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## TITLE

Optimal recall period for caregiver-reported illness in risk factor and intervention studies: a multicountry study

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## RUNNING HEAD

Optimal recall for caregiver-reported illness

## ABBREVIATIONS

PR, Prevalence Ratio

MSE, Mean Squared Error

## ABSTRACT

Many community-based studies of acute child illness rely on cases reported by caregivers. Prior investigations have noted a reporting bias when longer illness recall periods are used. Recall periods longer than 2-3 days have been discouraged to minimize this reporting bias. This study's objective was to determine the optimal recall period for illness measurement when accounting for both bias and variance. Using data from 12,191 children < 24 months old collected in 2008-2009 from Himachal Pradesh (India), Madhya Pradesh (India), Indonesia, Peru, and Senegal, the authors calculated bias, variance and mean squared error for estimates of the prevalence ratio between groups defined by anemia, stunting, and underweight status to identify optimal recall periods for caregiver-reported diarrhea, cough and fever. There was little bias in the prevalence ratio using a 7-day recall period (<10% in 35 of 45 scenarios), and the mean squared error was usually minimized with recall periods of  $\geq 6$  days. Shortening the recall period from 7 to 2 days required sample size increases of 52–92% (diarrhea), 47–61% (cough), and 102–206% (fever). In contrast to the current practice of using 2-day recall periods, this work suggests that studies should measure caregiver-reported illness with a 7-day recall period.

## MeSH KEY WORDS:

Survey Methodology; Outcomes Assessment; Outcome Measurement Errors, Bias, Diarrhea, Cough, Fever

Community-based epidemiologic studies often use caregiver-reported symptoms to measure acute cases of diarrhea, respiratory infections or other child illnesses because it is often impractical to use more objective measures. For example, a case of diarrhea is often defined as 3 or more loose or watery stools in 24 hours or any loose stool with blood (1), and a case of acute lower respiratory infection is defined using World Health Organization guidelines that include cough or difficulty breathing with a raised respiratory rate (2). Symptom-based definitions have reasonably good sensitivity and specificity compared to medical diagnosis over recall periods < 14 days, but are recognized to be imperfect (see (3) for a summary of articles and (4,5) for validation methods).

One problem with symptom-based case definitions is that they are subject to reporting errors. Reporting errors can result from failure to remember illness; “forward telescoping” illness episodes that occurred before the recall period into the recall period; confusion that results from poor-quality questionnaires; and, poor interviewer-participant communication (6–8). When interviewers ask caregivers about their child’s symptoms retrospectively, most studies show a consistent pattern: symptom reporting begins to decline after 2–3 days (9–16). Reporting decline can be lower for more severe episodes of diarrhea (10,16) and when the questions apply to younger children (16).

Although studies cannot identify whether the reporting decline seen with longer recall periods is due to over-reporting of symptoms close to the interview or under-reporting of symptoms further from the interview, investigators generally assume that respondents forget about illness in the past; measures over the previous 2–3 days, therefore, are believed to be unbiased measures of disease (10,13,15,16). Studies that have provided guidance on optimal

recall periods for illness symptoms have focused on recall periods that minimize measurement bias, and have discouraged the use of recall periods longer than 2–3 days (13,15,16).

An exclusive focus on bias in caregiver reported illness fails to account for the variance of parameters of interest in risk factor and intervention studies. The choice of recall period used for outcomes to estimate a quantity like the prevalence ratio (PR) should depend on both the bias and variance of estimates generated with different recall periods. In many applications, a slightly biased but more precise estimate is preferable to an unbiased but imprecise estimate because on average it will be more accurate: this is the bias-variance trade-off often used to select between estimators (17,18). (see (19) for an example in the context of recall errors.) The use of longer symptom recall periods to measure illness increases recall error, but it also increases the number of cases detected and, with period prevalence measures, reduces outcome variability over the measurement period (20). Higher outcome prevalence and lower variability can reduce the required study size and related costs. In the context of symptom recall, Schmidt et al. (20) noted the increased statistical power and bias due to measurement error with longer recall periods, but did not provide empirically-based guidance for appropriate recall periods given the implied bias-variance tradeoff.

The objective of this study was to determine the optimal recall period for caregiver-reported illness measurement while accounting for both bias and variance. We estimated the PR between groups using recall periods of 1 to 14 days, and used a function that combines bias and variance – the mean squared error (MSE) – to identify recall periods with the best combination of bias and variance. We based our calculations on data from five cohorts that include 12,191 children < 24 months old. The cohorts and symptoms we considered (diarrhea, persistent cough, fever) capture a wide range of prevalence, duration and reporting conditions. Although this article focuses on

empirical estimates and power calculations based on the PR, we extend these results to the risk difference in the Web Appendix. We provide specific guidance for investigators on appropriate recall periods with which to measure caregiver-reported morbidity when the outcomes are used to compare groups, as is commonly done in an intervention study. We expect that the results will apply not only to studies conducted in low-income countries from which these examples are drawn, but broadly in the many situations where caregiver-reported illness is the outcome.

## MATERIALS AND METHODS

### **Study population and outcome measurement**

The cohorts were enrolled as part of a multicountry study of the World Bank's Water and Sanitation Program Global Scaling Up Initiatives in rural sanitation and handwashing promotion. Households were randomly sampled within rural villages from a list of all households with at least one child < 24 months. The cohorts were distributed over wide geographic areas and include a large number of rural sampling clusters (usually villages): 80 (Himachal Pradesh, India: India HP), 80 (Madhya Pradesh, India: India MP), 160 (Indonesia), 211 (Peru), and 110 (Senegal). The study baseline reports include additional details of the study design and sample characteristics (21–24).

This analysis used data from the baseline surveys, collected in 2008 and 2009, in which interviewers asked caregivers about their child's health in a household interview using a daily calendar that included the 14 days before the interview (25) ([Web Appendix 1](#)). The calendar included symptoms of gastrointestinal illness (stomach cramps, nausea, vomiting, 3 or more stools in 24 hours, loose or watery stools, blood or mucus in the stool), respiratory illness

(constant cough, congestion/coryza), non-specific symptoms (fever, refused to eat), and other symptoms unrelated to the interventions (scrapes/abrasions, itchy skin or scalp). We classified a child as ill with diarrhea if the child had 3 or more loose or watery stools in 24 hours or 1 or more stools with blood or mucus (1). Interviewers asked caregivers about constant cough and fever using common terms in the local language. Interviewers asked caregivers to estimate the start date of each symptom (25). Field teams used identical symptom calendars in all five cohorts. All research was reviewed and approved by the Western Institutional Review Board in Olympia, WA, USA, and all caregivers provided informed consent.

From the symptom calendars we abstracted two common measures of disease: daily prevalence, defined as the number of days ill divided by the total days of observation (each survey contributes multiple measurements per child, one for each day of recall), and period prevalence, in which a child is classified as ill if he/she had the symptom at anytime during the recall period (one measurement per survey, whatever the recall period).

## **Overview of the analysis**

Here, we outline the three main steps of the analysis; the sections below include the details and rationale for each step. First, we chose three child characteristics (anemic, stunted, underweight) to stratify the data and compare illness prevalence between children with or without each characteristic. For each risk factor, we calculated the PR using recall periods of between 1 and 14 days. Second, we calculated bias in the PR estimated with each recall period by assuming that the estimates based on a 2-day recall period were unbiased. Third, we calculated the variance and mean squared error of the estimators by bootstrapping the datasets, and re-estimating the PR in each iteration. We repeated our analysis in each cohort. We

conducted our analysis using R version 2.13.1 ([www.R-project.org](http://www.R-project.org), Vienna, Austria) and Stata version 12 (StataCorp, College Station, TX). Replication files are available from the authors.

### **Choice of risk factors and parameter of interest**

We chose three dichotomous characteristics to use as risk factors for illness, and we compared illness risk between groups: anemic (Hb < 110 g/l) versus not anemic, stunted (height-for-age Z-score < -2) versus not stunted, and underweight (weight-for-age Z-score < -2) versus not underweight. We chose these risk factors to demonstrate the effect of recall period on the PR because we hypothesized that children who were anemic, stunted, or underweight would be at elevated risk for diarrhea, cough, and fever (26).

We chose the PR as the parameter of interest because it is commonly estimated in observational studies and randomized controlled trials (27). For episodic diseases with short mean durations, the prevalence over a 1–14 day period (a restricted risk period) is a reasonable estimate of risk over the period, and the PR estimates the risk ratio (28).

The PR can be defined in terms of the observed data with different recall periods. Let  $Y(t)$  be a binary indicator variable for reported daily illness (e.g., diarrhea), where  $t$  indexes the day of recall before the interview ( $t = 1, 2, \dots, 14$ ). The outcome definition depends on the choice of daily prevalence versus period prevalence, and on recall period length. Period prevalence outcomes are calculated as:  $Y^*(T) = \max[Y(1), Y(2), \dots, Y(T)]$ , which is a binary indicator that the individual was ill on any day back to day  $T$ . Daily prevalence outcomes simply include multiple observations for each individual back to day  $T$ :  $\bar{Y}(T) = [Y(1), Y(2), \dots, Y(T)]$ . Let  $X$  be a binary risk factor (e.g., 1=anemic, 0=not anemic), or similarly, a binary indicator of intervention



status (1=treated, 0=untreated). We can then define  $\theta_T$ , which estimates PR over recall period  $T$  using, for example, the period prevalence ratio:

$$(1) \quad \theta_T = E[ Y^*(T) | X = 1 ] / E[ Y^*(T) | X = 0 ]$$

Common estimators for  $\theta_T$  include a nonparametric ratio of means (used in this analysis) or a log-binomial regression model (29). In [Web Appendix 2](#) we show that controlling for possible confounders with log-binomial regression does not change our results.

### **Analysis of the bias-variance tradeoff**

We investigated the tradeoff between bias and variance in the context of different recall periods by comparing PR estimates based on different recall periods ( $\theta_T$ ) using the Mean Squared Error (MSE). The MSE is a standard objective criteria often used to select estimators with good overall accuracy based on bias and variance (17,18). In this analysis, we assumed that the PR estimated with a 2-day recall period was an unbiased estimate of the true PR (i.e.,  $\theta = \hat{\theta}_2$ ) because, consistent with earlier studies (9–16), there was little evidence of symptom under-reporting until after day 2 ([Figure 1](#)). The MSE for each recall period  $T$  is then defined as:

$$(2) \quad MSE(\hat{\theta}_T) = E[(\hat{\theta}_T - \theta)^2]$$

The MSE can be decomposed into separate terms for bias and variance (17).

$$(3) \quad MSE(\hat{\theta}_T) = E[(\hat{\theta}_T - \theta)^2] + E[(\hat{\theta}_T - E[\hat{\theta}_T])^2] = Bias(\hat{\theta}_T, \theta)^2 + Var(\hat{\theta}_T)$$

To calculate the variance and MSE of  $\hat{\theta}_T$  for each recall period, we used a clustered bootstrap that resampled independent village clusters with replacement (following the original sampling

design) and 10,000 iterations. In each bootstrap iteration, we re-estimated the PR of each risk factor over each of the 14 recall periods ( $\hat{\theta}_1, \dots, \hat{\theta}_{14}$ ) using equation (1). We used the standard deviation of the bootstrapped PR estimates to calculate the standard error for the PR estimated with each recall period.

The comparison of MSE values between different estimates is only sensible for estimates of the same quantity,  $\theta$ . In general, the PR estimated with different recall periods estimates inherently different quantities if using period prevalence; however, the PR is approximately constant over recall periods of up to 14 days under typical incidence and duration conditions observed for caregiver-reported illness ([Web Appendix 3](#)).

### **Relative sample size calculations**

We used a sample size equation for binary outcomes with repeated measures (30) to demonstrate the influence of recall period on the sample size required to estimate a constant relative reduction in illness (diarrhea, cough, fever) given the outcome prevalence in the cohorts ([Web Tables 1-3](#)). For daily prevalence calculations, a single survey measurement includes an observation for each day of recall, so we additionally specified the correlation between each day of recall in the power calculations (based on empirical estimates from the data, [Web Tables 4-6](#)). We present the results in terms of relative sample size required with a 7-day recall period as the base. The relative sample size calculations are invariant to the magnitude of the PR, the number of visits per child, and outcome correlation between repeated visits.

## **RESULTS**

## Study population

The analysis included 12,191 children 0 to 24 months old. The five cohorts represent a broad range of cultural, environmental, and illness conditions (Table 1). For example, households with a soil floor ranged from 24.8% (Indonesia) to 76.4% (India MP), and 7-day period prevalence of diarrhea ranged between 6.3% (India HP) and 18.3% (Peru). Of the three risk factors we considered in this analysis, anemia was uncorrelated with stunting ( $\tau_b = -0.07$ ) and underweight ( $\tau_b = -0.07$ ), while stunting and underweight were moderately correlated ( $\tau_b = 0.43$ ) (31).

## Empirical symptom reporting patterns and prevalence ratio estimates

Without reporting error, one would expect the daily prevalence of an outcome such as diarrhea to be stable over a 14-day period in large cohorts because it is reasonable to assume the populations were in steady state over the 14-day measurement period (32). Across symptoms and cohorts the estimated daily prevalence generally declined for recall periods  $> 2$ -3 days, and the decline was large for recall periods  $> 7$  days (Figure 1). The daily prevalence increased between days 2 and 7 in only one measurement (fever in Peru). By 14 days of recall, the estimated daily point prevalence was a small fraction of the 2-day average for diarrhea (16% – 29%), cough (17% – 30%) and fever (26% – 47%). The patterns and levels of relative daily reporting were strikingly similar across cohorts and symptoms (Figure 2). There was some heaping of symptom reports on day 7 across cohorts, which was particularly evident for fever.

In the range of comparisons that we considered, we observed situations with both non-differential and differential reporting errors by risk factor. Web Figure 1 shows examples using diarrhea. There was no consistent pattern of differential reporting by population, outcome, or risk

factor, but the extent of differential reporting, if present, increased with longer recall periods: short recall periods (< 3 days) were more protected from differential reporting errors.

Despite large drops in daily illness prevalence with longer recall, and the potential for differential reporting errors, the empirical PR was relatively stable over different recall periods in the scenarios we considered for diarrhea, cough and fever ([Web Figures 2-4](#)).

### **Optimal recall periods based on a bias-variance tradeoff**

Bias in the PR, if present, tended to increase while variance of the PR tended to decrease with longer recall periods ([Figure 3](#)). The % bias with a 7-day recall period was <10% in 30 of 45 scenarios, and was broadly similar across outcomes: diarrhea (range = 1% to 30%), cough (range = 1% to 13%), and fever (range = <1% to 14%) ([Web Figures 5-7](#)). Bias, if present, could be toward or away from the null. Compared to a 2-day recall period, the standard error of the PR estimated with a 7-day recall period was smaller (more than 20% smaller in 35 of 45 scenarios) for diarrhea (range = -1% to -52%), cough (range = -1% to -29%), and fever (range = -21% to -57%) ([Web Figures 5-7](#)). Results based on daily prevalence were highly consistent with the period prevalence results ([Web Appendix 5](#)).

The empirical patterns in the MSE varied substantially across countries, outcomes and comparison groups ([Figure 3](#), [Web Figures 8-10](#)). Despite this variation, the MSE tended to decline with longer recall periods, and was minimized in most scenarios with a recall period of 6 days or longer. In 9 of 45 scenarios the MSE increased and was larger with a 7-day recall period compared to a 2-day recall period.

### **The effect of recall period and outcome measure on study sample size**

Shortening the recall period from 7 days to 2 days reduced outcome prevalence and led to smaller absolute differences between groups for a constant PR; this consequently required sample size increases of 52–92% (diarrhea), 47–61% (cough), and 102–206% (fever) (Figure 4). The use of daily prevalence required larger sample sizes compared to period prevalence for > 1 days of recall. For example, the use of daily prevalence instead of period prevalence with a 7-day recall period required sample size increases of 35–52% (diarrhea), 29–42% (cough) and 36–47% (fever) (Web Figure 11).

## DISCUSSION

### Summary

In this analysis of 12,191 children 0 – 24 months old from five cohorts that include a wide range of symptom prevalence, environmental conditions, and cultural conditions, we found consistent evidence that caregiver-reported symptoms declined after 3 days of recall, and estimates typically fell below 50% of the day 1-2 average after 7 days of recall (Figures 1, 2). If the goal of the study is to obtain an unbiased measure of disease burden, such as in Demographic and Health Surveys, then recall should be limited to 2–3 days; the use of recall periods > 3 days will bias prevalence levels downward under the assumption that reporting is less biased closer to the interview. However, despite larger reporting errors over longer recall periods and the possibility of differential recall between comparison groups, we estimated the PR with little bias with up to 7 days of recall. Furthermore, a recall period of 6 days or longer minimized the MSE in most scenarios we considered (Figure 3, Web Figures 8-10).

Our analysis suggests that studies can increase statistical power through the use of a 7-day recall period compared to a 2-day recall period at little cost in terms of bias. Calculations from the five cohorts demonstrate required sample size increases of 47–206% with the use of a 2-day recall period compared to a 7-day recall period (Figure 4). Studies that have recommended a 2–3 day recall period as the optimal period for symptom measurement (13,15,16) have failed to account for the loss of statistical efficiency with shorter recall periods, which in this analysis outweighs the small amount of bias introduced with longer recall periods when estimating the PR between groups. Our analysis also demonstrates that studies can gain additional efficiency if they use period prevalence rather than daily prevalence: with a 7-day recall period, the use of daily prevalence required 29–52% larger samples than period prevalence across symptoms and cohorts (Web Figure 11).

