

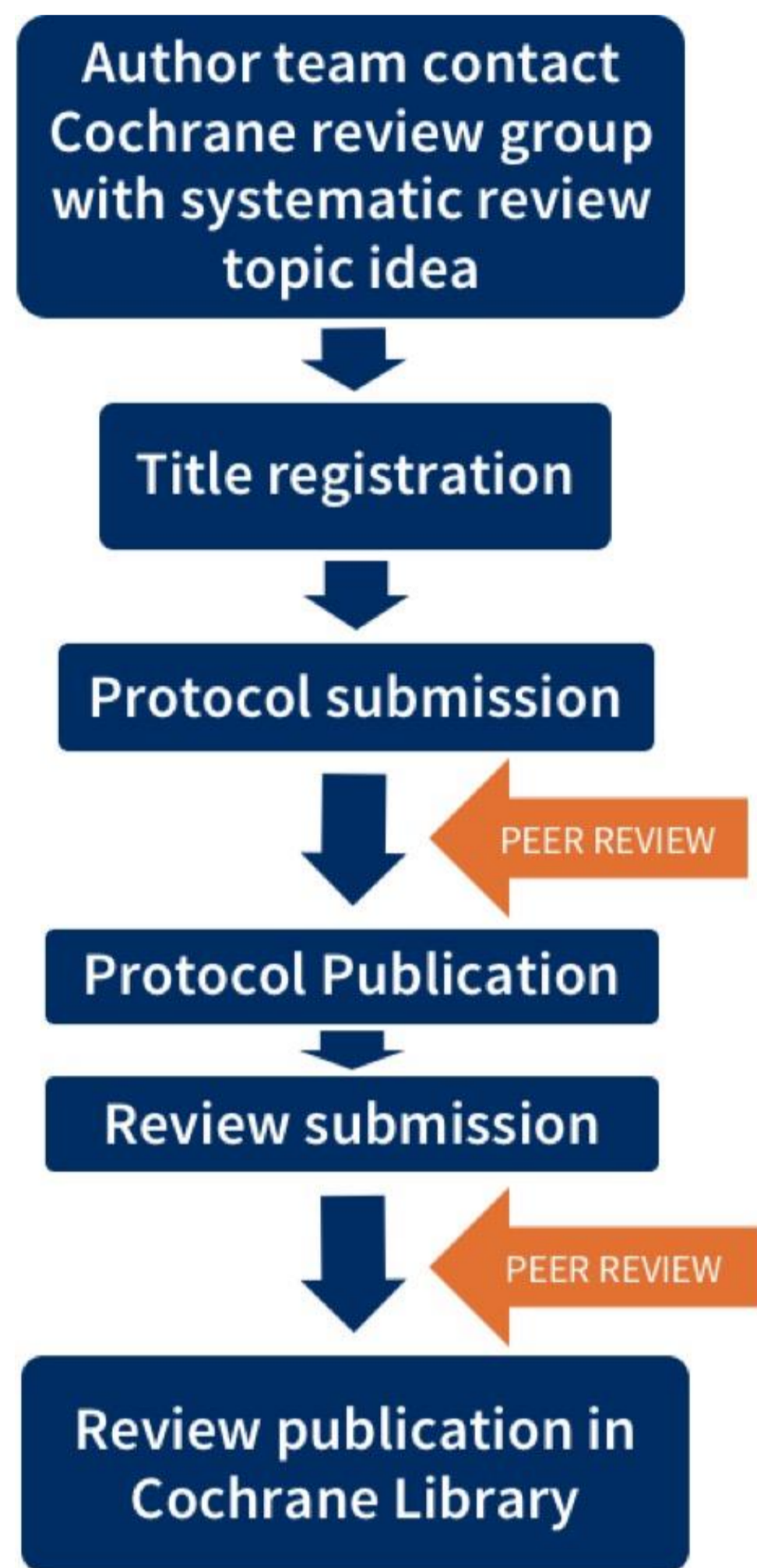
Cochrane reviews to inform vector control policy : housing and malaria

