



Review on Epidemiology and Sero-monitoring of PPR

15 years of research in 10 minutes!

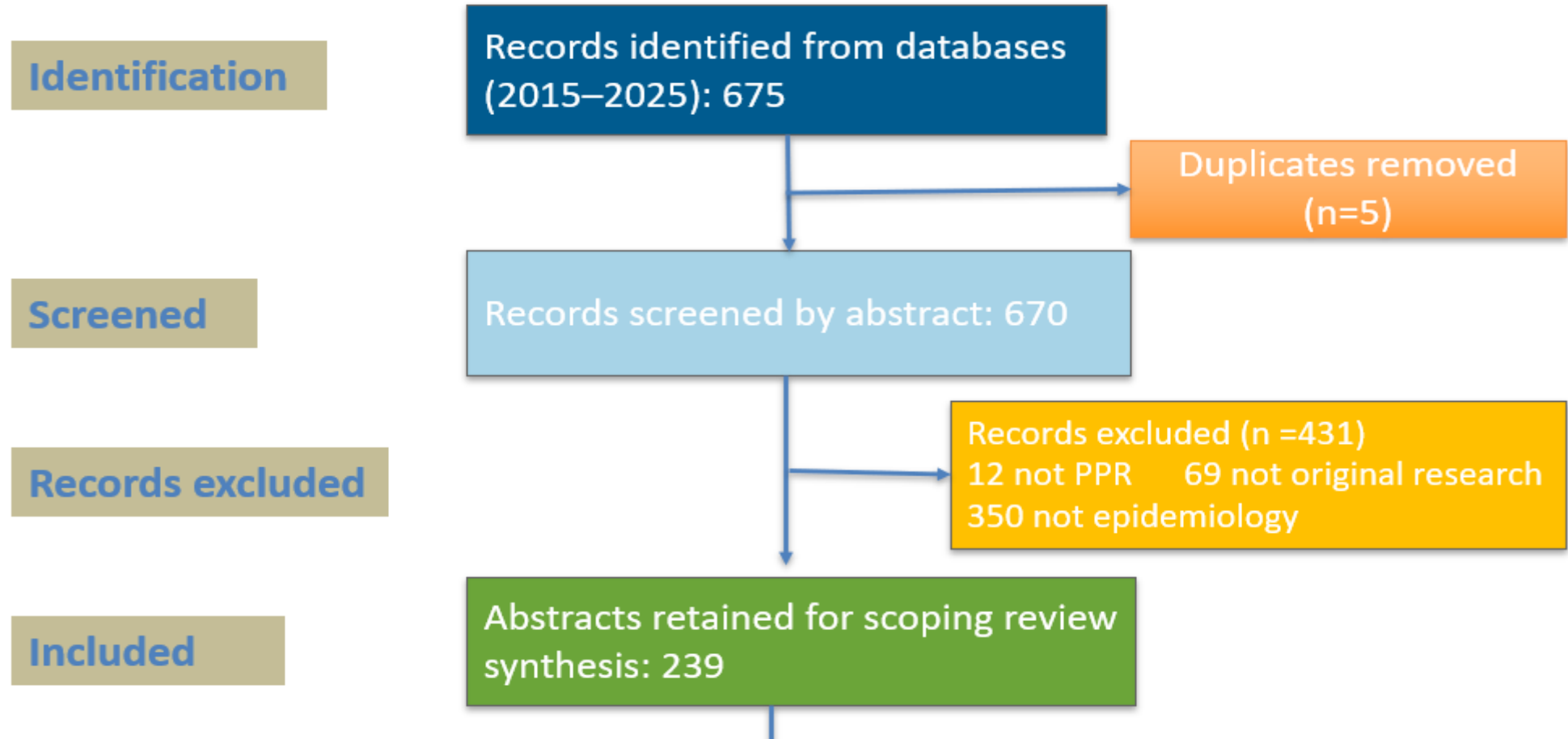
Dr Theo Knight-Jones & Dr Gezahegn Alemayehu
International Livestock Research Institute (ILRI)

ILRI
INTERNATIONAL
LIVESTOCK RESEARCH
INSTITUTE



- What progress has been made in addressing PPR research priorities since the inception of PPR GEP in the field of epidemiology?
- What are the remaining challenges in epidemiology that need to be overcome to achieve global PPR eradication?
- Method:
 - 1) We reviewed all 7 prior GREN meeting reports to identify research priorities mentioned in the field of epidemiology
 - 2) We performed a partial Systematic Scoping Review of all PPR research publications listed in PubMed since 2015