### **Differential recall errors**

Errors in caregiver-reported illness are a form of misclassification error. If caregivers fail to remember or report illness, then a child is incorrectly classified as well when she, in fact, is ill. If reporting errors are mainly due to under-reporting symptoms (forgetting) and non-differential by group, the PR will be unbiased with any recall period; without those two conditions, the bias is unpredictable (Web Appendix 4). To our knowledge only one study has evaluated whether reporting errors were differential by randomized treatment, and it found errors to be non-differential despite weekly visits and intense household water treatment promotion (16). In this analysis, some of the PR calculations used outcomes that were reported differentially by risk factor group (Web Figure 1). Despite the presence of differential reporting errors, we observed relatively consistent estimates of the diarrhea PR over a 1–14 day recall period for diarrhea,

cough, and fever ([Web Figures 2-4](#)). We would expect that bias from differential reporting errors to be most problematic in nonrandomized, cross-sectional studies because: (i) randomization will balance, on average, characteristics that could lead to differential reporting, and (ii) longitudinal studies could remove the differential reporting errors by conditioning effect estimates on the caregiver (e.g., with household-level fixed-effects).

### **Recommendations for practice**

We recommend that investigators collect daily illness information with 7 days of recall. This suggestion follows from three of our results. First, daily symptom reporting declined precipitously after 7 days of recall across symptoms and cohorts, suggesting large errors beyond 7 days of recall ([Figure 1](#)). Second, there was relatively little bias in PR estimates with 7 days of recall, and the MSE was minimized in most scenarios with close to 7 days of recall ([Figure 3](#), [Web Figures 8-10](#)). Finally, the gains in statistical efficiency were largest between 2 and 7 days of recall, with relatively small efficiency gains over longer recall periods ([Figure 4](#)). As a final pragmatic consideration, 7 days is a standard unit of time in many cultures (1 week) and is relatively easy to standardize across studies (compared to 6 or 8 days, for example).

With a pre-specified analysis protocol, investigators can use the daily symptom data to test whether the reporting error patterns are differential by group. If errors are non-differential, then the analysis could proceed with a 7-day recall period. If survey time is limited, we recommend that investigators measure symptoms with daily recall for two days before the interview, and ask an additional question to measure 7-day period prevalence. Differential reporting error can be detected with this more limited set of information using the ratio of prevalent cases to terminated

cases under the assumption that episode duration is similar in the two groups (11). [Web Appendix 1](#) includes example survey instruments.

## **Caveats**

Consistent with earlier analyses of caregiver recall error (10,15,16), our analysis assumed that symptoms reported close to the interview were more accurate than reports further in the past. If this assumption is wrong, and participants over-report symptoms close to the interview, then longer recall periods would be less biased (and more favorable) than we estimated in this analysis. Psychological research has found that event recall is less accurate over time (see (6–8) for reviews in the context of survey measurement). However, Freij et al. (33) compared daily interviews of child morbidity with two-week interviews in Addis Ababa, and found that the two-week interview produced an over-reporting of recent illness and an under-reporting of past illness relative to the daily interview measurements. This pattern could have occurred by forgetting events in the past, or by misplacing days of illness closer to the interview that actually occurred further in the past. Whatever the cause, the two effects approximately cancelled each other out, so a prevalence measure that captured the entire period was approximately unbiased. Replicating the Freij et al. study in other settings would be a useful future contribution because it would provide empirical evidence about whether it is reasonable to assume that symptom reporting in the two days before the interview is unbiased.

A second caveat is that our primary analysis estimated the PR with a non-parametric ratio of means, which did not account for possible confounding or effect modification of the relationship between the exposures of interest and outcomes. Nonetheless, adjusting for possible confounders



in this dataset by estimating the PR with log-binomial regression (29) in a secondary analysis did not change our results ([Web Appendix 2](#)).

Finally, we showed that the use of period prevalence is more statistically powerful than daily prevalence, which corroborates an earlier finding based on simulation (20). However, the choice between the measures should depend on whether investigators expect the intervention to act primarily through reduced episode duration (27). If an intervention reduces prevalence only through episode duration, then daily prevalence measures would be preferred because period prevalence can be biased toward the null hypothesis of no difference between groups (20).

### **External validity**

We expect that our results apply to a broad range of epidemiologic field studies because our analysis included large samples drawn from diverse cultural and environmental conditions. We found highly consistent results across symptoms that cover many combinations of prevalence and episode duration. The empirical comparisons we considered included situations with both non-differential and differential recall errors between groups. The broad consistency in reporting patterns, bias, MSE, and statistical power that we observed across the wide range of analysis scenarios suggest that our findings are likely quite general for caregiver-reported illness in young children. We repeated the calculations for the risk difference and our findings were broadly consistent with the results for the prevalence ratio ([Web Appendix 5](#)). Since the cohorts included children < 24 months, our findings may not generalize to older populations.

### **Conclusions**

The increased statistical efficiency (measured by markedly reduced sample sizes required) that resulted from the use of a 7-day recall period versus a 2-day recall period outweighed the small amount of bias in the prevalence ratio caused by reporting error in the outcomes and cohorts we studied. Therefore, we recommend that epidemiologic studies that use caregiver-reported illness to compare groups, such as risk factor or intervention studies, measure symptoms with a 7-day recall period.

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TABLES

Table 1. Cohort characteristics for children ages 0 to 24 months in Himachal Pradesh (India HP), Madhya Pradesh (India MP), Indonesia, Peru, and Senegal in 2008-2009.

| Mean                                     | India HP  |             | India MP  |             | Indonesia |             | Peru      |             | Senegal   |             |
|--|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|
|  | N = 2,058 |             | N = 2,153 |             | N = 2,098 |             | N = 3,708 |             | N = 2,174 |             |
|  | %         | Mean (SD)   | %         | Mean (SD)   | %         | Mean (SD)   | %         | Mean (SD)   | %         | Mean (SD)   |
| <b>General</b>                           |           |             |           |             |           |             |           |             |           |             |
| Age in months                            |           | 11.9 (6.8)  |           | 11.7 (6.5)  |           | 11.9 (6.3)  |           | 11.9 (6.9)  |           | 11.9 (6.8)  |
| Female                                   | 47.8      |             | 48.9      |             | 49.2      |             | 48.5      |             | 46.2      |             |
| Currently breastfed                      | 66.1      |             | 86.5      |             | 80.0      |             | 83.8      |             | 80.5      |             |
| Anemic (Hb < 110 g/l) <sup>a</sup>       | 35.6      |             | 30.6      |             | 71.0      |             | 40.9      |             | 90.8      |             |
| Height-for-age Z-score < -2 <sup>a</sup> | 26.1      |             | 44.3      |             | 20.8      |             | 27.9      |             | 11.3      |             |
| Weight-for-age Z-score < -2 <sup>a</sup> | 19.4      |             | 47.9      |             | 13.3      |             | 10.1      |             | 9.5       |             |
| <b>Household</b>                         |           |             |           |             |           |             |           |             |           |             |
| Electricity                              | 94.8      |             | 80.7      |             | 98.8      |             | 69.9      |             | 37.7      |             |
| Soil (dirt or clay) floor                | 31.8      |             | 76.4      |             | 24.8      |             | 69.2      |             | 25.0      |             |
| Cooks with biofuel                       | 79.4      |             | 90.8      |             | 73.8      |             | 68.6      |             | 76.6      |             |
| JMP Improved Water Source                | 89.8      |             | 84.7      |             | 87.3      |             | 75.0      |             | 69.2      |             |
| JMP Improved Sanitation                  | 32.0      |             | 13.7      |             | 48.7      |             | 40.0      |             | 70.8      |             |
| <b>Diarrhea</b>                          |           |             |           |             |           |             |           |             |           |             |
| 24 h point prevalence                    | 2.5       |             | 6.5       |             | 4.1       |             | 8.3       |             | 7.9       |             |
| 48 h period prevalence                   | 3.4       |             | 8.8       |             | 4.8       |             | 10.4      |             | 9.9       |             |
| 7 d period prevalence                    | 6.3       |             | 14.4      |             | 8.2       |             | 18.3      |             | 14.4      |             |
| Episode duration <sup>b</sup>            |           | 2.93 (1.97) |           | 3.79 (2.17) |           | 2.98 (2.06) |           | 3.66 (2.26) |           | 3.95 (3.06) |
| <b>Cough</b>                             |           |             |           |             |           |             |           |             |           |             |
| 24 h point prevalence                    | 15.0      |             | 7.9       |             | 18.0      |             | 23.5      |             | 10.7      |             |
| 48 h period prevalence                   | 17.0      |             | 9.8       |             | 19.9      |             | 25.3      |             | 12.4      |             |
| 7 d period prevalence                    | 24.4      |             | 15.0      |             | 27.0      |             | 34.1      |             | 17.3      |             |
| Episode duration <sup>b</sup>            |           | 3.90 (1.92) |           | 3.55 (2.02) |           | 4.59 (2.74) |           | 5.04 (2.58) |           | 4.70 (2.79) |
| <b>Fever</b>                             |           |             |           |             |           |             |           |             |           |             |
| 24 h point prevalence                    | 12.8      |             | 8.4       |             | 12.9      |             | 6.1       |             | 18.0      |             |
| 48 h period prevalence                   | 16.2      |             | 12.0      |             | 17.0      |             | 9.0       |             | 23.4      |             |
| 7 d period prevalence                    | 29.2      |             | 21.8      |             | 31.5      |             | 23.5      |             | 39.8      |             |
| Episode duration <sup>b</sup>            |           | 3.43        |           | 3.59        |           | 3.34        |           | 2.28        |           | 4.17        |

(1.92)

(2.37)

(2.30)

(1.49)

(2.53)

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India HP: Himachal Pradesh, India; India MP: Madhya Pradesh, India; SD: Standard Deviation; JMP: World Health Organization / Unicef Joint Monitoring Programme for water supply and sanitation definitions (34).

<sup>a</sup> Some children in the cohorts had missing measurements for hemoglobin, height and weight. Sample sizes (hemoglobin, height, weight): India HP= (1580,1972,1934), India MP= (1843, 2029, 2067), Indonesia= (1587, 2094, 2086), Peru= (3050, 3679, 3702), Senegal= (1597, 2155, 2160). Z-scores were calculated using the World Health Organization 2006 standards.

<sup>b</sup> Estimated from episodes that terminated in the 7 days prior to the interview to avoid length-biased sampling (11,32).



## FIGURE CAPTIONS

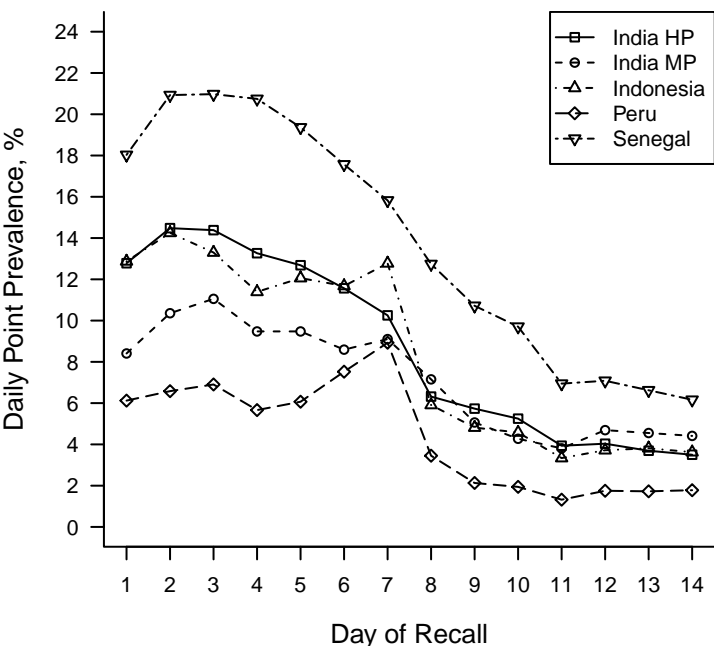
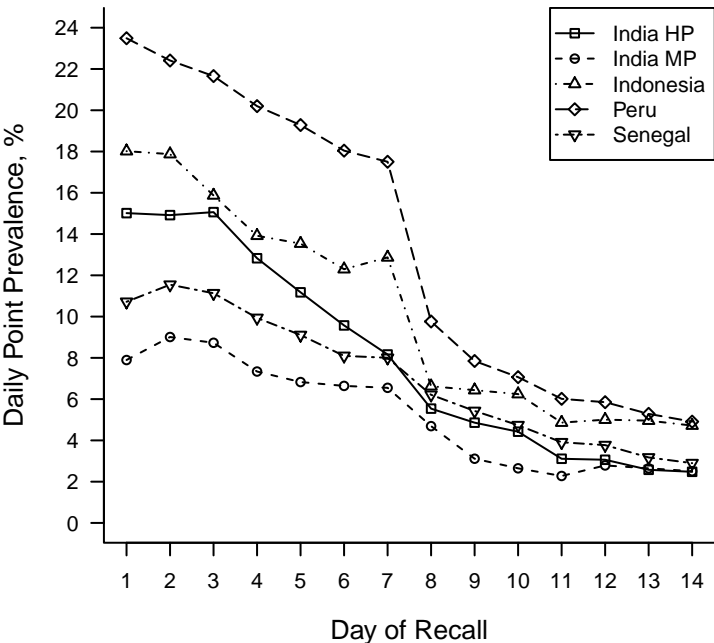
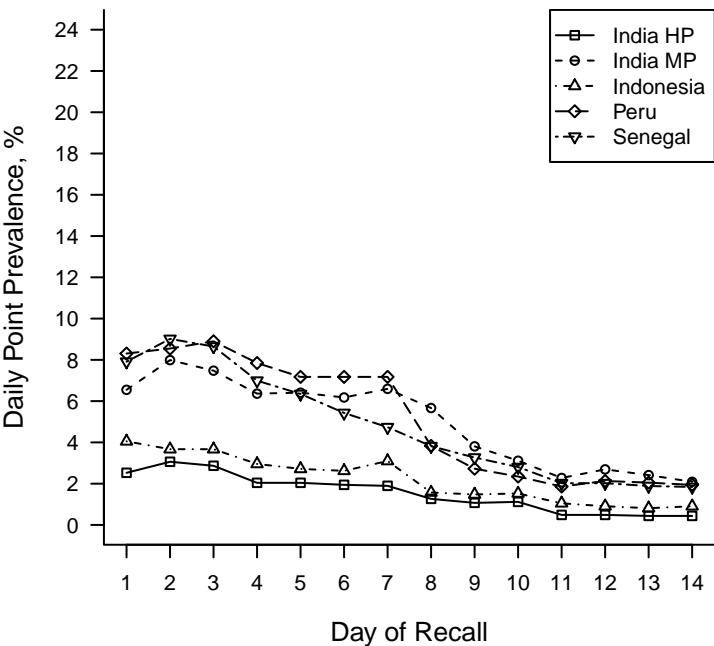
**Figure 1.** Daily point prevalence in the five cohorts for diarrhea (top), cough (middle), and fever (bottom). Recall day 0 is the day of the survey. Cohorts include children ages 0 to 24 months in Himachal Pradesh (India HP), Madhya Pradesh (India MP), Indonesia, Peru, and Senegal in 2008-2009.