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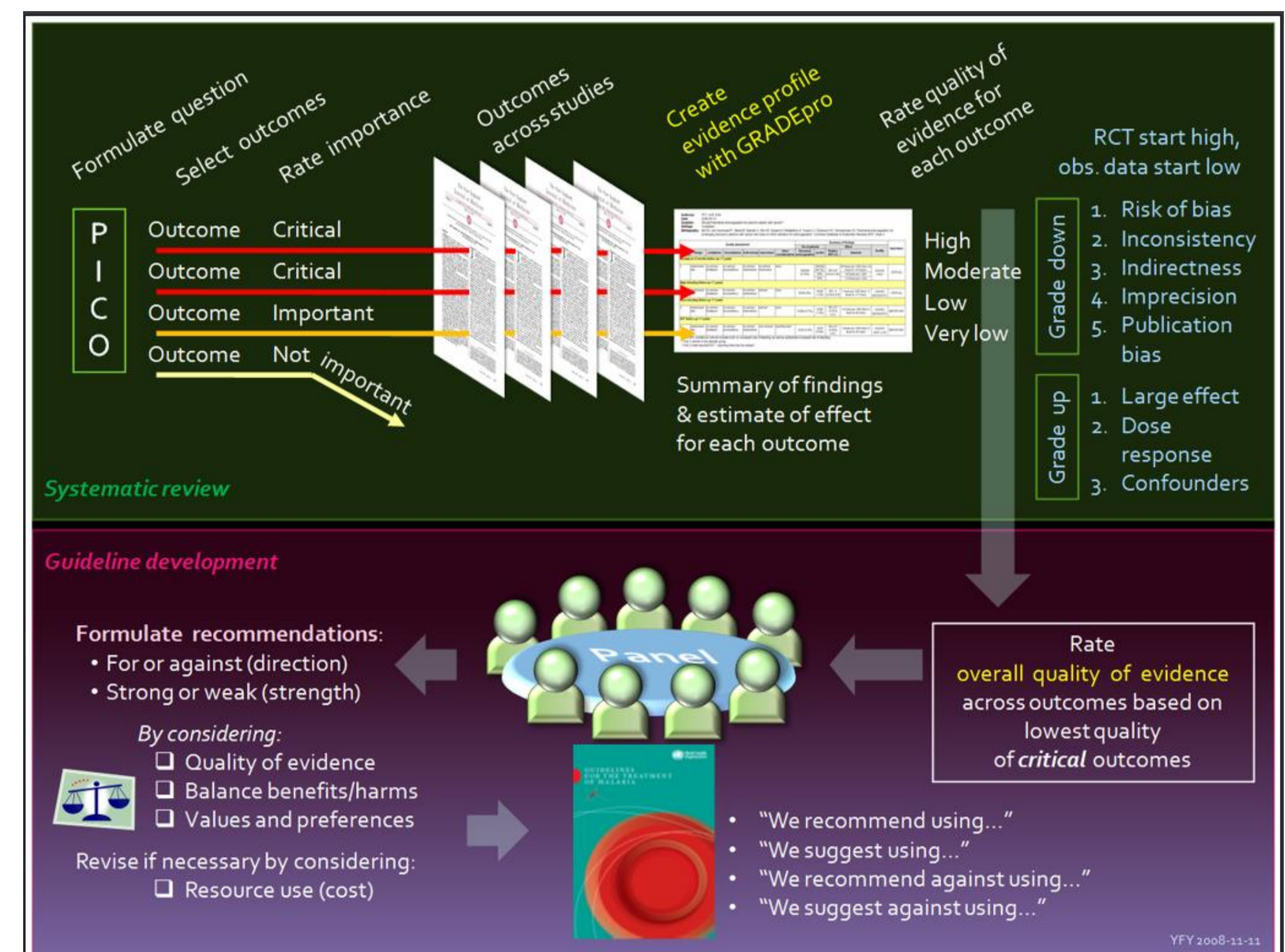
Background