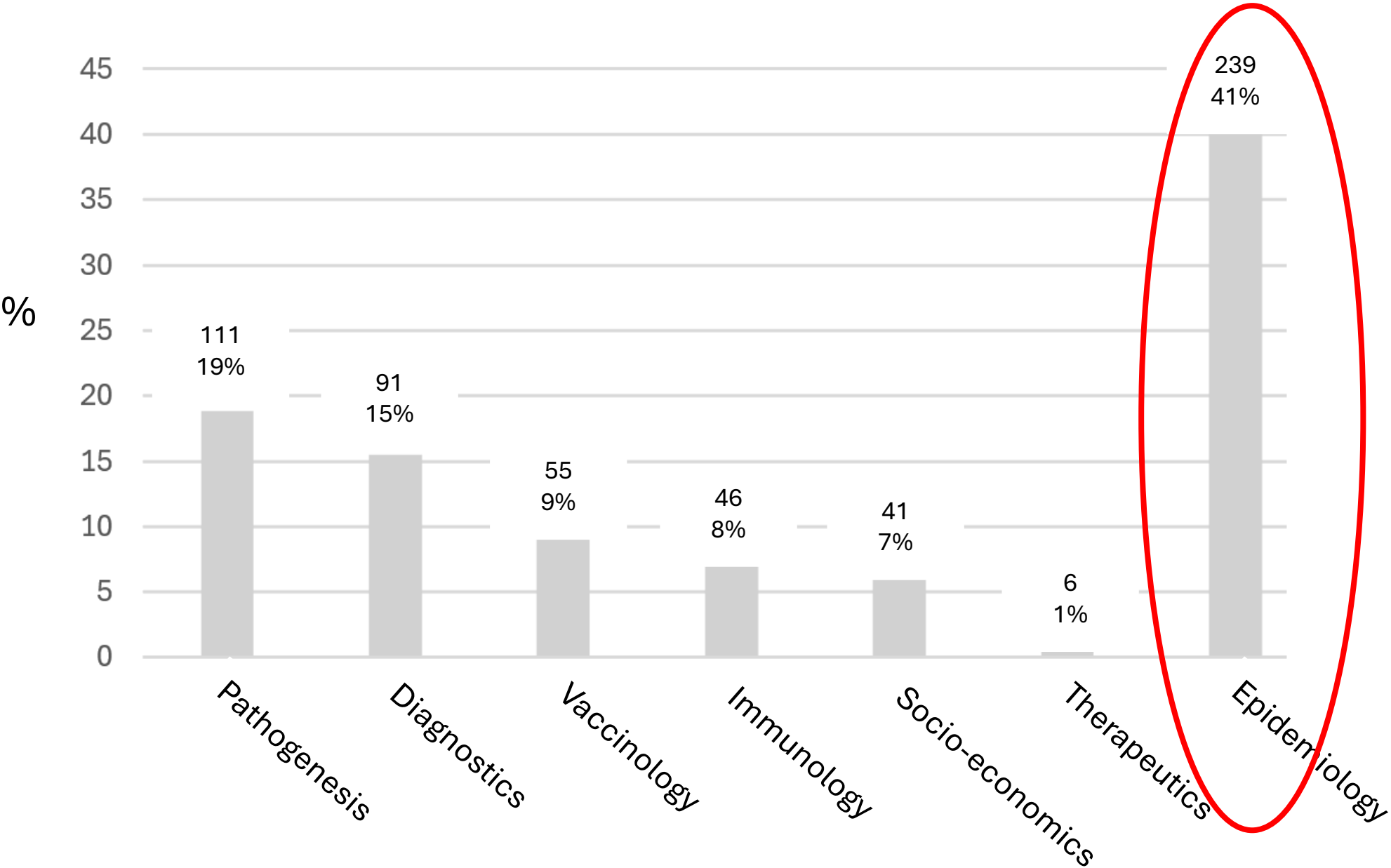
Review process – PRISMA diagram



Inclusion criteria were: “Is an original research paper on PPR epidemiology”. Systematic reviews were retained as adding original research value to existing research.

Exclusion criteria were: “Does not concern PPR” or “Does not concern epidemiology”.

Categorisation of PPR research 2015-2025



Review process – PRISMA diagram

Identification

Records identified from databases
(2015–2025): 675

Duplicates removed
(n=5)

Screened

Records screened by abstract: 670

Records excluded

Records excluded (n =431)
12 not PPR 69 not original research
350 not epidemiology