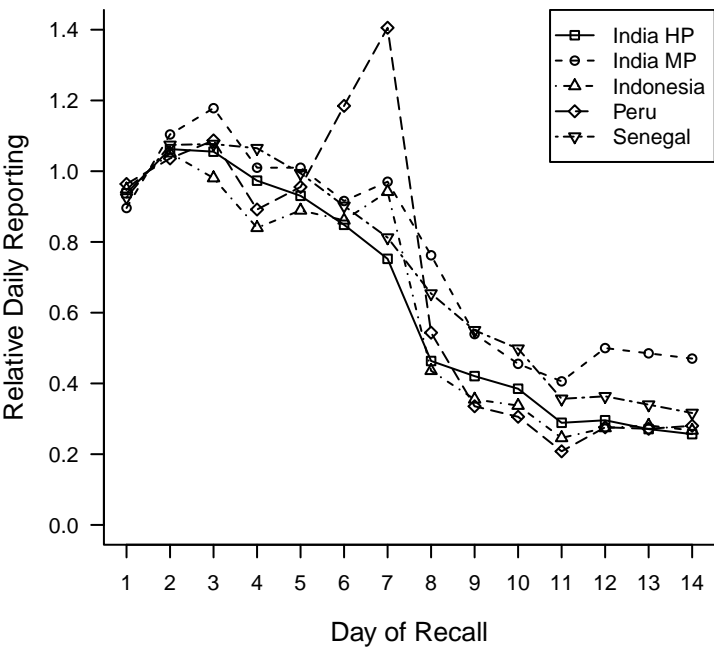
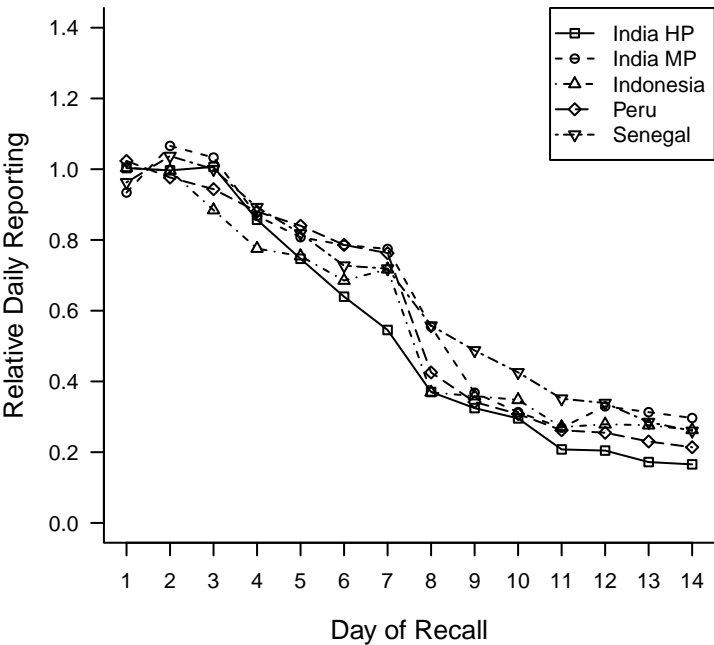
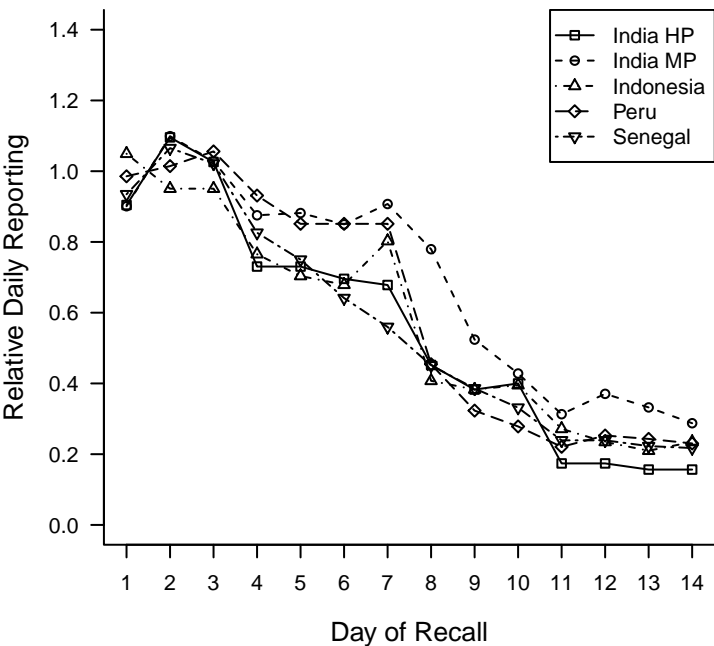
**Figure 2.** Relative daily reporting in the five cohorts for diarrhea (top), cough (middle), and fever (bottom). Recall day 0 is the day of the survey. The relative daily reporting is calculated as the daily point prevalence divided by the mean point prevalence for days 1 and 2. Cohorts include children ages 0 to 24 months in Himachal Pradesh (India HP), Madhya Pradesh (India MP), Indonesia, Peru, and Senegal in 2008-2009.

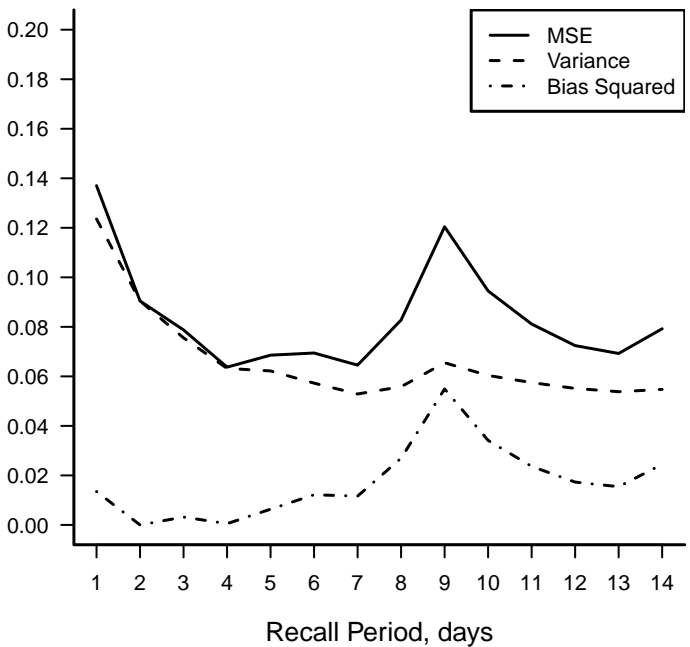
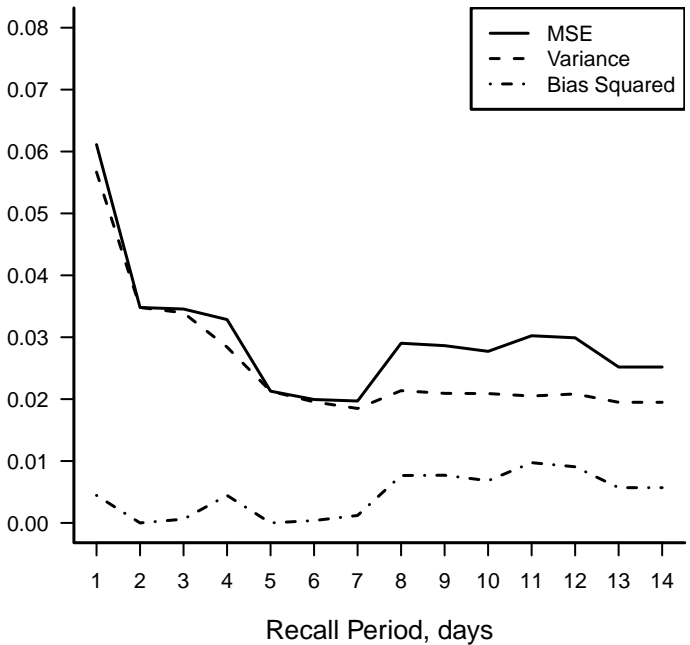
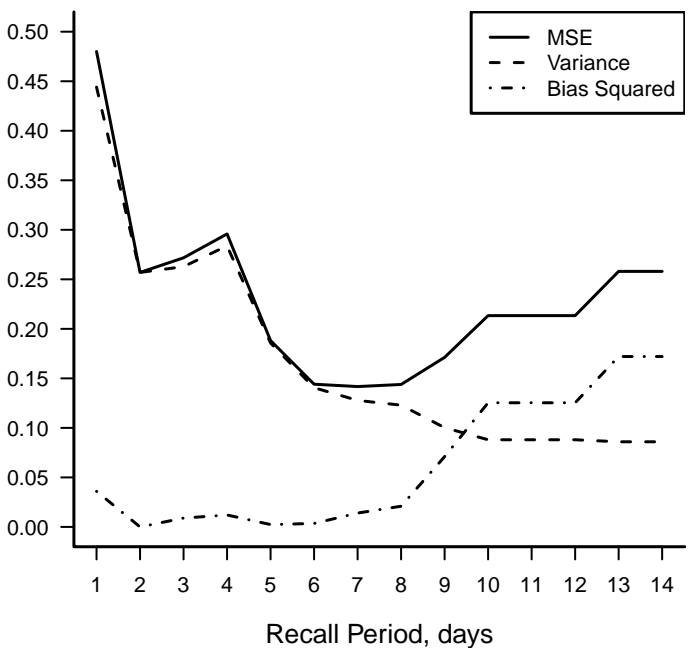
**Figure 3.** Bias, variance, and mean squared error (MSE) of the prevalence ratio of diarrhea estimated for underweight children versus not underweight children using period prevalence measured over different recall periods in Himachal Pradesh (top), Madhya Pradesh (middle), and Indonesia (bottom). The [Web Figures 8-10](#) include full results from all countries and scenarios. Cohorts include children ages 0 to 24 months measured in 2008-2009.

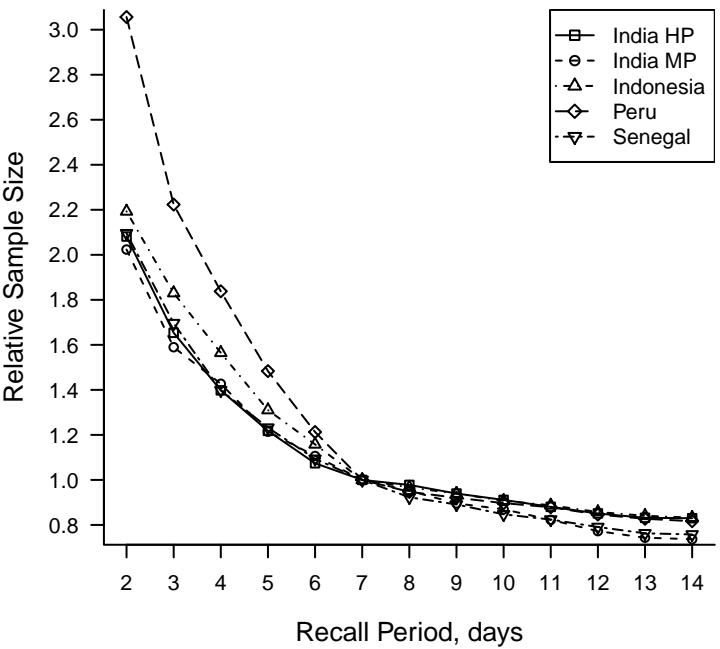
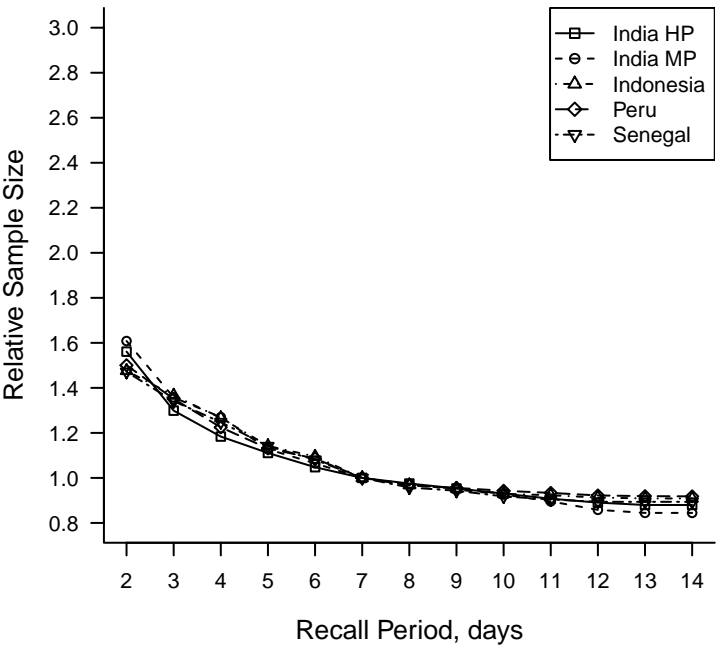
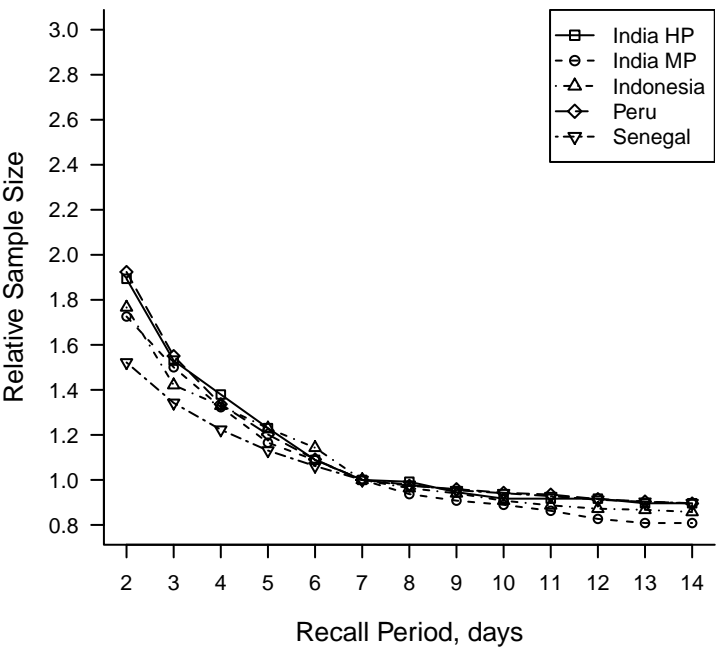
**Figure 4.** Relative sample size required to detect a constant prevalence ratio over different lengths of recall for diarrhea (top), cough (middle), and fever (bottom). The plot uses a 7-day recall period as the base (relative sample size = 1). The relationships are invariant to assumptions about the strength of association (prevalence ratio), the number of visits per child, and the

within-child outcome correlation between visits. Sample size calculations were informed by prevalence estimates from children ages 0 to 24 months in Himachal Pradesh (India HP), Madhya Pradesh (India MP), Indonesia, Peru, and Senegal in 2008-2009 ([Web Tables 1-6](#)).





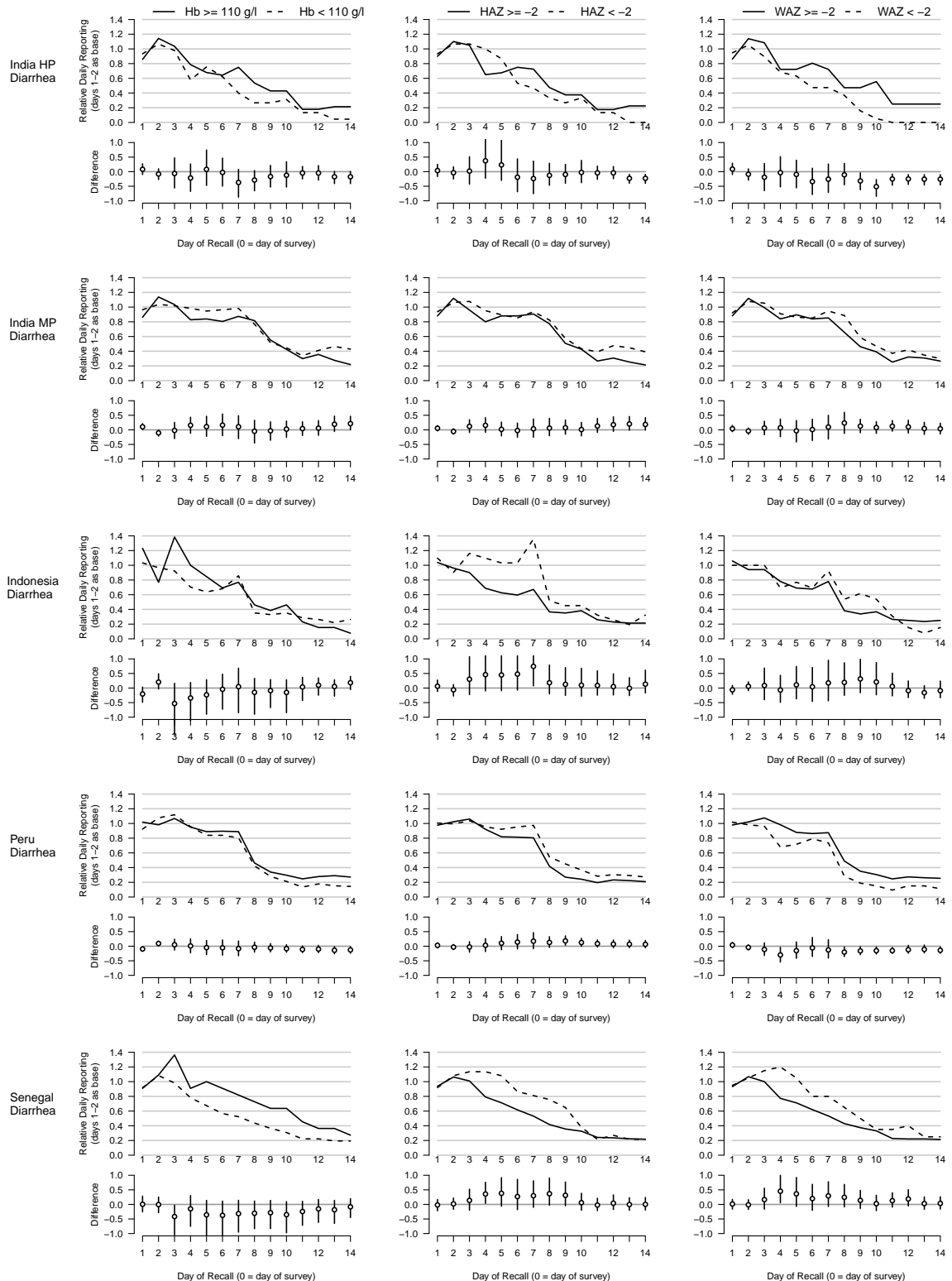




Optimal recall period for caregiver-reported illness in risk factor and intervention studies: a multicountry study