- There is often sparse or low quality evidence for vector control tools, and the literature can be difficult to navigate.
- It is therefore fundamental that all available evidence is utilized to reduce research waste; assessed for quality in a systematic and non-biased way; and presented in an accessible format.
- Cochrane offers a tool for doing this; its methodology has been designed to promote evidence-informed decision-making by producing high quality, relevant, accessible systematic reviews.
- Traditionally, these reviews have sought to improve decision-making in clinical practice; however, this methodology has been given increasing importance by the WHO in guiding vector control policy.
- In 2004, the Cochrane Infectious Diseases Group (CIDG) began commissioning a series of systematic reviews to assess the evidence for various vector control interventions for the first time.
- More recently, the CIDG were commissioned by the WHO to update and conduct novel reviews that would later be used to formulate the first formal WHO vector control guidelines (published in February 2019).

Cochrane principles and process



- Key characteristics of Cochrane reviews include:
 - a clearly stated set of objectives with pre-defined eligibility criteria for studies;
 - an explicit, reproducible methodology (published as a protocol a priori);
 - a systematic search that attempts to identify all studies that meet the eligibility criteria (regardless of language or publication status);
 - an assessment of the validity of the findings of the included studies, using GRADE
 - a systematic presentation, and synthesis, of the characteristics and findings of the included studies.
- With the certainty of evidence in mind, moving from evidence to recommendations then requires further consideration of: **the balance of benefits and harms; feasibility; and resource implications/costs** before a recommendation can be made.
- Following publication, Cochrane reviews are routinely updated and maintained through identification and incorporation of new evidence.



GRADE: Grading of Recommendations Assessment, Development and Evaluation

- GRADE is a system used to rate the certainty of evidence for each outcome measurement of a study.
- The GRADE approach defines the certainty of a body of evidence as the extent to which one can be confident that an estimate of effect or association is close to the quantity of specific interest.

