journal of global health

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What is intervention coverage?

The proportion of individuals

who ***need a service or intervention***

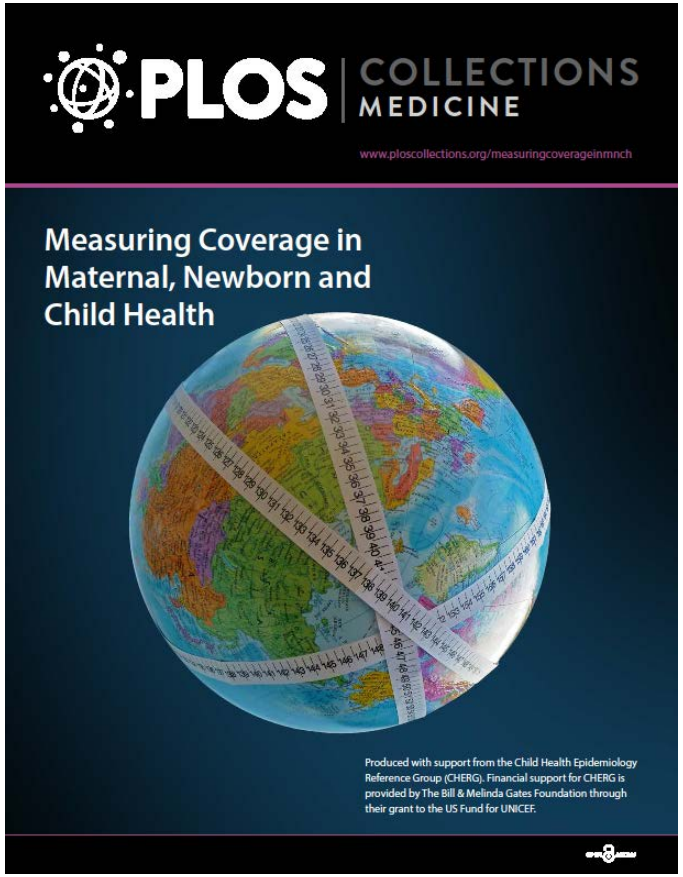
who ***actually receive it***

Uses and sources of coverage data

- Population-based coverage data are used to track progress in improving RMNCAH, evaluate RMNCAH programs, identify gaps in coverage, and model changes in health status
- Household sample surveys (DHS, MICS, etc.) are the primary source of coverage data in LMICs
- With few exceptions, need/receipt of interventions are self-reported by survey respondents
    - Potential for misclassification and bias

Coverage validation work

- CHERG established in 2001 to advise WHO and UNICEF on issues related to evidence in MNCH epidemiology
  - CHERG Working Group on Improving Coverage Measurement established in 2009
- Subsequently funded as separate grants by BMGF
  - Improving coverage measurement (2013-18)
  - Improve (2017-20)



Improving Coverage Measurement - Objectives

1. Produce new evidence on the validity of MNCH coverage data obtained through household survey interviews, and strategies for improving the quality of measurement

2. Design and field test methods for linking data on MNCH careseeking from household surveys with results from assessments of service providers providing that care

3. Develop guidelines for the dissemination of coverage results

ICM Core Group

- Terms of reference
  - Provide technical leadership and support for the project
  - Ensure study designs are sound and implemented well
  - Serve as liaisons to related work by others
  - Advocate for joint funding of field activities
- Core Group members may also take on responsibility for specific pieces of additional work

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Validation methods: basic design

Basic design

Step 1: Observe intervention delivery

Step 2: Wait, based on recall period in DHS/MICS.

Step 3: Conduct HH interviews

1) Standard DHS/MICS questions
2) Additional or modified questions
3) Inclusion of strategies to aid recall

Step 4: Compare, determining validity of respondents' reports

Electronic supplementary material:
The online version of this article contains supplementary material.

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RESEARCH THEME 4: IMPROVING COVERAGE MEASUREMENT

Validation studies for population-based intervention coverage indicators: design, analysis, and interpretation

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Background Population-based intervention coverage indicators are widely used to track country and program progress in improving health and to evaluate health programs. Indicator validation studies that compare survey responses to a "gold standard" measure are useful to understand whether the indicator provides accurate information. The Improving Coverage Measurement (ICM) Core Group has developed and implemented a standard approach to validating coverage indicators measured in household surveys, described in this paper.