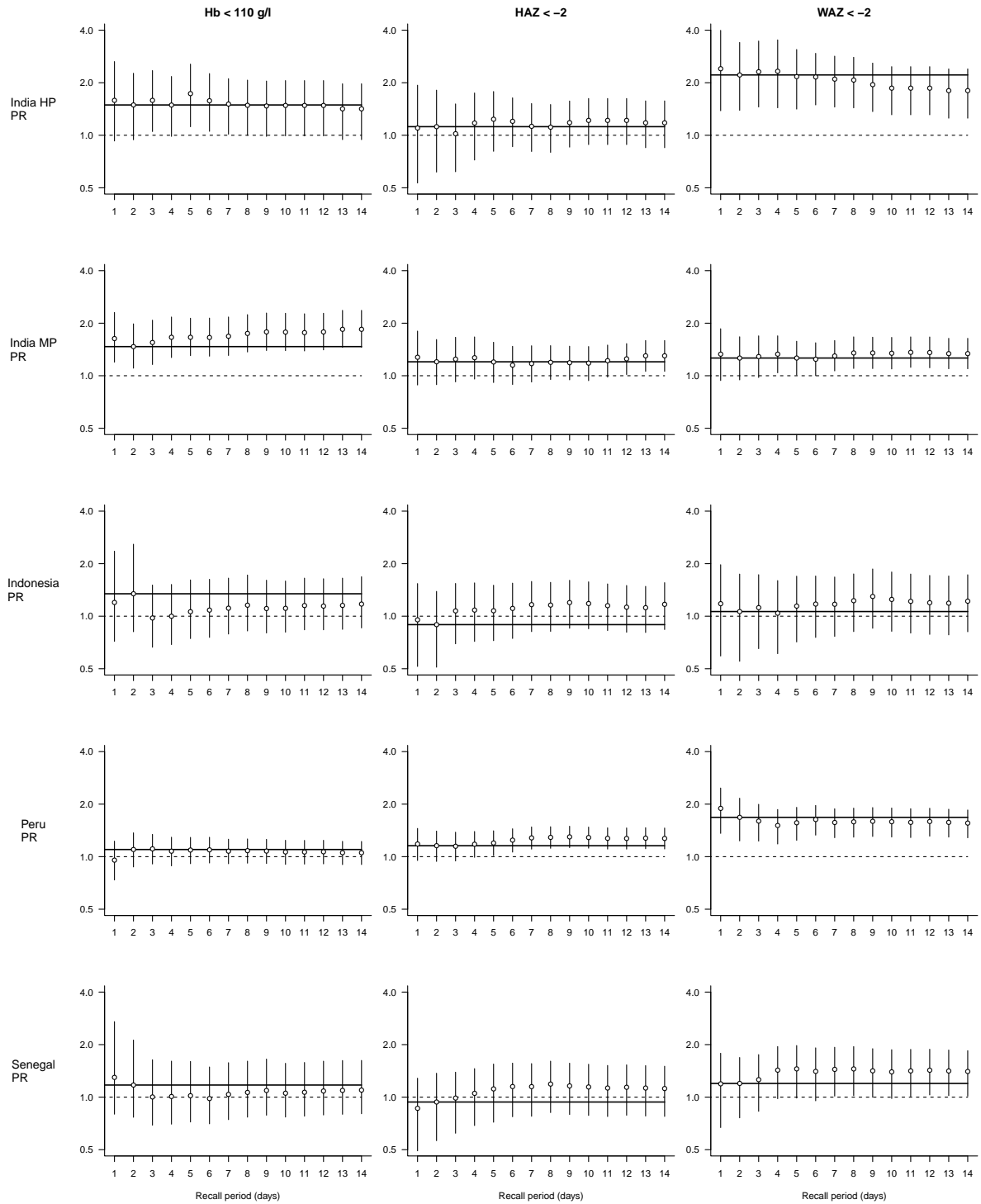
Arnold et al. *Am J Epidemiol* 2012. Supporting Web Files.

Web Figure 1: Relative daily reporting of diarrhea for different days of recall in each country (rows), stratified by different risk factors (columns). Risk factors include: anemic (Hb < 110 g/l), stunted (HAZ < -2), and underweight (WAZ < -2). The relative daily reporting is calculated as the daily point prevalence divided by the mean point prevalence for days 1 and 2. With no under-reporting, the curves would be flat at 1.0. The difference between the curves is plotted below each pair of curves, with vertical lines that mark bootstrapped 95% confidence intervals. When the lines do not overlap (the difference between curves departs from zero), it suggests that symptom reporting is differential by risk factor group.

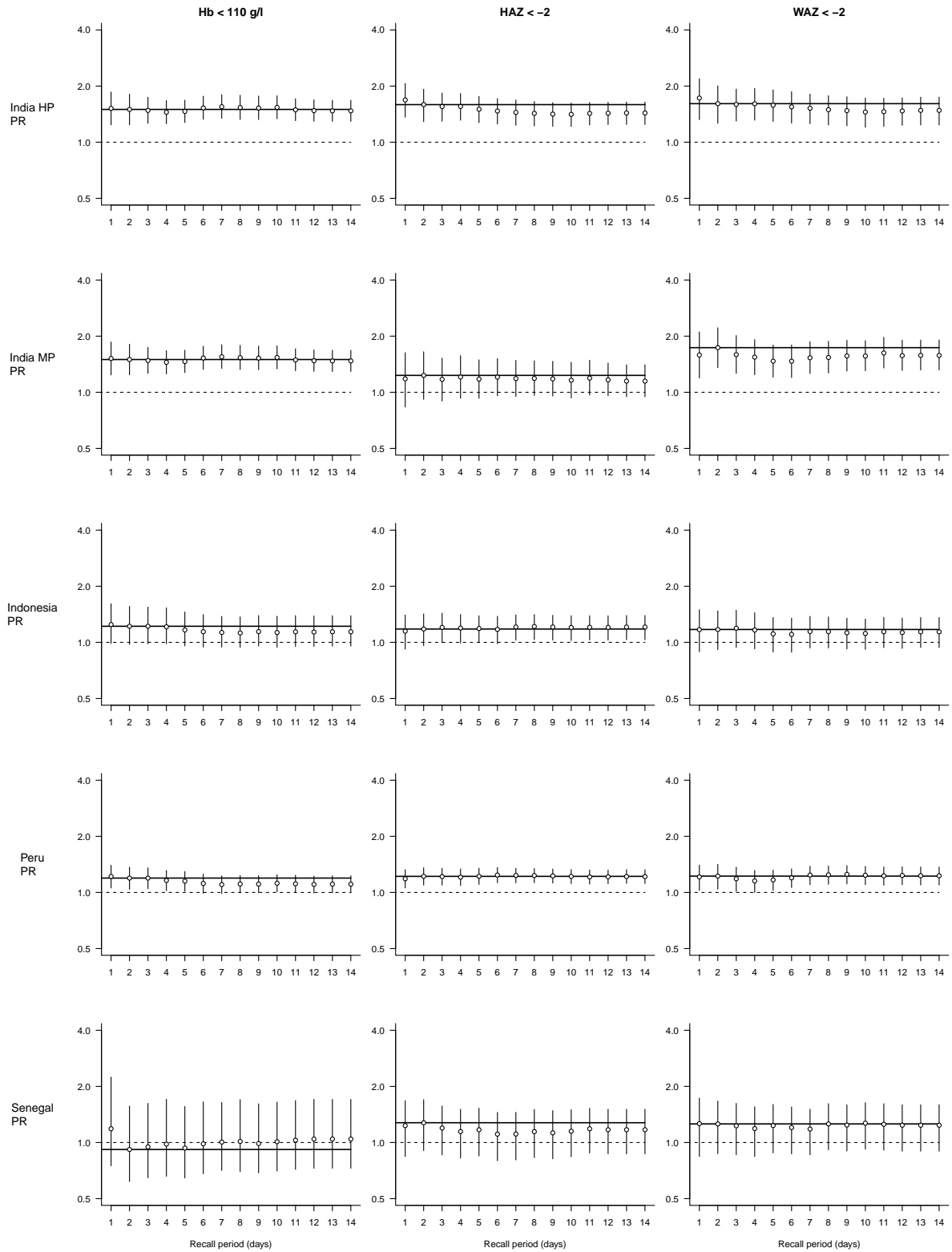




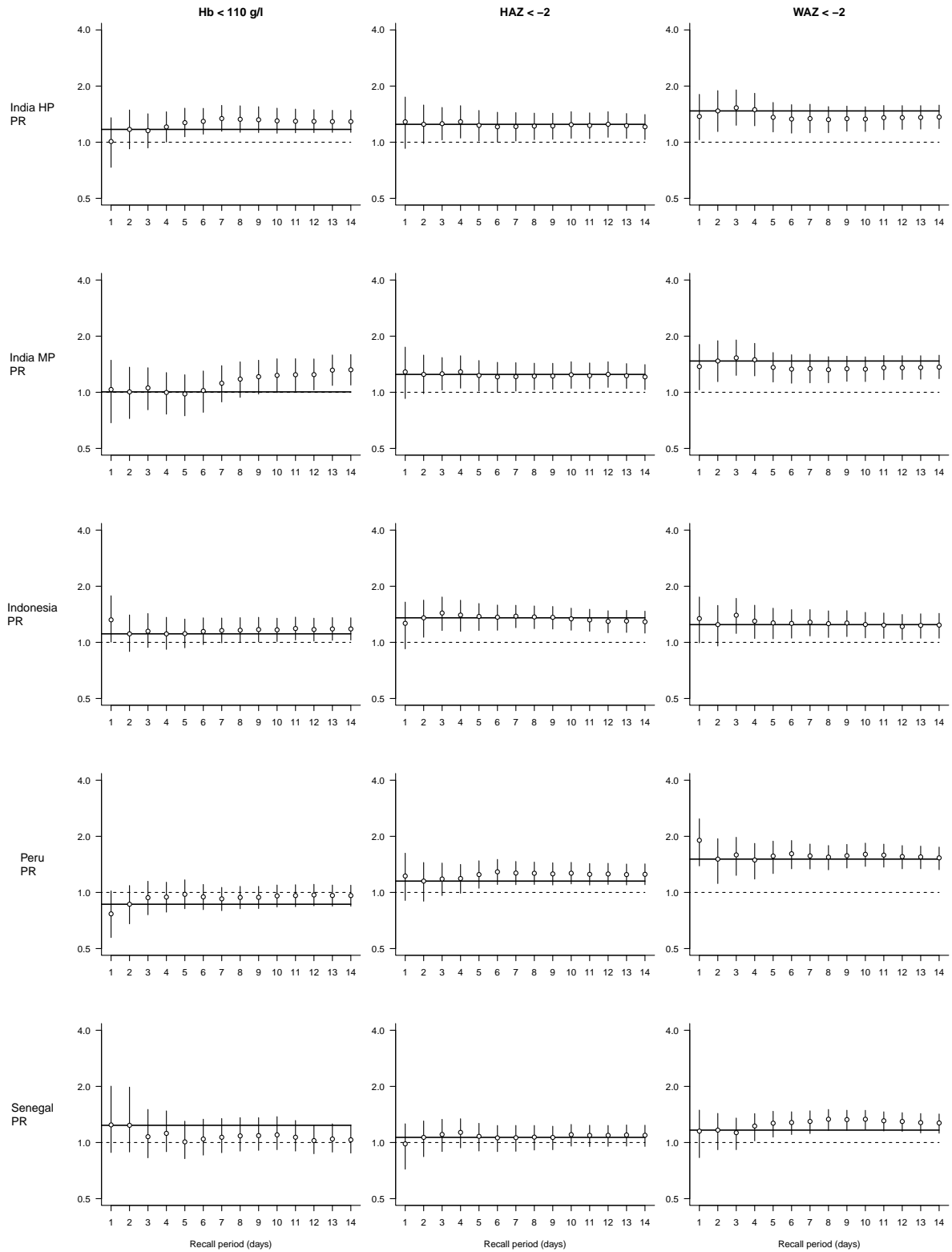
Web Figure 2: Empirical prevalence ratio (PR) of diarrhea by recall period, estimated using period prevalence, for three comparisons: anemic vs not anemic (Hb), stunted vs. not stunted (HAZ), and underweight vs. not underweight (WAZ). A solid horizontal line marks the PR with 2 days of recall. Vertical lines mark bootstrapped 95% confidence intervals.



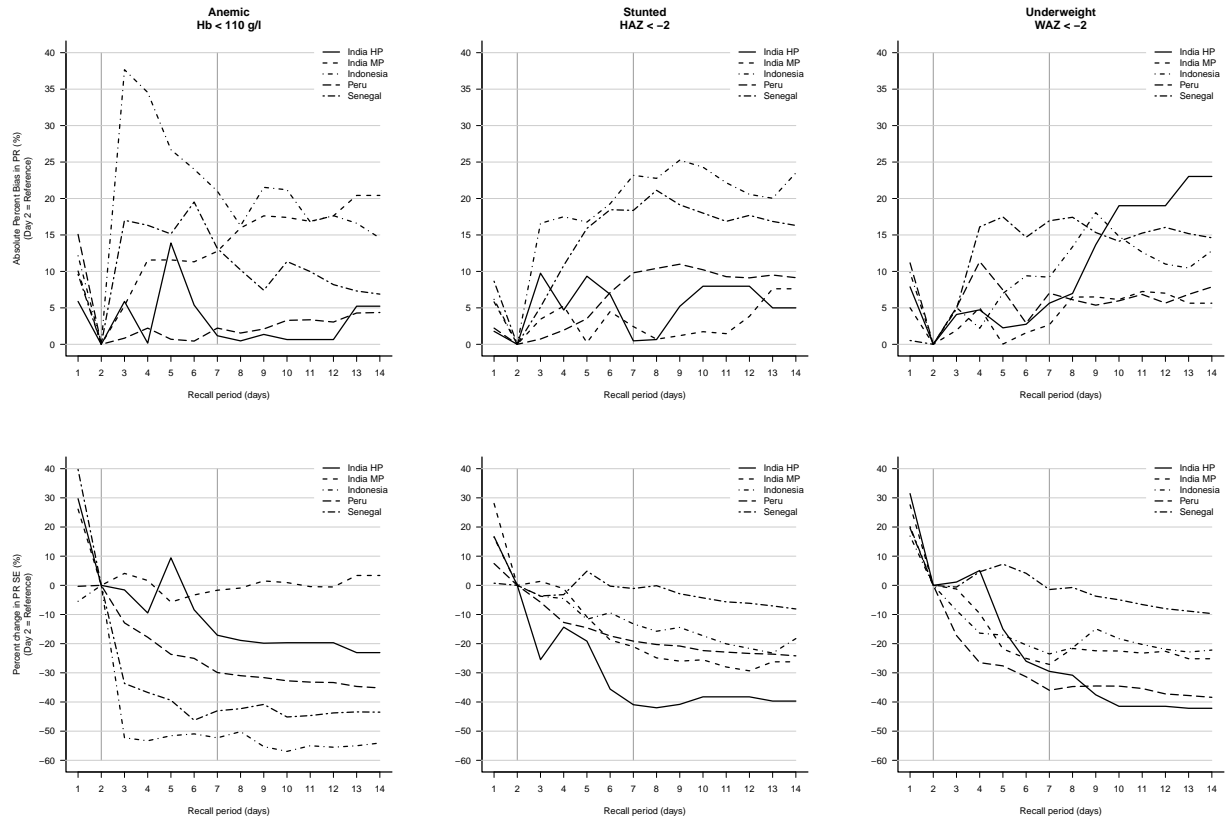
Web Figure 3: Empirical prevalence ratio (PR) of cough by recall period, estimated using period prevalence, for three comparisons: anemic vs not anemic (Hb), stunted vs. not stunted (HAZ), and underweight vs. not underweight (WAZ). A solid horizontal line marks the PR with 2 days of recall. Vertical lines mark bootstrapped 95% confidence intervals.



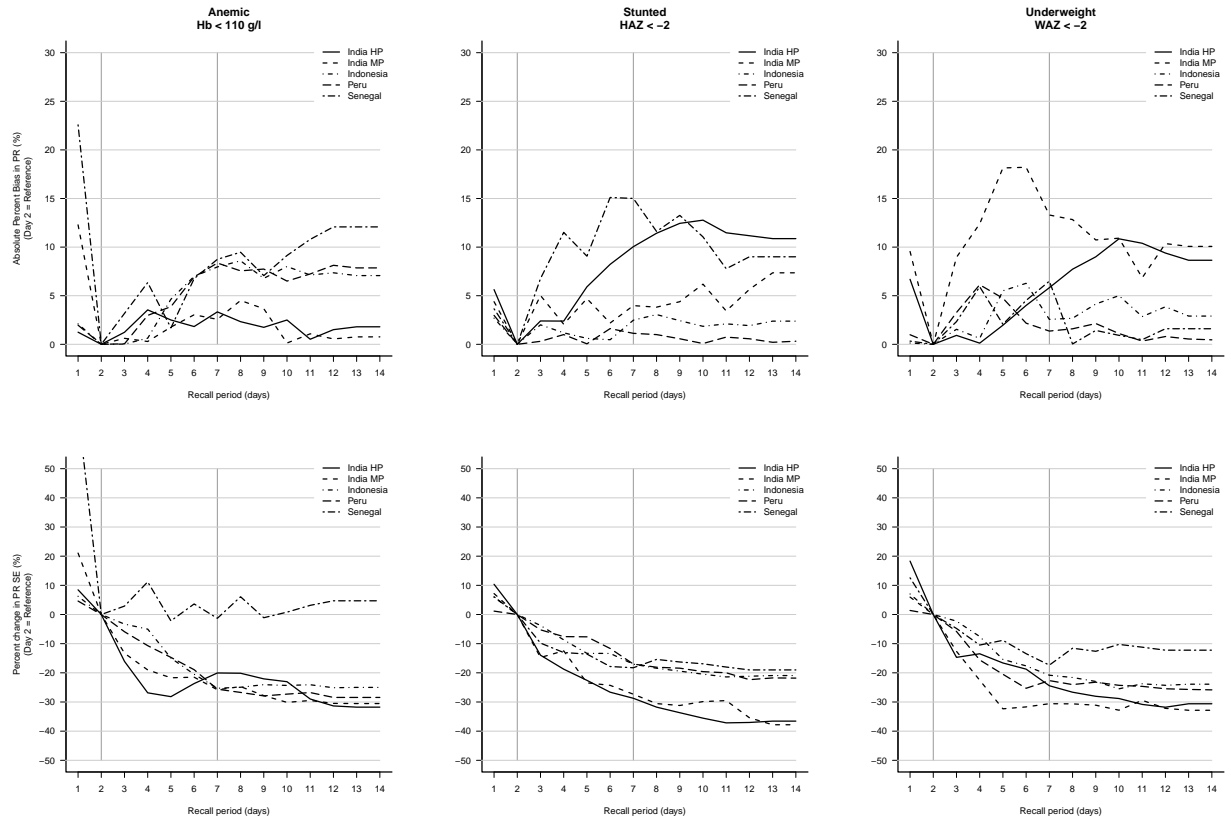
Web Figure 4: Empirical prevalence ratio (PR) of fever by recall period, estimated using period prevalence, for three comparisons: anemic vs not anemic (Hb), stunted vs. not stunted (HAZ), and underweight vs. not underweight (WAZ). A solid horizontal line marks the PR with 2 days of recall. Vertical lines mark bootstrapped 95% confidence intervals.