Included

Abstracts retained for scoping review
synthesis: 239

Epidemiology
studies

Molecular=95
40%

Sero-epi =83
35%

Sero-molecular
=15 6%

Modelling=17
7%

Spatial risk=19
8%

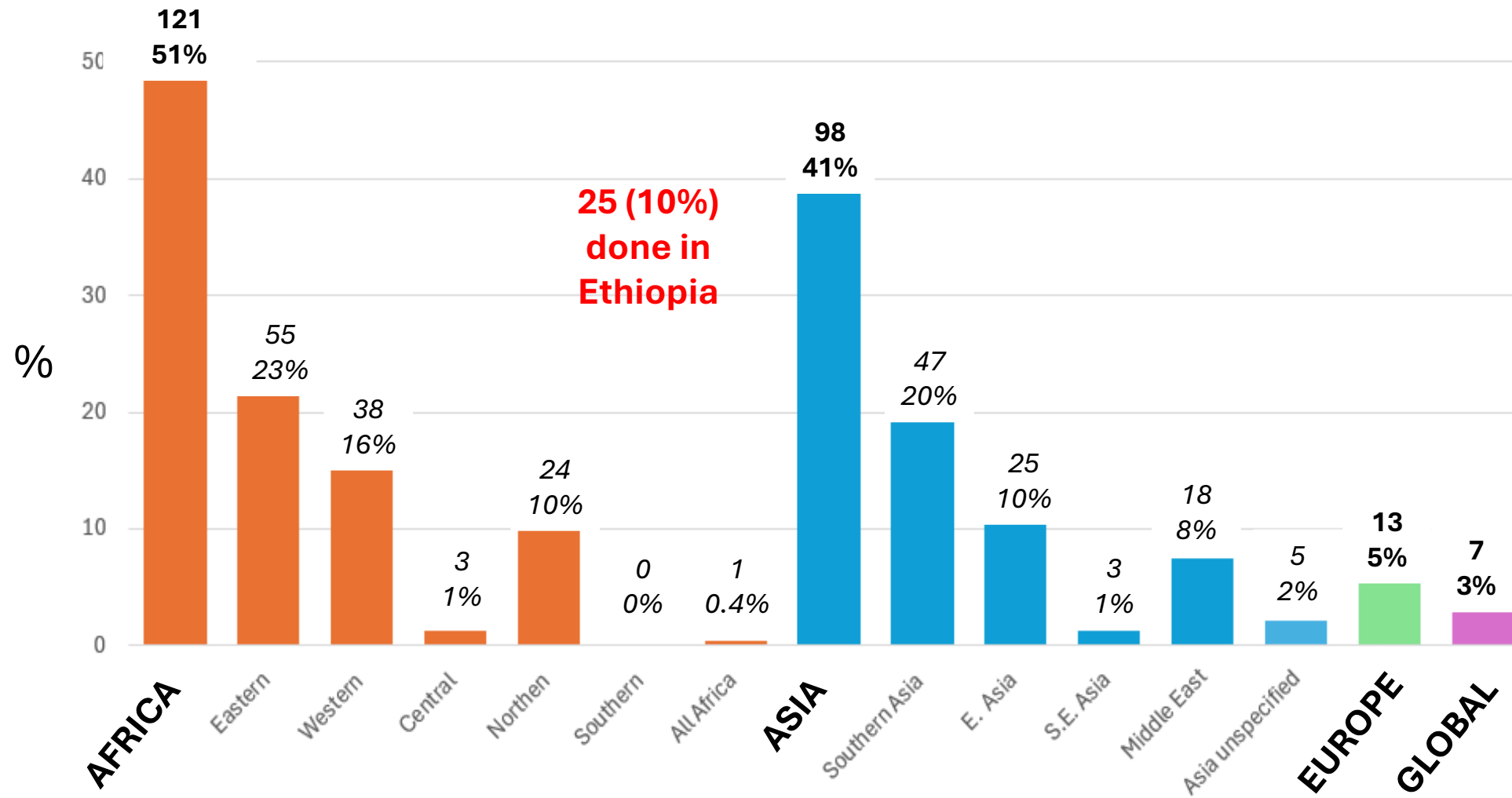
Meta-analysis=7
3%

Field ep =3
1%

33% of all PPR research

Why? Relatively “easy” and routine with the right partners
Lack of activity in other areas

Epi Publications by Region



Priority Research issue identified most often in 7 prior GREN reports by epidemiology topic

- Molecular epidemiology: Understand virus circulation patterns (related to epi-systems) considering lineage geographic distribution (including via sequencing) *considered with classical epidemiology including assessment of movement and contacts*

Although numerous molecular epidemiology studies have been published, providing important insights on routes of transmission and virus evolution, few publications have addressed epi-zones and understanding remains insufficient to inform widespread epi-zone based control. Few classical epidemiology field studies.

- Modelling: Transmission modelling considering heterogeneity of contact to understand transmission and assess different vaccination strategies...including risk based vaccination

A key neglected area, various modelling approaches have been used to assess PPR spread, risks and control, and a few important insights have been made, including on the priority topic, but more is needed to provide coherent, robust evidence

- Surveillance: Improve understanding of current livestock populations, movements and contact patterns, including with susceptible wildlife

Numerous sero-prevalence surveillance studies have been performed, however, other surveillance studies are limited, particularly based on field investigation.

- Vaccine epidemiology: *Use Post-Vaccination Monitoring to assess population immunity post-vaccination*

An important and simple approach, which is being used, however more is needed.

- Control strategy: *Coordinated national strategies and harmonized epi-zone based approaches*

A policy issue requiring improved coordination

- Significant PPR epidemiologic research has been conducted since GEP inception
- But it is haphazard and not targeted to priorities, with key areas neglected, specifically research to inform control approaches (using molecular and modelling approaches)
- A key remaining epidemiology knowledge gap concerns the prediction and evaluation of the effectiveness of different vaccination strategies
- More focussed commissioning and directing of PPR research is needed to ensure research is useful, not haphazard and addresses priority topics
- Greater research capacity is needed in PPR endemic countries

Thank You