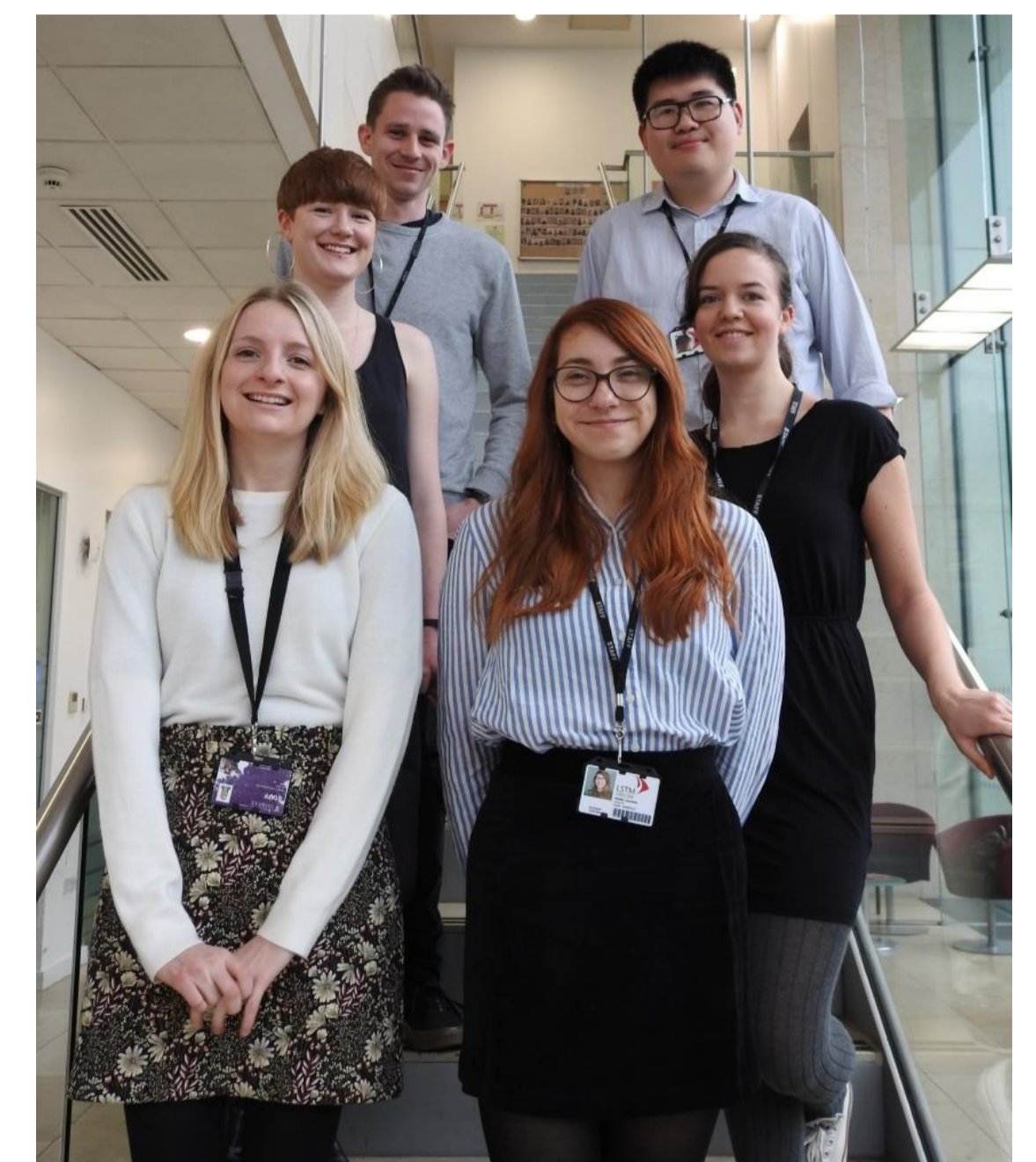
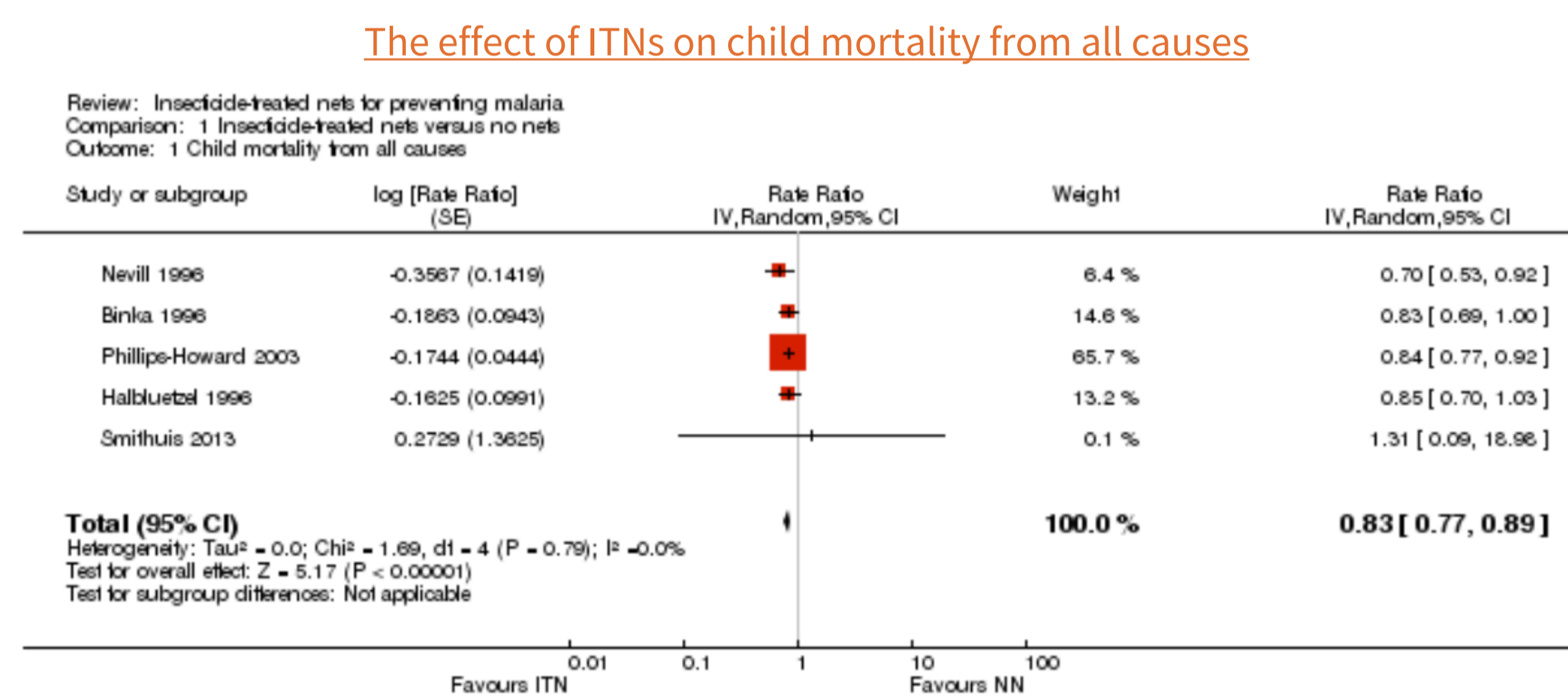
Achievements and progress so far

