Surveys
- Exploratory studies
- Systematic reviews

Clinical trials/intervention studies

- PEP++ trial
  - Cluster-randomised open-label trial
- PEP4LEP
  - Cluster-randomised implementation trial
- BPS-N intervention study
  - Quasi-experimental (before-after) proof-of-concept study
- …
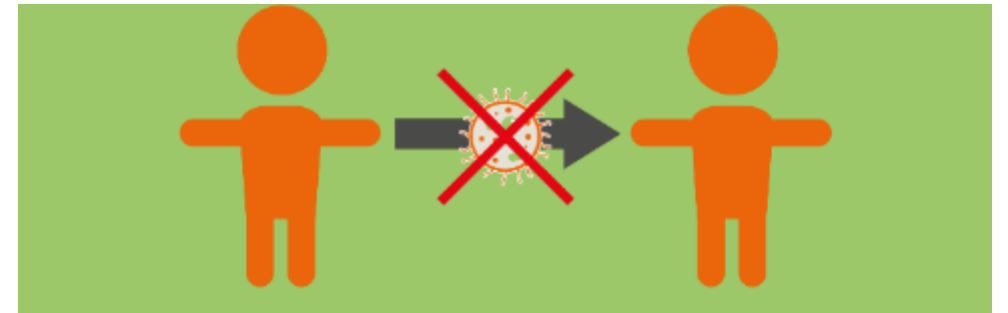
Implementation studies and cohort studies

Implementation studies

- LPEP
- Ready4PEP

Cohort studies

- Post-LPEP follow-up cohort study in Nepal

Tool/method development studies

- **SkinApp** validation studies (various countries)
- **Case detection delay** (CDD) questionnaire development (Ethiopia)
- **PEPApp** development study (India)
- **BPS-N** development study (India)
- **DEDIKASI** development study (Indonesia)
- COR-NTD **mapping** study (Nepal)
- **Participation Scale Short Simplified** development and validation studies (Indonesia and Nepal)
- **LEMT** development study (IO)
- **Positive Stigma Inventory** development (IO)
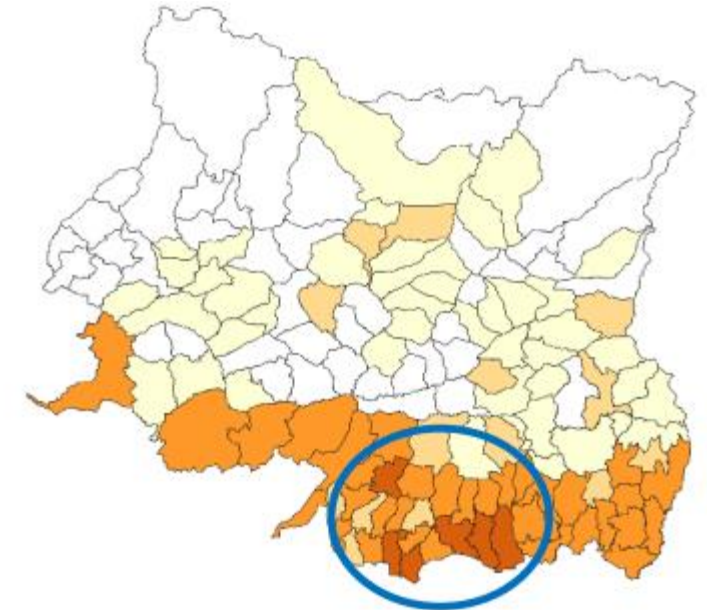
Surveys

- Leprosy Perception Studies (3 under LPEP; 5 under PEP++)
- COR-NTD study on leprosy, LF and konzo in Mozambique
- Formative part of the COR-NTD study on leprosy and LF in India
- Case detection delay surveys in PEP4LEP
- Mental health and stigma surveys in Madesh Pradesh and Sudarpaschim Pradesh in Nepal
- Online surveys (e.g., LRI research priority survey)

Exploratory studies

- Online studies on PEP implementation strategies
- Study on participation of affected persons in research
- Study on NISC

Systematic reviews

- The State of Affairs in Post-Exposure Leprosy Prevention (Schoenmakers et al, 2020)

- NTDs and socio-economic outcomes (Van Wijk et al, in progress)

- Detection of anti-*M. leprae* antibodies in children in leprosy-endemic areas (Pierneef et al, 2021)

- Impact of leprosy on the mental wellbeing of leprosy-affected persons and their family members (Somar et al, 2020)

- Gender and leprosy-related stigma (Dijkstra et al, 2017)

- Social stigma towards neglected tropical diseases (Hofstraat & van Brakel, 2016)