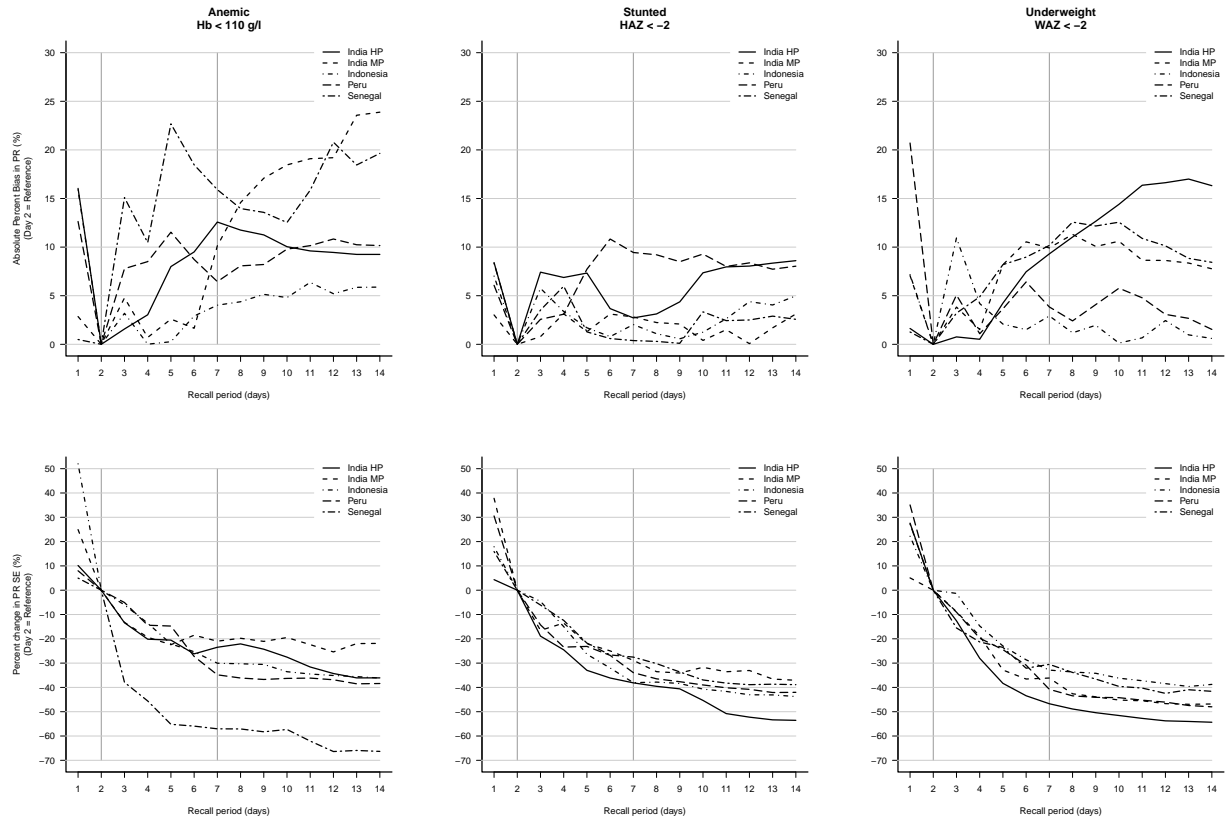
Web Figure 5: Percentage change in the bias and standard error (SE) of the prevalence ratio (PR) for diarrhea by recall period and cohort, estimated using period prevalence, for three comparisons: anemic vs not anemic, stunted vs. not stunted, and underweight vs. not underweight. The percent change in the bias is in absolute terms and assumes that a 2-day recall is unbiased. The percent change in the SE is relative to a 2-day recall period.



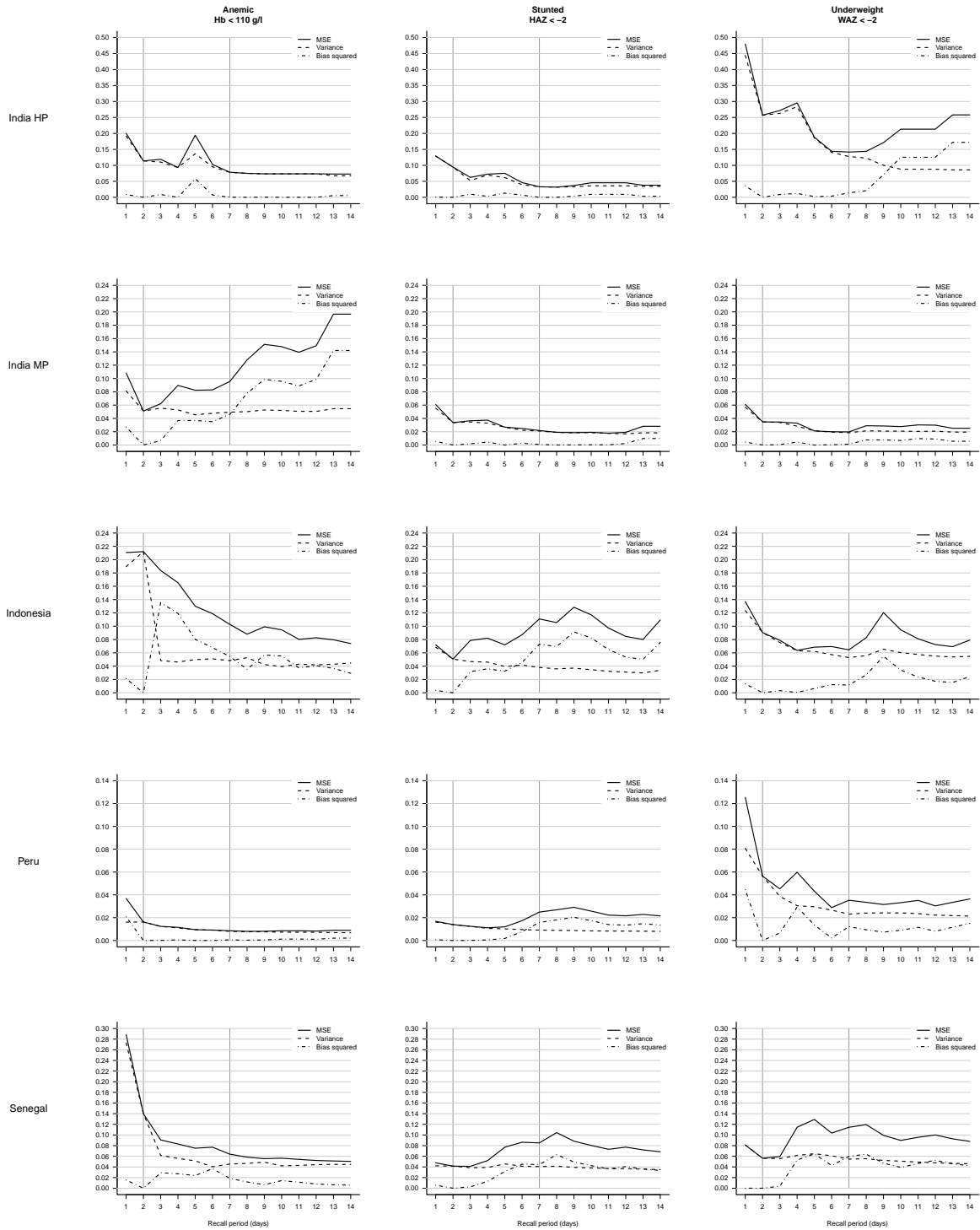
Web Figure 6: Percentage change in the bias and standard error (SE) of the prevalence ratio (PR) for cough by recall period and cohort, estimated using period prevalence, for three comparisons: anemic vs not anemic, stunted vs. not stunted, and underweight vs. not underweight. The percent change in the bias is in absolute terms and assumes that a 2-day recall is unbiased. The percent change in the SE is relative to a 2-day recall period.



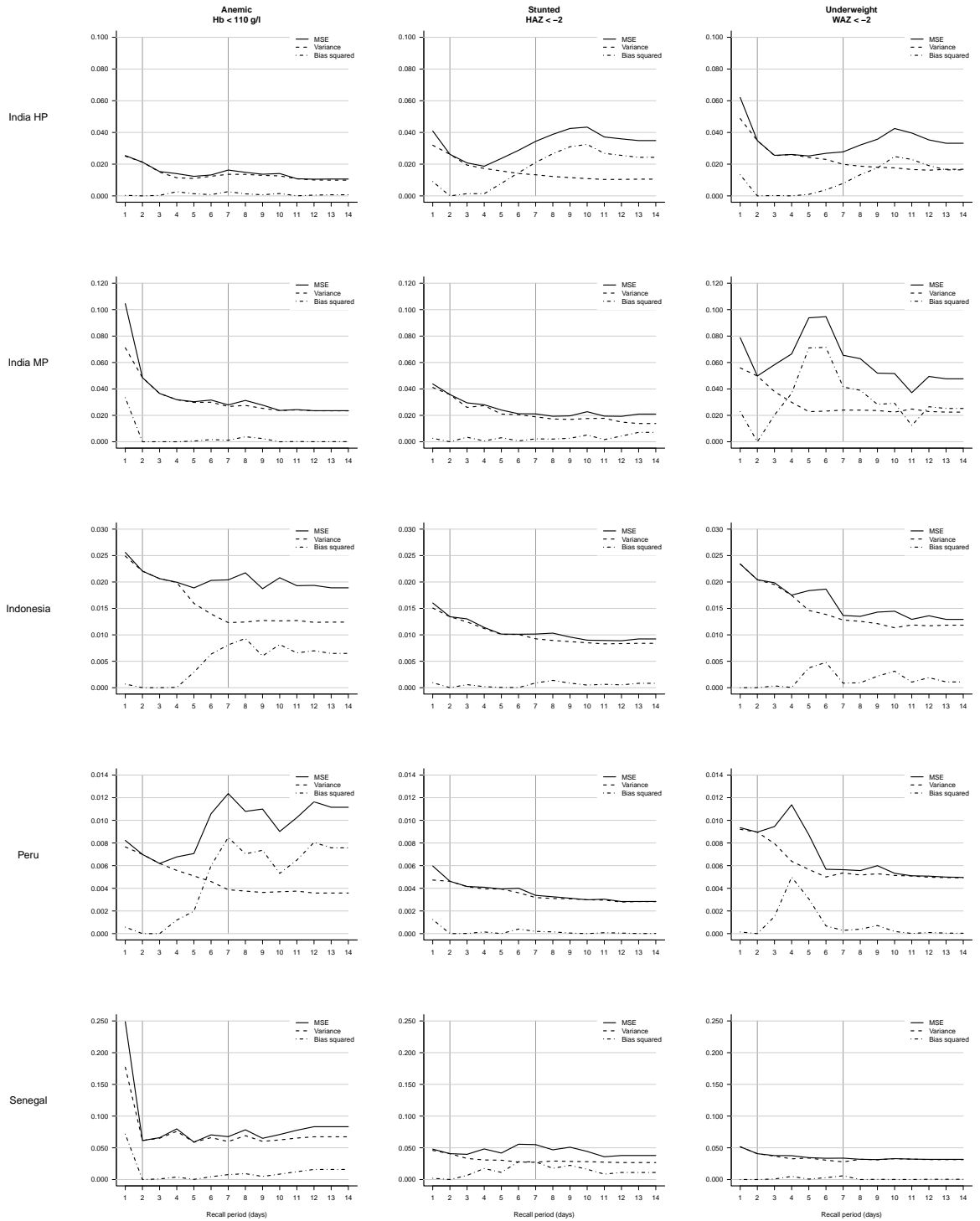
Web Figure 7: Percentage change in the bias and standard error (SE) of the prevalence ratio (PR) for fever by recall period and cohort, estimated using period prevalence, for three comparisons: anemic vs not anemic, stunted vs. not stunted, and underweight vs. not underweight. The percent change in the bias is in absolute terms and assumes that a 2-day recall is unbiased. The percent change in the SE is relative to a 2-day recall period.



Web Figure 8: Bias, variance, and mean squared error (MSE) of the prevalence ratio of diarrhea estimated for three risk factors (anemic, stunted, underweight) using period prevalence measured over different recall periods. Each row includes results from a different cohort.

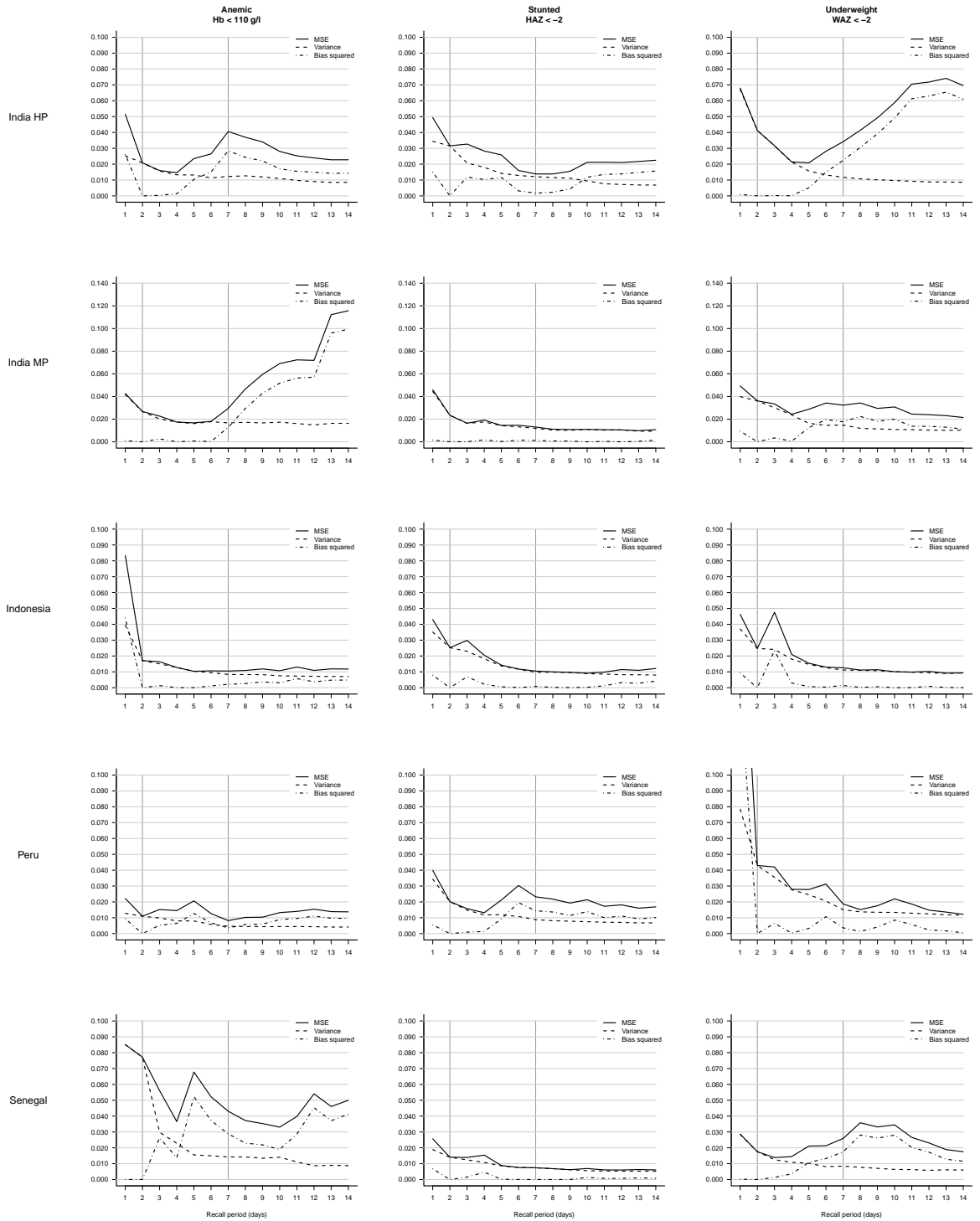


Web Figure 9: Bias, variance, and mean squared error (MSE) of the prevalence ratio of cough estimated for three risk factors (anemic, stunted, underweight) using period prevalence measured over different recall periods. Each row includes results from a different cohort.