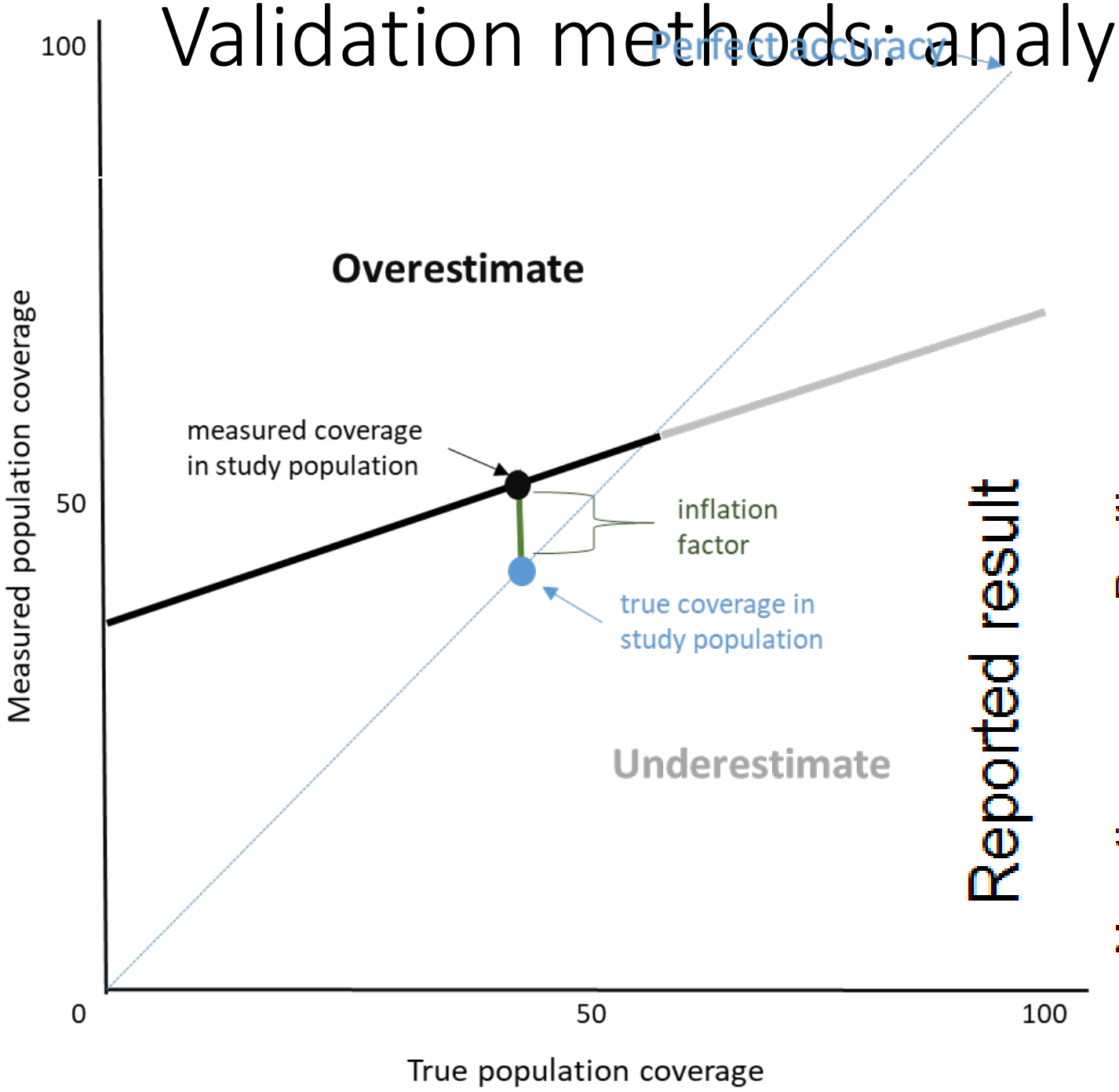
Methods The general design of these studies includes measurement of true health status and intervention receipt (gold standard), followed by interviews with the individuals observed, and a comparison of the observations (gold standard) to the responses to survey questions. The gold standard should use a data source external to the respondent to document need for and receipt of an intervention. Most frequently, this is accomplished through direct observation of clinical care, and/or use of a study-trained clinician to obtain a gold standard diagnosis. Follow-up interviews with respondents should employ standard survey questions, where they exist, as well as alternative or additional questions that can be compared against the standard household survey questions.