Knowledge, skills and competencies regarding different aspects of research

Required knowledge and skills – proposal writing

- Know and be able to apply Good Clinical Practice (GCP) in research
- Literature review skills
- Being able to use bibliography software
- Being able to formulate a good research question
- Knowledge of study designs
- Being able to do a sample size calculation
- Knowledge on sampling and sample generalisability
- Know the role of randomisation
- Know the role of blinding
- Know when to use random and purposive sample selection
- Know a range of data collection methods
- Know methods to control for confounding
- Know methods to avoid bias
- Know appropriate analysis strategies and methods
- Know what ethical considerations are important
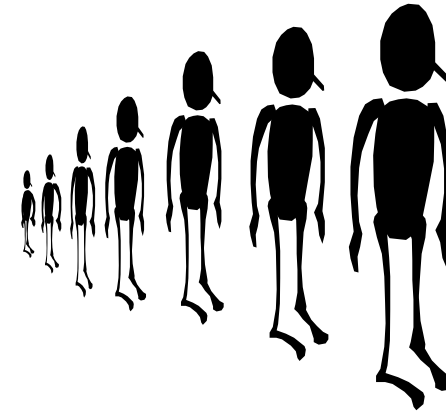
Required knowledge and skills – study execution

- Know how to apply Good Clinical Practice (GCP) while implementing a study
- Data collection methods: how to use specific tools
- Being able to design a good questionnaire
- Being able to make an informed consent form
- Being able to ask for informed consent
- Know what are good interview techniques
- Being able to use good interview techniques
- Being able to screen for leprosy
- Know how to use electronic data entry
- Being able to make electronic data entry forms
- Being able to make online survey forms
- Being able to conduct a focus group discussion (and/or other qualitative methods)
- Know how to collect data for instrument validation

Required knowledge and skills – data analysis

- Knowledge and skill in managing electronic data
- Data cleaning skills and dealing with missing values
- Knowledge of and skills in quantitative descriptive analysis
- Knowledge of and skills in multivariate analysis methods
- Knowledge of and skills in scale validation analysis methods
- Knowledge of and skills in analysing cultural equivalence data in instrument validation
- Knowledge of and skills in geo-spacial analysis methods
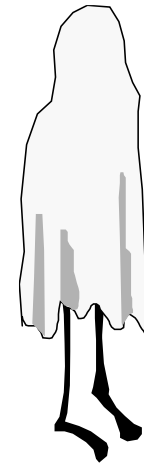- Knowledge of and skills in qualitative data analysis
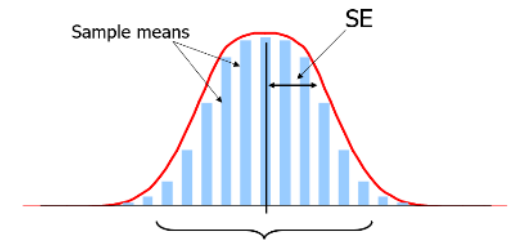
Required knowledge and skills – writing scientific papers

- Literature review skills
- Knowledge of the relevant literature
- Being able to use bibliography software and choose citation styles
- Being able to make good scientific tables
- Being able to make high-quality graphs
- Know how to choose and insert relevant quotes
- Know how to choose an appropriate journal
- Being able to submit a manuscript to a journal through an online portal
- Know how to respond to reviewers' comments.
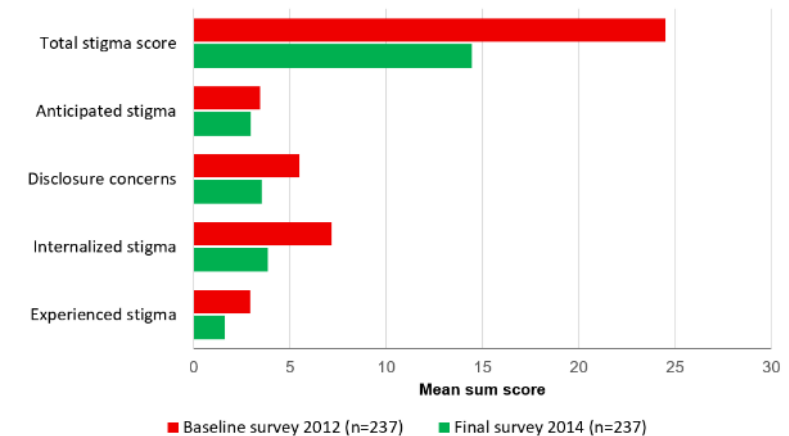
Reviewing research proposals

- Knowledge of relevant literature
- Knowledge what constitutes a good research question
- Knowledge of study designs
- Being able to check a sample size calculation
- Knowledge on sampling and sample generalisability
- Know the role of randomisation
- Know methods to avoid bias, including when to use blinding
- Know when to use random and purposive sample selection
- Know when particular data collection methods are appropriate
- Know methods to control for confounding
- Know when particular analysis strategies and methods are appropriate
- Being able to recommend specific tables and graphs for different purposes.

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