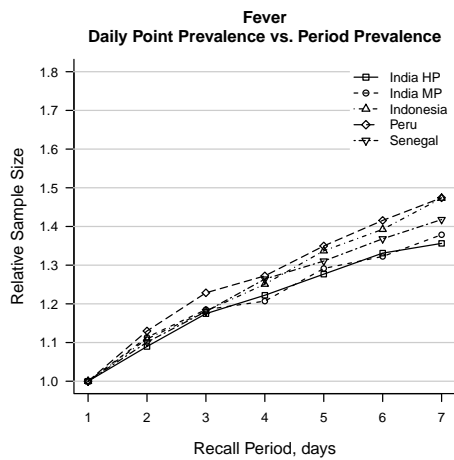
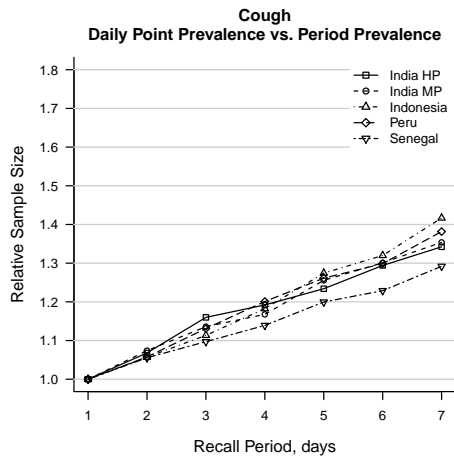
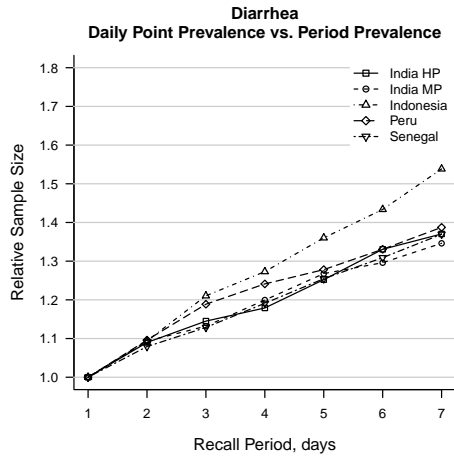




Web Figure 10: Bias, variance, and mean squared error (MSE) of the prevalence ratio of fever estimated for three risk factors (anemic, stunted, underweight) using period prevalence measured over different recall periods. Each row includes results from a different cohort.



Web Figure 11: Relative sample size required for the use of daily prevalence versus period prevalence over different recall periods. Calculations use empirical prevalence and correlation estimates from the five cohorts (Web Tables 1-6). The relationships are invariant to assumptions about the strength of association (relative risk), the number of measurements per child, or the outcome correlation between visits.



## Web Tables

**Web Table 1**  
**DIARRHEA**  
**Daily Point Prevalence and Period Prevalence**

|                       | 0   | D<br>1 | A<br>2 | Y<br>3 | 4    | O<br>5 | F<br>6 | 7    | R<br>8 | E<br>9 | C<br>10 | A<br>11 | L<br>12 | L<br>13 | 14   |
|-----------------------|-----|--------|--------|--------|------|--------|--------|------|--------|--------|---------|---------|---------|---------|------|
| <b>Daily Point</b>    |     |        |        |        |      |        |        |      |        |        |         |         |         |         |      |
| <b>Prevalence (%)</b> |     |        |        |        |      |        |        |      |        |        |         |         |         |         |      |
| India HP              | 1.6 | 2.5    | 3.1    | 2.9    | 2.0  | 2.0    | 1.9    | 1.9  | 1.3    | 1.1    | 1.1     | 0.5     | 0.5     | 0.4     | 0.4  |
| India MP              | 4.1 | 6.5    | 8.0    | 7.5    | 6.4  | 6.4    | 6.2    | 6.6  | 5.7    | 3.8    | 3.1     | 2.3     | 2.7     | 2.4     | 2.1  |
| Indonesia             | 3.0 | 4.1    | 3.7    | 3.7    | 3.0  | 2.7    | 2.6    | 3.1  | 1.6    | 1.5    | 1.5     | 1.0     | 0.9     | 0.8     | 0.9  |
| Peru                  | 5.4 | 8.3    | 8.5    | 8.9    | 7.8  | 7.2    | 7.2    | 7.2  | 3.8    | 2.7    | 2.3     | 1.9     | 2.1     | 2.0     | 1.9  |
| Senegal               | 4.5 | 7.9    | 9.0    | 8.6    | 7.0  | 6.3    | 5.4    | 4.7  | 3.8    | 3.3    | 2.8     | 2.0     | 2.0     | 1.9     | 1.8  |
| <b>Period</b>         |     |        |        |        |      |        |        |      |        |        |         |         |         |         |      |
| <b>Prevalence (%)</b> |     |        |        |        |      |        |        |      |        |        |         |         |         |         |      |
| India HP              | -   | 2.5    | 3.4    | 4.2    | 4.6  | 5.2    | 5.8    | 6.3  | 6.3    | 6.6    | 6.8     | 6.8     | 6.8     | 6.9     | 6.9  |
| India MP              | -   | 6.5    | 8.8    | 10.0   | 11.2 | 12.6   | 13.4   | 14.4 | 15.2   | 15.7   | 15.9    | 16.3    | 17.0    | 17.3    | 17.3 |
| Indonesia             | -   | 4.1    | 4.8    | 5.9    | 6.2  | 6.7    | 7.2    | 8.2  | 8.4    | 8.6    | 8.9     | 9.1     | 9.2     | 9.3     | 9.4  |
| Peru                  | -   | 8.3    | 10.4   | 12.6   | 14.3 | 15.7   | 17.0   | 18.3 | 18.7   | 19.0   | 19.3    | 19.4    | 19.7    | 19.9    | 20.1 |
| Senegal               | -   | 7.9    | 9.9    | 11.1   | 12.1 | 13.0   | 13.7   | 14.4 | 14.7   | 15.0   | 15.2    | 15.4    | 15.6    | 15.8    | 15.9 |

Peru N=3708, India HP N=2058, India MP N=2153, Indonesia N=2098, Senegal N=2174.

**Web Table 2**  
**COUGH**  
**Daily Point Prevalence and Period Prevalence**

|                       | 0    | D<br>1 | A<br>2 | Y<br>3 | 4    | O<br>5 | F<br>6 | 7    | R<br>8 | E<br>9 | C<br>10 | A<br>11 | L<br>12 | L<br>13 | 14   |
|-----------------------|------|--------|--------|--------|------|--------|--------|------|--------|--------|---------|---------|---------|---------|------|
| <b>Daily Point</b>    |      |        |        |        |      |        |        |      |        |        |         |         |         |         |      |
| <b>Prevalence (%)</b> |      |        |        |        |      |        |        |      |        |        |         |         |         |         |      |
| India HP              | 12.1 | 15.0   | 14.9   | 15.1   | 12.8 | 11.2   | 9.6    | 8.2  | 5.5    | 4.9    | 4.4     | 3.1     | 3.1     | 2.6     | 2.5  |
| India MP              | 6.8  | 7.9    | 9.0    | 8.7    | 7.3  | 6.8    | 6.6    | 6.5  | 4.7    | 3.1    | 2.6     | 2.3     | 2.8     | 2.6     | 2.5  |
| Indonesia             | 15.7 | 18.0   | 17.9   | 15.9   | 13.9 | 13.5   | 12.3   | 12.9 | 6.6    | 6.4    | 6.2     | 4.9     | 5.0     | 5.0     | 4.7  |
| Peru                  | 20.9 | 23.5   | 22.4   | 21.7   | 20.2 | 19.3   | 18.0   | 17.5 | 9.8    | 7.8    | 7.1     | 6.0     | 5.9     | 5.3     | 4.9  |
| Senegal               | 6.9  | 10.7   | 11.5   | 11.1   | 9.9  | 9.1    | 8.1    | 8.0  | 6.2    | 5.4    | 4.7     | 3.9     | 3.8     | 3.2     | 2.9  |
| <b>Period</b>         |      |        |        |        |      |        |        |      |        |        |         |         |         |         |      |
| <b>Prevalence (%)</b> |      |        |        |        |      |        |        |      |        |        |         |         |         |         |      |
| India HP              | -    | 15.0   | 17.0   | 19.8   | 21.4 | 22.5   | 23.6   | 24.4 | 24.9   | 25.4   | 25.9    | 26.3    | 26.7    | 27.0    | 27.0 |
| India MP              | -    | 7.9    | 9.8    | 11.4   | 12.1 | 13.5   | 14.2   | 15.0 | 15.3   | 15.7   | 16.0    | 16.4    | 17.0    | 17.3    | 17.3 |
| Indonesia             | -    | 18.0   | 19.9   | 21.2   | 22.5 | 24.4   | 25.2   | 27.0 | 27.7   | 28.0   | 28.6    | 28.7    | 28.9    | 29.0    | 29.0 |
| Peru                  | -    | 23.5   | 25.3   | 27.4   | 29.5 | 31.2   | 32.1   | 34.1 | 34.9   | 35.1   | 35.5    | 35.7    | 36.0    | 36.1    | 36.1 |
| Senegal               | -    | 10.7   | 12.4   | 13.4   | 14.3 | 15.5   | 16.2   | 17.3 | 17.9   | 18.2   | 18.6    | 18.8    | 19.0    | 19.0    | 19.0 |

Peru N=3708, India HP N=2058, India MP N=2153, Indonesia N=2098, Senegal N=2174.

**Web Table 3**  
**FEVER**  
**Daily Point Prevalence and Period Prevalence**

|                       | 0   | D<br>1 | A<br>2 | Y<br>3 | 4    | O<br>5 | F<br>6 | 7    | R<br>8 | E<br>9 | C<br>10 | A<br>11 | L<br>12 | L<br>13 | 14   |
|-----------------------|-----|--------|--------|--------|------|--------|--------|------|--------|--------|---------|---------|---------|---------|------|
| <b>Daily Point</b>    |     |        |        |        |      |        |        |      |        |        |         |         |         |         |      |
| <b>Prevalence (%)</b> |     |        |        |        |      |        |        |      |        |        |         |         |         |         |      |
| India HP              | 9.0 | 12.8   | 14.5   | 14.4   | 13.3 | 12.7   | 11.6   | 10.3 | 6.3    | 5.7    | 5.2     | 3.9     | 4.0     | 3.7     | 3.5  |
| India MP              | 5.8 | 8.4    | 10.4   | 11.1   | 9.5  | 9.5    | 8.6    | 9.1  | 7.2    | 5.1    | 4.3     | 3.8     | 4.7     | 4.6     | 4.4  |
| Indonesia             | 6.7 | 12.9   | 14.3   | 13.3   | 11.4 | 12.1   | 11.7   | 12.8 | 5.9    | 4.8    | 4.6     | 3.3     | 3.7     | 3.8     | 3.6  |
| Peru                  | 3.1 | 6.1    | 6.6    | 6.9    | 5.7  | 6.1    | 7.5    | 8.9  | 3.5    | 2.1    | 1.9     | 1.3     | 1.8     | 1.7     | 1.8  |
| Senegal               | 9.2 | 18.0   | 20.9   | 21.0   | 20.7 | 19.4   | 17.6   | 15.8 | 12.7   | 10.7   | 9.7     | 6.9     | 7.1     | 6.6     | 6.2  |
| <b>Period</b>         |     |        |        |        |      |        |        |      |        |        |         |         |         |         |      |
| <b>Prevalence (%)</b> |     |        |        |        |      |        |        |      |        |        |         |         |         |         |      |
| India HP              | -   | 12.8   | 16.2   | 19.7   | 22.5 | 25.1   | 27.6   | 29.2 | 29.6   | 30.5   | 31.2    | 32.0    | 32.8    | 33.3    | 33.3 |
| India MP              | -   | 8.4    | 12.0   | 14.8   | 16.3 | 18.6   | 20.1   | 21.8 | 22.7   | 23.8   | 24.4    | 25.5    | 26.7    | 27.5    | 27.7 |
| Indonesia             | -   | 12.9   | 17.0   | 19.7   | 22.4 | 25.7   | 28.3   | 31.5 | 32.2   | 32.9   | 33.7    | 34.2    | 35.0    | 35.5    | 35.7 |
| Peru                  | -   | 6.1    | 9.0    | 11.9   | 14.1 | 17.0   | 20.1   | 23.5 | 24.5   | 25.0   | 25.5    | 25.9    | 26.7    | 27.2    | 27.4 |
| Senegal               | -   | 18.0   | 23.4   | 27.6   | 31.7 | 34.7   | 37.6   | 39.8 | 41.9   | 42.8   | 44.2    | 44.9    | 46.0    | 47.0    | 47.1 |

Peru N=3708, India HP N=2058, India MP N=2153, Indonesia N=2098, Senegal N=2174.

**Web Table 4**  
**DIARRHEA**

Within-child outcome correlation over different recall periods.

|   | D   | A    | Y    | S    | 5    | O    | F    | 8    | R    | E    | C    | A    | L    | L    |
|---|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|
|   | 1   | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   |
| <b>Daily Point</b>                        |     |      |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Prevalence (%)</b>                     |     |      |      |      |      |      |      |      |      |      |      |      |      |      |
| India HP                                  | 2.5 | 3.1  | 2.9  | 2.0  | 2.0  | 1.9  | 1.9  | 1.3  | 1.1  | 1.1  | 0.5  | 0.5  | 0.4  | 0.4  |
| India MP                                  | 6.5 | 8.0  | 7.5  | 6.4  | 6.4  | 6.2  | 6.6  | 5.7  | 3.8  | 3.1  | 2.3  | 2.7  | 2.4  | 2.1  |
| Indonesia                                 | 4.1 | 3.7  | 3.7  | 3.0  | 2.7  | 2.6  | 3.1  | 1.6  | 1.5  | 1.5  | 1.0  | 0.9  | 0.8  | 0.9  |
| Peru                                      | 8.3 | 8.5  | 8.9  | 7.8  | 7.2  | 7.2  | 7.2  | 3.8  | 2.7  | 2.3  | 1.9  | 2.1  | 2.0  | 1.9  |
| Senegal                                   | 7.9 | 9.0  | 8.6  | 7.0  | 6.3  | 5.4  | 4.7  | 3.8  | 3.3  | 2.8  | 2.0  | 2.0  | 1.9  | 1.8  |
| <b>Within-child outcome correlation *</b> |     |      |      |      |      |      |      |      |      |      |      |      |      |      |
| India HP                                  | --  | 0.79 | 0.65 | 0.55 | 0.50 | 0.45 | 0.41 | 0.39 | 0.37 | 0.36 | 0.34 | 0.35 | 0.34 | 0.34 |
| India MP                                  | --  | 0.77 | 0.71 | 0.64 | 0.58 | 0.54 | 0.52 | 0.49 | 0.44 | 0.41 | 0.38 | 0.35 | 0.34 | 0.33 |
| Indonesia                                 | --  | 0.75 | 0.64 | 0.61 | 0.58 | 0.55 | 0.51 | 0.44 | 0.41 | 0.39 | 0.35 | 0.33 | 0.32 | 0.32 |
| Peru                                      | --  | 0.75 | 0.67 | 0.58 | 0.52 | 0.48 | 0.46 | 0.41 | 0.38 | 0.36 | 0.35 | 0.34 | 0.34 | 0.34 |
| Senegal                                   | --  | 0.81 | 0.76 | 0.69 | 0.64 | 0.60 | 0.55 | 0.52 | 0.50 | 0.48 | 0.46 | 0.44 | 0.44 | 0.43 |

\* Within-child outcome correlation in daily point prevalence, including days 1, ..., *d*, where *d* is the day of recall.  
Peru N=3708, India HP N=2058, India MP N=2153, Indonesia N=2098, Senegal N=2174.