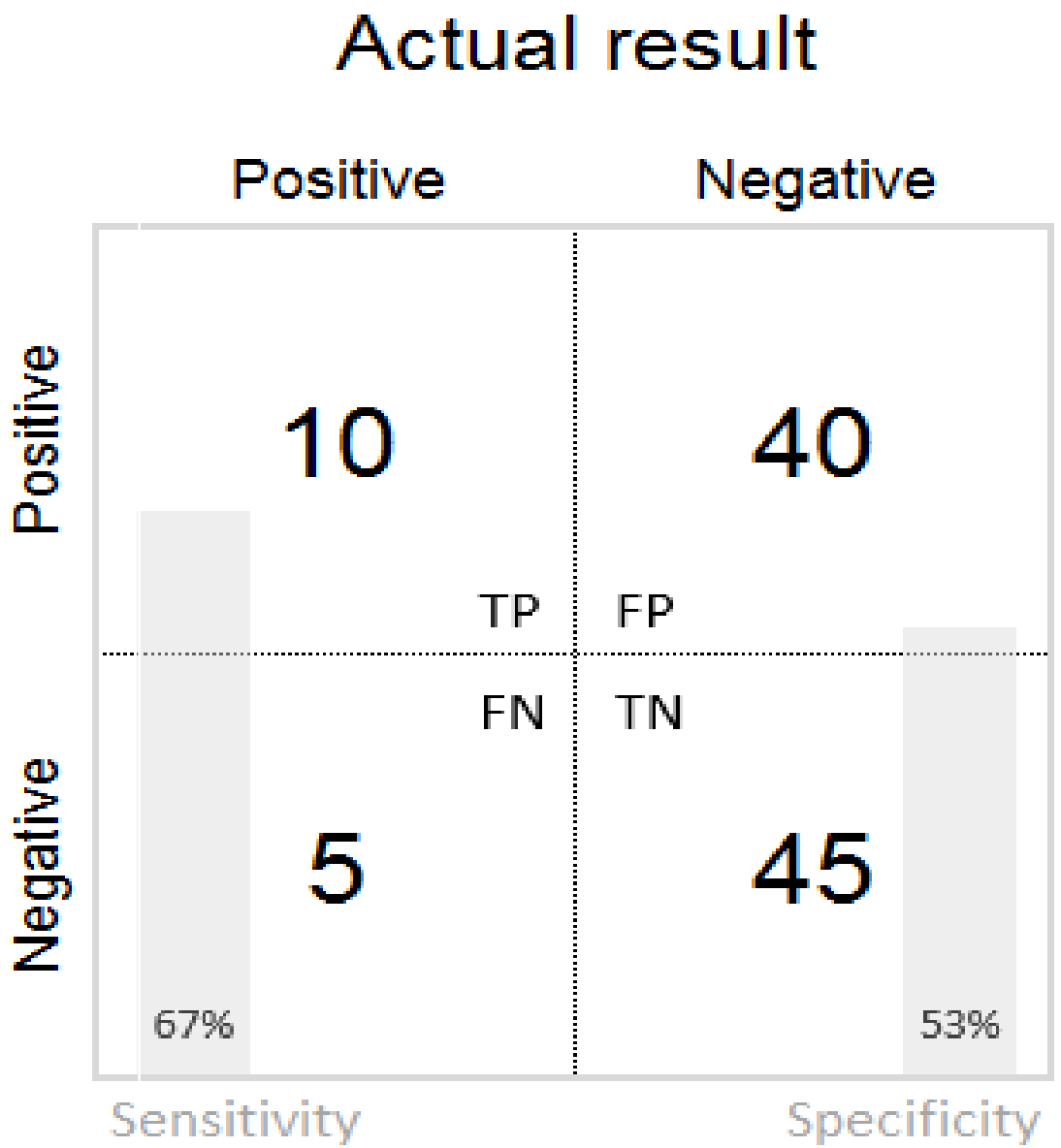
Results Indicator validation studies should report on participation at every stage, and provide data on reasons for non-participation. Metrics of individual validity (sensitivity, specificity, area under the receiver operating characteristic curve) and population-level validity (inflation factor) should be reported, as well as the percent of survey responses that are "don't know" or missing. Associations between interviewer and participant characteristics and measures of validity should be assessed and reported.

Conclusions These methods allow respondent-reported coverage measures to be validated against more objective measures of need for and receipt of an intervention, and should be considered together with cognitive interviewing, discriminative validity, or reliability testing to inform decisions about which indicators to include in household surveys. Public health researchers should assess the evidence for validity of existing and proposed household survey coverage indicators and consider validation studies to fill evidence gaps.

Population-based measures of intervention coverage, defined as the proportion of individuals in need of a service or intervention who actually receive the service or intervention, are used at the country and global level to track progress in delivering high impact interventions to populations in need [1] and to evaluate the impact of large-scale health programs. Nationally representative household surveys implemented by The Demographic and Health

Validation methods: analysis





Interpretation of validation results

- Consider study characteristics and context
- Limitations inherent in the “gold standard” used
- Many ways of assessing indicator validity; need to consider these as a whole
- How can this new evidence be used to improve measurement?

What to do about priority indicators that aren't well-measured in HH surveys?

- Standard population-based household surveys cannot accurately measure coverage of some priority MNCH interventions
  - Measures of careseeking seem to be well-reported
- Health facility/provider assessments measure facility readiness and quality of care, but do not provide population-representative estimates
- Could we combine population-based information on care-seeking from HH surveys with measures of service quality from facility data to obtain quality-adjusted measures of coverage?
  - What methods provide valid estimates of quality-adjusted coverage?

Time	Topic	Presenter
9.00-10.15	▪ Validity of reporting of interventions delivered during the intrapartum and postnatal period	K McCarthy
	▪ Validity of maternal recall of birthweight and gestational age	J Katz
	▪ Validity of “antibiotic treatment for suspected pneumonia” indicator	H Campbell
	▪ Validity of maternal report of care-seeking for childhood illness	M Ndhlovu
	▪ Linking methods for effective coverage	M Munos
10:15-11:00	Panel discussion	F Arnold, S Khan, K McCarthy, H Campbell, M Munos T Eisele, moderator