Completed malaria vector control reviews:

- Pyrethroid-PBO nets to prevent malaria (2018)
- Insecticide-treated nets for preventing malaria (update) (2018)
- Insecticide space spraying for preventing malaria transmission (2018)
- Mosquito repellents for malaria prevention (2018)
- Larvivorous fish for preventing malaria transmission (2017)

In progress:

- The combination of indoor residual spraying with insecticide-treated nets versus insecticide-treated nets alone for preventing malaria (Protocol) (2017)
- Larviciding to control malaria (Protocol) (2017)
- Indoor residual spraying for preventing malaria
- **Housing interventions for preventing malaria**



Members of the review teams responsible for conducting the recently commissioned series of Cochrane reviews on vector control interventions

Housing interventions for preventing malaria (Protocol)

Background

- It is becoming increasingly clear that controlling vectors through the current core vector control interventions, indoor residual spraying (IRS) and insecticide-treated nets (ITNs), will not be sufficient to eliminate the disease (Killeen 2014).
- Simple house improvements, that were traditionally considered a core vector control tool (Gachelin 2018), may be an underexploited intervention that could be used to supplement IRS and ITNs.

Primary objective:

- **To assess the evidence from a range of eco-epidemiological settings of the impact of different structural house modifications on malaria disease burden, and to compare the efficacy of these interventions.**

Participants:

- Any individuals living in an area where malaria transmission is known to exist, excluding migrant populations or displaced individuals.

Interventions and Comparators:

Intervention	Comparison
Primary construction:	
Alternative wall, roof or door type	Traditional/standard wall, roof or door type.
Elevated house	House at ground level
Closed eaves	Open eaves
Incremental changes to house structure	
Screening of ceilings, doors, eaves, windows and filling in of cracks and crevices in the wall	No screening or a quantifiable reduction in the amount of screening
Changes to size or number of windows or doors per household	A quantifiable difference in the number of windows or doors
Filling in of cracks and crevices in walls or ceilings	No filling in of cracks and crevices
Incorporation of insecticidal delivery systems into house structure	
Any structural house modification that incorporates an insecticide	No incorporation of insecticidal delivery system to house structure

Primary outcomes:

- Malaria case incidence
- Malaria infection incidence
- Parasite prevalence

Study designs:

- RCTs (cRCTs and cluster-randomized cross-over studies)
- Quasi-experimental trials (CBA and ITS studies)
- Prospective cohort studies

References: Killeen GF. Characterizing, controlling and eliminating residual malaria transmission. Malaria Journal 2014;13:330; Gachelin G, Garner P, Ferroni E, Verhave PV, and Opinel A. Evidence and strategies for malaria prevention and control: a historical analysis. Malaria Journal 2018;17:96.