**Web Table 5**  
**COUGH**

Within-child outcome correlation over different recall periods.

|   | D    | A    | Y    | S    | 5    | O    | F    | 8    | R    | E    | C    | A    | L    | L    |
|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   |
| <b>Daily Point</b>                        |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Prevalence (%)</b>                     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| India HP                                  | 15.0 | 14.9 | 15.1 | 12.8 | 11.2 | 9.6  | 8.2  | 5.5  | 4.9  | 4.4  | 3.1  | 3.1  | 2.6  | 2.5  |
| India MP                                  | 7.9  | 9.0  | 8.7  | 7.3  | 6.8  | 6.6  | 6.5  | 4.7  | 3.1  | 2.6  | 2.3  | 2.8  | 2.6  | 2.5  |
| Indonesia                                 | 18.0 | 17.9 | 15.9 | 13.9 | 13.5 | 12.3 | 12.9 | 6.6  | 6.4  | 6.2  | 4.9  | 5.0  | 5.0  | 4.7  |
| Peru                                      | 23.5 | 22.4 | 21.7 | 20.2 | 19.3 | 18.0 | 17.5 | 9.8  | 7.8  | 7.1  | 6.0  | 5.9  | 5.3  | 4.9  |
| Senegal                                   | 10.7 | 11.5 | 11.1 | 9.9  | 9.1  | 8.1  | 8.0  | 6.2  | 5.4  | 4.7  | 3.9  | 3.8  | 3.2  | 2.9  |
| <b>Within-child outcome correlation *</b> |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| India HP                                  | --   | 0.84 | 0.75 | 0.66 | 0.61 | 0.57 | 0.53 | 0.48 | 0.45 | 0.42 | 0.39 | 0.37 | 0.36 | 0.35 |
| India MP                                  | --   | 0.83 | 0.74 | 0.69 | 0.63 | 0.60 | 0.58 | 0.54 | 0.50 | 0.47 | 0.44 | 0.41 | 0.40 | 0.39 |
| Indonesia                                 | --   | 0.87 | 0.80 | 0.74 | 0.69 | 0.66 | 0.63 | 0.55 | 0.51 | 0.49 | 0.47 | 0.46 | 0.46 | 0.46 |
| Peru                                      | --   | 0.87 | 0.82 | 0.76 | 0.71 | 0.68 | 0.65 | 0.57 | 0.52 | 0.49 | 0.46 | 0.45 | 0.45 | 0.45 |
| Senegal                                   | --   | 0.88 | 0.83 | 0.78 | 0.72 | 0.66 | 0.62 | 0.58 | 0.55 | 0.53 | 0.51 | 0.50 | 0.49 | 0.49 |

\* Within-child outcome correlation in daily point prevalence, including days 1, ..., *d*, where *d* is the day of recall.  
Peru N=3708, India HP N=2058, India MP N=2153, Indonesia N=2098, Senegal N=2174.

**Web Table 6**  
**FEVER**

Within-child outcome correlation over different recall periods.

|   | D    | A    | Y    | S    | 5    | O    | F    | 8    | R    | E    | C    | A    | L    | L    |
|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   |
| <b>Daily Point</b>                        |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Prevalence (%)</b>                     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| India HP                                  | 12.8 | 14.5 | 14.4 | 13.3 | 12.7 | 11.6 | 10.3 | 6.3  | 5.7  | 5.2  | 3.9  | 4.0  | 3.7  | 3.5  |
| India MP                                  | 8.4  | 10.4 | 11.1 | 9.5  | 9.5  | 8.6  | 9.1  | 7.2  | 5.1  | 4.3  | 3.8  | 4.7  | 4.6  | 4.4  |
| Indonesia                                 | 12.9 | 14.3 | 13.3 | 11.4 | 12.1 | 11.7 | 12.8 | 5.9  | 4.8  | 4.6  | 3.3  | 3.7  | 3.8  | 3.6  |
| Peru                                      | 6.1  | 6.6  | 6.9  | 5.7  | 6.1  | 7.5  | 8.9  | 3.5  | 2.1  | 1.9  | 1.3  | 1.8  | 1.7  | 1.8  |
| Senegal                                   | 18.0 | 20.9 | 21.0 | 20.7 | 19.4 | 17.6 | 15.8 | 12.7 | 10.7 | 9.7  | 6.9  | 7.1  | 6.6  | 6.2  |
| <b>Within-child outcome correlation *</b> |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| India HP                                  | --   | 0.78 | 0.67 | 0.57 | 0.51 | 0.45 | 0.41 | 0.37 | 0.35 | 0.33 | 0.31 | 0.30 | 0.29 | 0.29 |
| India MP                                  | --   | 0.70 | 0.63 | 0.58 | 0.52 | 0.48 | 0.45 | 0.42 | 0.38 | 0.36 | 0.33 | 0.31 | 0.29 | 0.28 |
| Indonesia                                 | --   | 0.71 | 0.63 | 0.54 | 0.47 | 0.43 | 0.39 | 0.34 | 0.31 | 0.29 | 0.27 | 0.26 | 0.26 | 0.27 |
| Peru                                      | --   | 0.56 | 0.46 | 0.37 | 0.31 | 0.28 | 0.25 | 0.21 | 0.18 | 0.17 | 0.16 | 0.13 | 0.13 | 0.14 |
| Senegal                                   | --   | 0.75 | 0.68 | 0.60 | 0.54 | 0.49 | 0.45 | 0.40 | 0.36 | 0.34 | 0.32 | 0.31 | 0.30 | 0.30 |

\* Within-child outcome correlation in daily point prevalence, including days 1, ..., *d*, where *d* is the day of recall.  
Peru N=3708, India HP N=2058, India MP N=2153, Indonesia N=2098, Senegal N=2174.

## WEB APPENDIX 1 SURVEY INSTRUMENTS

We include examples of how to measure illness symptoms in household surveys. The examples include the measurement of diarrhea using both a caregiver-reported definition and a symptom-based definition (1). Investigators can collect other symptoms in a similar fashion. If time permits, we suggest the use of a full seven-day calendar (example 1). If time is limited, then we suggest the use of a two-day calendar, plus a question to collect 7-day period prevalence (example 2). In each example we include a suggestion for how to evaluate whether reporting is differential by group. The final section includes the health calendar used in this study.

### 1 Suggested measurement with daily recall for 7 days

*Ask the caregiver about each symptom and probe over the recall period.*

*Record a "1" for each day with the symptom and "0" otherwise. -9 = Don't know.*

|   |                                       | A          | B           | C | D | E | F | G | H |
|---|---------------------------------------|------------|-------------|---|---|---|---|---|---|
|   | Did [NAME] have [SYMPTOM] :           | Today<br>0 | Yester<br>1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | Diarrhea (local vernacular)           |            |             |   |   |   |   |   |   |
| 2 | 3 or more bowel movements in 24 hours |            |             |   |   |   |   |   |   |
| 3 | Watery or soft stool (unformed)       |            |             |   |   |   |   |   |   |
| 4 | Blood in the stool                    |            |             |   |   |   |   |   |   |
|   |                                       | 0          | 1           | 2 | 3 | 4 | 5 | 6 | 7 |

To determine if reporting is differential by group, investigators can plot a measure of relative daily reporting for each group, defined as the daily point prevalence divided by the average point prevalence in days 1-2 (see Methods and Figure 1 for details). If investigators desire a statistical test to determine if the relative daily reporting curves differ between groups, then we suggest taking the difference between the curves, and bootstrapping the dataset to calculate percentile-based 95% confidence intervals for the difference curve. If the confidence interval around the curve excludes 0, then it would suggest that reporting is differential. The bootstrap should use the same sampling approach that was used to collect the data (2). Traditional statistical tests for contingency tables (e.g., Chi-square or Fisher's Exact) would not be valid in this context because reporting is not independent across days of recall. In this study, children were also not independent (within household and village). Investigators could also use the CT ratio method, which we describe in the next section.

## 2 Suggested measurement with daily recall for 2 days and a 7-day period prevalence measure

*Ask the caregiver about each symptom and probe over the recall period.*

*Record a "1" for each day with the symptom and "0" otherwise. -9 = Don't know.*

|   |                                       | A     | B         | C                    | D   |
|---|---------------------------------------|-------|-----------|----------------------|---|
|   | Did [NAME] have [SYMPTOM] :           | Today | Yesterday | Day before Yesterday | In the last 7 days (since this day last week) |
| 1 | Diarrhea (local vernacular)           |       |           |                      |   |
| 2 | 3 or more bowel movements in 24 hours |       |           |                      |   |
| 3 | Watery or soft stool (unformed)       |       |           |                      |   |
| 4 | Blood in the stool                    |       |           |                      |   |

To test for differential reporting by group, calculate the current to terminated (CT) ratio for each group. These calculations follow those outlined in (3). Let  $C$  be sum of individuals with the symptom on the day before the survey (column B = 1). Let  $T$  be the sum of terminated cases for the six-day period that starts on day 7 and ends on day 1 of recall.  $T$  is calculated by counting children who were ill at some time in the past seven days (column D = 1), but are not ill on day 1 of recall (column B=0). The CT ratio =  $C/T$ .

If investigators desire a statistical test to determine if the CT ratio is statistically different between groups, we suggest calculating the difference in the CT ratio between groups and then using a bootstrap to estimate a percentile-based 95% confidence interval for the difference. The bootstrap should repeat whatever sampling procedure led to the observed data (2). If the confidence interval for the difference in the CT ratio excludes 0, then there would be evidence for differential reporting error.

### 3 Health calendar used in this study, modeled after Goldman et al. (4)

Administered to each primary caregiver of children **under 5** (up to, but not after, the child's fifth birthday).  
 (The primary caregiver is the person the child spends the most time with. This is often the mother.)

**(REPEAT FOR EACH CHILD < 5 YEARS OLD)**

**CHILD ID CODE:** [ ] NAME \_\_\_\_\_

Now I would like to ask about the health of [NAME] in the last 14 days.

| In the last 14 days, did he/she have: | 1               | 2           | 3  | 4                          | 5       | 6      | 7   | 8                        | 9                               | 10                       | 11                                | 12                                    | 13   | 14        |
|---------------------------------------|-----------------|-------------|--|----------------------------|---------|--------|---|--------------------------|---------------------------------|--------------------------|-----------------------------------|---------------------------------------|--|-----------|
| Fever?                                | Constant Cough? | Congestion? | Panting/ wheezing/<br>difficulty breathing?                        | Stomach pain or<br>cramps? | Nausea? | Vomit? | 3 or more bowel<br>movements in one<br>day and one night? | Watery or soft<br>stool? | Mucus or Blood in<br>the stool? | Refuse to feed /<br>eat? | Abrasion, scrapes<br>or bruising? | Skin itching on the<br>body or scalp? | Do you think that<br>[Symptoms] are /<br>were serious? |           |
| DK : -99                              | -99             | -99         | -99  | -99                        | -99     | -99    | -99   | -99                      | -99                             | -99                      | -99                               | -99                                   | -99  | -99       |
| YES : 1                               | Y N             | Y N         | Y N  | Y N                        | Y N     | Y N    | Y N   | Y N                      | Y N                             | Y N                      | Y N                               | Y N                                   | Y N  | Y N       |
| NO : 2                                | 1 2             | 1 2         | 1 2  | 1 2                        | 1 2     | 1 2    | 1 2   | 1 2                      | 1 2                             | 1 2                      | 1 2                               | 1 2                                   | 1 2  | 1 2       |
| When did (SYMPTOM) begin?             | ↓               | ↓           | ↓  | ↓                          | ↓       | ↓      | ↓   | ↓                        | ↓                               | ↓                        | ↓                                 | ↓                                     | ↓  |           |
| days ago 1                            | 1               | 1           | 1  | 1                          | 1       | 1      | 1   | 1                        | 1                               | 1                        | 1                                 | 1                                     | 1  |           |
| OR                                    | [ ]             | [ ]         | [ ]  | [ ]                        | [ ]     | [ ]    | [ ]   | [ ]                      | [ ]                             | [ ]                      | [ ]                               | [ ]                                   | [ ]  |           |
| weeks ago 2                           | 2               | 2           | 2  | 2                          | 2       | 2      | 2   | 2                        | 2                               | 2                        | 2                                 | 2                                     | 2  |           |
|                                       | [ ]             | [ ]         | [ ]  | [ ]                        | [ ]     | [ ]    | [ ]   | [ ]                      | [ ]                             | [ ]                      | [ ]                               | [ ]                                   | [ ]  |           |
| How many days did (SYMPTOM) last?     | ↓               | ↓           | MARK AN "X" ON THE FIRST AND LAST DAY AND CONNECT THEM WITH A LINE |                            |         |        |   |                          |                                 |                          |                                   |                                       | ↓  |           |
| <b>days ago</b>                       |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  |           |
| <b>14</b>                             |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>14</b> |
| <b>13</b>                             |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>13</b> |
| <b>12</b>                             |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>12</b> |
| <b>11</b>                             |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>11</b> |
| <b>10</b>                             |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>10</b> |
| <b>9</b>                              |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>9</b>  |
| <b>8</b>                              |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>8</b>  |
| <b>7</b>                              |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>7</b>  |
| <b>6</b>                              |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>6</b>  |
| <b>5</b>                              |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>5</b>  |
| <b>4</b>                              |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>4</b>  |
| <b>3</b>                              |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>3</b>  |
| <b>2</b>                              |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>2</b>  |
| <b>Yester. 1</b>                      |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>1</b>  |
| <b>Today 0</b>                        |                 |             |  |                            |         |        |   |                          |                                 |                          |                                   |                                       |  | <b>0</b>  |

ALWAYS USE THE FOLLOWING CODES FOR NON-RESPONSE: (-99) Don't know. (-98) Refuse to answer. (-97) Not applicable. (-96) Other (Specify \_\_\_\_\_).

*NOTE: Pilot testing since this study was completed suggests that the format used in the first two examples is easier for field staff to administer than the health calendar on this page. We have included this example for context and completeness.*

## References for Web Appendix 1

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## WEB APPENDIX 2

### RESULTS FOR ADJUSTED ANALYSES USING LOG-BINOMIAL REGRESSION

#### Methods

In our primary analysis, we chose to use a non-parametric ratio of means as our estimator of the prevalence ratio (PR) to calculate the bias, variance, and mean squared error (MSE) for that parameter with between 1-14 days of recall. In many studies, particularly observational studies, investigators will want to use an estimator for the PR that allows them to adjust for potentially important covariates (either to reduce confounding or to reduce variance). A convenient estimator for the PR is a log-binomial regression model [1], where the mean of the dichotomous outcome,  $Y$ , is modeled as a function of the dichotomous exposure,  $X$ , and vector of covariates,  $\mathbf{C}$ .

$$\log E[Y|X, \mathbf{C}] = \alpha + \beta X + \gamma \mathbf{C} \quad (1)$$

After fitting the model using maximum likelihood, with dichotomous  $X$  the parameter  $\exp(\hat{\beta})$  estimates the PR. We repeated our calculations by estimating the PR for the three dichotomous risk factors in our primary analysis: the child was anemic (Hb < 110 g/l) versus not anemic, the child was stunted (height-for-age  $Z < -2$ ) versus not stunted, and the child was underweight (weight-for-age  $Z < -2$ ) versus not underweight. We estimated the PR using the model in equation 1 with (adjusted) and without (unadjusted) a vector of covariates ( $\mathbf{C}$ ) that included: child characteristics (age, sex, currently breastfeeding), and household characteristics (has electricity, has soil floor, uses biofuel to cook, has JMP-defined [2] improved sanitation, has JMP-defined [2] improved water supply). In this secondary analysis, we repeated all of the analyses in the main text, which included three outcomes (diarrhea, cough, fever) in the five cohorts.

As in the primary analysis, we assumed that the PR estimated using a 2 day recall period was an unbiased estimate of the true PR. We then calculated bias for each recall period using this assumption. We calculated the SEs of the PR for each recall period using Huber-White robust “sandwich” estimator, clustered at the level of village-clusters [3]. We calculated the MSE using the standard approach described in the main text.

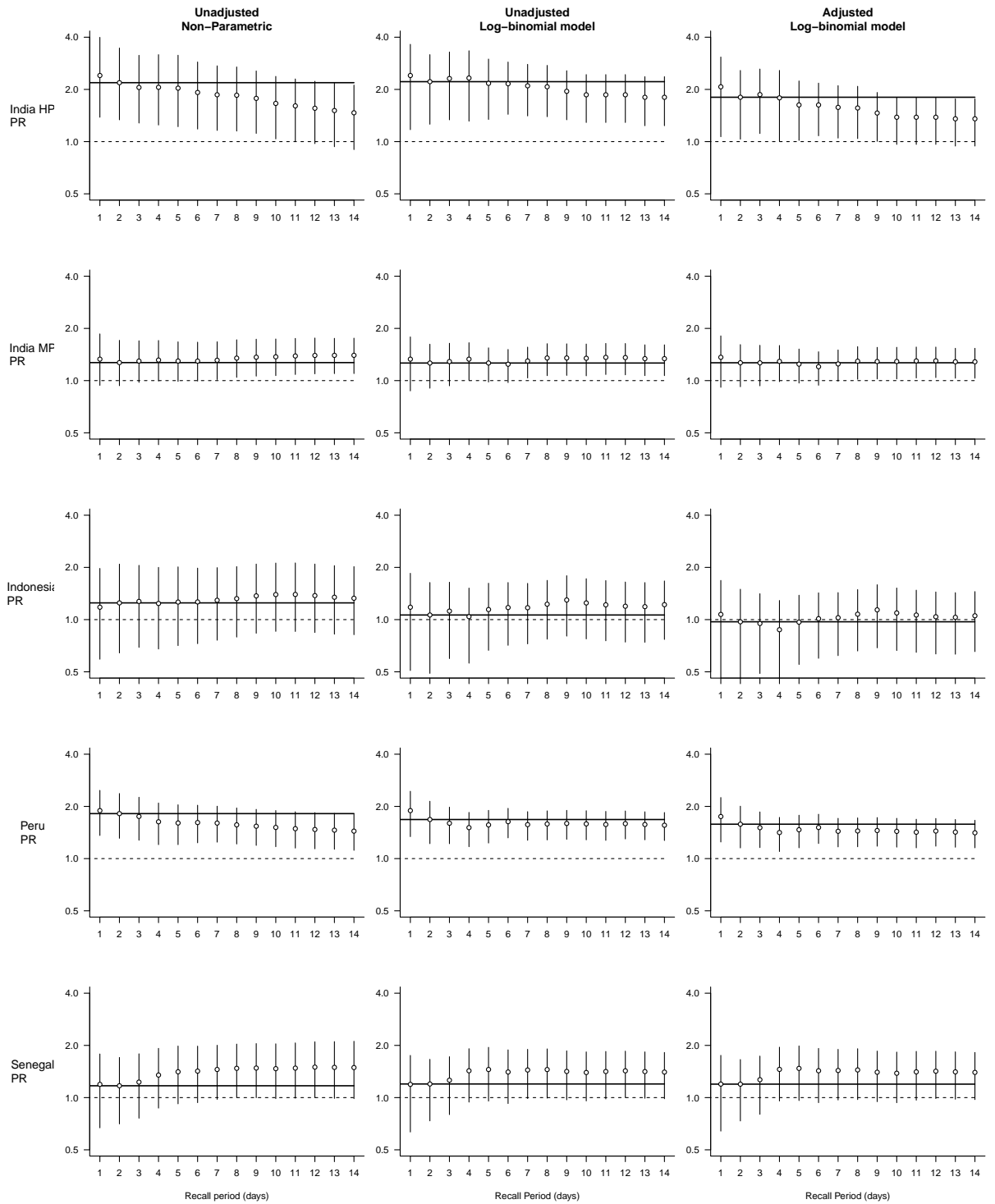
#### Results

The PR estimated with different recall periods was highly consistent between the three estimators. We show representative results for diarrhea and the risk factor of underweight (WAZ < -2) compared to not underweight – the PR across the three estimator was qualitative very similar (Figure A1).

The bias, variance (SEs), and MSE of the PR with different recall periods were also very similar for the three estimators. Figure A2 shows representative results for diarrhea, reporting normalized measures of bias, variance, and MSE of the PR for underweight children compared to children who were not underweight. The unadjusted estimators are virtually identical for all summary measures, and the

adjusted model produces estimates that were highly consistent with unadjusted estimates across the scenarios that we considered.

Figure A1: Prevalence ratio (PR) of diarrhea for children who are underweight (weight-for-age  $Z < -2$ ) versus not underweight in the five cohorts (rows). The columns include three estimators: non-parametric (used in the main text), unadjusted log-binomial model, and adjusted log-binomial model. Vertical lines mark 95% confidence intervals. A solid horizontal line marks the PR with 2 days of recall (assumed unbiased in the analysis).





WEB APPENDIX 3  
PARAMETERS OF INTEREST ESTIMATED WITH PERIOD PREVALENCE OVER  
DIFFERENT RECALL PERIODS

**Definitions.**

The period prevalence is defined as the probability that an individual had the disease at any time during the period of interest. In caregiver-reported illness measurement, interviewers typically measure period prevalence by asking the caregiver whether the child has had a symptom at any time over the recall period. As in the main text, let  $Y(t)$  be a binary indicator of disease on day  $t$  for recall period  $1, \dots, t$ . For each individual, let  $Y^*(T) = \max[Y(1), Y(2), \dots, Y(T)]$  be an indicator of any disease during the recall period  $T$ . The period prevalence can then be estimated as  $E[Y^*(T)]$ .

Theoretically, the period prevalence,  $E[Y^*(T)]$ , is equal to the sum of prevalent cases at the beginning of the period,  $C(0)$ , plus the incident cases over the period,  $C(1) + \dots + C(T)$ , divided by the population size at the beginning of the period,  $N(0)$ .

$$E[Y^*(T)] = [C(0) + C(1) + \dots + C(T)]/N(0) \quad (2)$$

The point prevalence of a disease,  $\pi$ , is the probability that an individual has the disease at any point in time. The incidence density of disease,  $I$ , is the number of new (incident) cases divided by the person-time at risk. It has been shown that when  $\pi$  is small and a population is at steady state, so that the incident cases equal the terminated cases over a period, the following is a reasonable approximation for the period prevalence [4, pg 122]:

$$E[Y^*(T)] \approx \pi + I \cdot T \quad (3)$$

Let  $i$  index groups in a comparison (for  $i = 1, 2$ ). As above, let  $E[Y_i^*(T)]$  denote the period prevalence of disease, let  $\pi_i$  be the daily point prevalence of disease, and let  $I_i$  be the incidence density of disease for group  $i$ .  $I_i$  is assumed to be constant over the period  $(1, \dots, T)$ , which is very reasonable for recall periods up to 14 days ( $T = 14$ ).

**Result 1. Prevalence Ratio estimated with period prevalence.**

From equation 3, the prevalence ratio ( $PR$ ) between groups estimated using period prevalence with recall period  $T$  is:

$$\begin{aligned} PR_T &= \frac{E[Y_1^*(T)]}{E[Y_2^*(T)]} \\ &= \frac{\pi_1 + I_1 \cdot T}{\pi_2 + I_2 \cdot T} \end{aligned} \quad (4)$$

This straightforward result shows that the  $PR$  measured with period prevalence is not constant over different recall periods: it varies according to the ratio of the

incidence in each group multiplied by the recall period. However, as we show below, it will be reasonably constant under conditions similar to caregiver reported illness with recall periods up to 14 days (in contrast to the risk difference).

**Result 2. Risk Difference estimated with period prevalence.**

From equation 3, the risk difference ( $RD$ ) between groups estimated using period prevalence with recall period  $T$  is:

$$\begin{aligned}
 RD_T &= E[Y_1^*(T)] - E[Y_2^*(T)] \\
 &= (\pi_1 + I_1 \cdot T) - (\pi_2 + I_2 \cdot T) \\
 &= (\pi_1 - \pi_2) + (I_1 - I_2)(T)
 \end{aligned}
 \tag{5}$$

This result shows that even if an intervention leads to a constant reduction in the incidence density of disease between two groups, the  $RD$  estimated using period prevalence increases in magnitude in proportion to the difference in incidence density ( $I_1 - I_2$ ) and the recall period length ( $T$ ). Thus, differences in period prevalence estimated over different recall periods estimate fundamentally different quantities that increase in magnitude (either positive or negative) with longer recall periods.

**Example.**

To make the relationships above more concrete, consider the following example. In an control group, the incidence of cough is estimated to be 5 episodes per child-year, and in an intervention group the incidence of cough is estimated to be 4 episodes per child-year. The daily incidence density,  $I$ , in the two groups is thus  $5/365 = 0.01370$  and  $4/365 = 0.01096$ , respectively. Assume both groups have a mean episode duration,  $D$ , of 3 days. For a population in steady state, the point prevalence,  $\pi$ , can be estimated from incidence and duration [5, eq. 2]:

$$\hat{\pi} = \frac{I \cdot D}{1 + I \cdot D}
 \tag{6}$$

The point prevalence in the control group is  $0.01370 \cdot 3 / (1 + 0.01370 \cdot 3) = 3.9\%$  and the point prevalence in the intervention group is  $0.01096 \cdot 3 / (1 + 0.01096 \cdot 3) = 3.2\%$ . In this hypothetical example based on reasonable parameters for episode incidence and duration, and an incidence density ratio of 0.80, the estimates of the risk difference and prevalence ratio parameters calculated with period prevalence using the equations above are summarized in the table below.

The magnitude of the  $RD$  changes greatly with recall period because the baseline risk increases greatly with longer recall periods. In contrast, the  $PR$  remains relatively constant over a 14 day recall period, and the  $PR$  is close to the incidence density ratio. This result applies generally for conditions typical of caregiver reported illnesses like diarrhea, cough, and fever. Figure A3 shows that the  $PR$  is approximately constant for a wide range of baseline incidence levels.

Figure A3: Prevalence ratio estimated over difference recall periods using period prevalence with different underlying disease incidence (episodes per year) and a true incidence density ratio of 0.80. Estimates are calculated using approach described above.

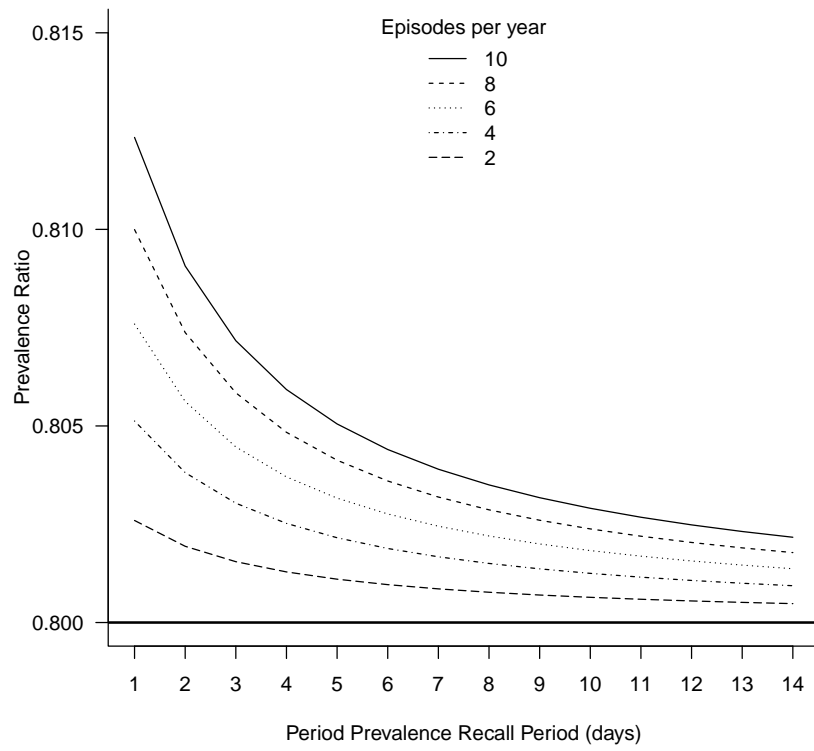


Table A1: Period prevalence, Risk Difference (RD) and Prevalence Ratio (PR) quantities calculated with different recall periods described in Appendix 1.

| Recall Period (days) | Control<br>period prev. | Intervention<br>period prev. | RD     | PR    |
|----------------------|-------------------------|------------------------------|--------|-------|
| 1                    | 0.039                   | 0.032                        | -0.008 | 0.806 |
| 2                    | 0.053                   | 0.043                        | -0.010 | 0.805 |
| 3                    | 0.067                   | 0.054                        | -0.013 | 0.804 |
| 4                    | 0.081                   | 0.065                        | -0.016 | 0.803 |
| 5                    | 0.094                   | 0.076                        | -0.019 | 0.803 |
| 6                    | 0.108                   | 0.087                        | -0.021 | 0.802 |
| 7                    | 0.122                   | 0.098                        | -0.024 | 0.802 |
| 8                    | 0.135                   | 0.109                        | -0.027 | 0.802 |
| 9                    | 0.149                   | 0.120                        | -0.030 | 0.802 |
| 10                   | 0.163                   | 0.130                        | -0.032 | 0.802 |
| 11                   | 0.176                   | 0.141                        | -0.035 | 0.801 |
| 12                   | 0.190                   | 0.152                        | -0.038 | 0.801 |
| 13                   | 0.204                   | 0.163                        | -0.041 | 0.801 |
| 14                   | 0.218                   | 0.174                        | -0.043 | 0.801 |



WEB APPENDIX 4  
EXPECTED BIAS UNDER MISCLASSIFICATION

Reporting errors for caregiver-reported disease can be framed as a problem of outcome misclassification. Here, we summarize the expected bias for estimators of the prevalence ratio and risk difference under differential and non-differential outcome misclassification. We also consider the special case where outcome specificity is perfect (there are no false-positives). The reason this special case is relevant for caregiver-reported illness is that it is typically assumed that caregivers fail to report illness over longer recall periods (i.e., false negatives are the main problem and false positives are uncommon).

**Definitions.** Let:

$D$  be a binary indicator of true disease status, equal to 1 if diseased and 0 otherwise

$D^*$  be a binary indicator of measured disease status equal to 1 if diseased and 0 otherwise

$X$  be a binary indicator of exposure status for  $x \in \{1, 2\}$ .

$p_i$  is the true prevalence in group  $i = P(D = 1|X = i)$

$\hat{p}_i$  is the estimated prevalence in group  $i = P(D^* = 1|X = i)$

$\phi_i$  is the probability of a false positive for group  $i = P(D^* = 1|D = 0, X = i)$

$\psi_i$  is the probability of a false negative for group  $i = P(D^* = 0|D = 1, X = i)$

For the purpose of this article, assume that group status (exposure classification),  $X$ , is measured without error, but that disease status could be measured with error according to the false positive and false negative probabilities defined above. As we show below, if misclassification is differential by group the bias depends on many terms and is, in general, unpredictable [6, 7]. When misclassification is non-differential, estimated parameters may be unbiased or biased toward the null.

**Result 1. Expected bias of the Prevalence Ratio under misclassification.**

The expected value of the prevalence ratio (PR) allowing for nondifferential misclassification error is:

$$\begin{aligned} E(\hat{p}_1/\hat{p}_2) &= \frac{p_1(1 - \psi_1) + (1 - p_1)\phi_1}{p_2(1 - \psi_2) + (1 - p_2)\phi_2} \\ &= \frac{p_1(1 - \psi_1 - \phi_1) + \phi_1}{p_2(1 - \psi_2 - \phi_2) + \phi_2} \end{aligned} \tag{7}$$

Under the assumption that the measurement has perfect specificity and there are no false positives (e.g., that symptoms are only forgotten and under-reported), then  $\phi_1 = \phi_2 = 0$ , and the bias term simplifies to:

$$E(\hat{p}_1/\hat{p}_2) = \frac{p_1(1 - \psi_1)}{p_2(1 - \psi_2)} \quad (8)$$

This means that if symptoms are only forgotten and under-reported, the PR is biased in proportion to the relative sensitivity between the two groups. In this case, the sensitivity is estimated by the relative daily reporting calculated in the main article. As long as reporting error is similar for the two groups the PR will be approximately unbiased.

If misclassification is nondifferential by group, then the bias term cancels from equation (8) and the PR is unbiased.

**Result 2. Expected bias of the Risk Difference under misclassification.**

Analogous with results from the last section, the expected value of the risk difference (RD) allowing for nondifferential misclassification is [6]:

$$\begin{aligned} E(\hat{p}_1 - \hat{p}_2) &= [p_1(1 - \psi_1) + (1 - p_1)\phi_1] - [p_2(1 - \psi_2) + (1 - p_2)\phi_2] \\ &= p_1(1 - \psi_1 - \phi_1) - p_2(1 - \psi_2 - \phi_2) + (\phi_1 - \phi_2) \end{aligned} \quad (9)$$

Under the assumption that the measurement has perfect specificity and there are no false positives (e.g., that symptoms are only forgotten and under-reported, but never over-reported), then  $\phi_1 = \phi_2 = 0$ , and the bias term simplifies to:

$$E(\hat{p}_1 - \hat{p}_2) = p_1(1 - \psi_1) - p_2(1 - \psi_2) \quad (10)$$

In the special case where misclassification is nondifferential ( $\psi_1 = \psi_2 = \psi$  and  $\phi_1 = \phi_2 = \phi$ ), then equation (9) simplifies to:

$$E(\hat{p}_1 - \hat{p}_2) = (p_1 - p_2)(1 - \psi - \phi) \quad (11)$$

Under stronger assumptions that misclassification is nondifferential and there are no false positives ( $\phi = 0$ ) then the expression further simplifies to:

$$E(\hat{p}_1 - \hat{p}_2) = (p_1 - p_2)(1 - \psi) \quad (12)$$

Thus, in the special case of no false positives and nondifferential misclassification, the bias in the RD is directly proportional to the sensitivity of the measurement ( $1 - \psi$ ). Since  $0 \leq \psi \leq 1$ , the bias is toward the null.

## References for Web Appendices 2-4

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## Optimal recall period for caregiver-reported illness in risk factor and intervention studies: a multicountry study

### Web Appendix 5

Sheet 1 Cough: prevalence ratios (PR), risk differences (RD), bias, variance, and MSE estimates (period prevalence + point prevalence) from the five cohorts

Sheet 2 Diarrhea: prevalence ratios (PR), risk differences (RD), bias, variance, and MSE estimates (period prevalence + point prevalence) from the five cohorts

Sheet 3 Fever: prevalence ratios (PR), risk differences (RD), bias, variance, and MSE estimates (period prevalence + point prevalence) from the five cohorts

Sheet 4 Cough: calculated sample sizes for different recall periods

Sheet 5 Diarrhea: calculated sample sizes for different recall periods

Sheet 6 Fever: calculated sample sizes for different recall periods

In all sheets, the first row of the tables is the recall period in days (1-14)

Sheet 1

Cough, Anemic vs. Not Anemic

PR period prevalence (File created by recall-empirical-tables.R / cough\_anemia)

Table with 6 columns: India HP, India MP, Indonesia, Peru, Senegal. Rows 1-14 showing prevalence values for Cough, Anemic vs. Not Anemic.

PR period prevalence SE

Table with 6 columns: India HP, India MP, Indonesia, Peru, Senegal. Rows 1-14 showing standard error values for Cough, Anemic vs. Not Anemic.

PR period prevalence BIAS

Table with 6 columns: India HP, India MP, Indonesia, Peru, Senegal. Rows 1-14 showing bias values for Cough, Anemic vs. Not Anemic.

PR period prevalence % BIAS

Table with 6 columns: India HP, India MP, Indonesia, Peru, Senegal. Rows 1-5 showing percentage bias values for Cough, Anemic vs. Not Anemic.

Cough, Stunted vs. Not Stunted

PR period prevalence (File created by recall-empirical-tables.R / cough\_haz)

Table with 6 columns: India HP, India MP, Indonesia, Peru, Senegal. Rows 1-14 showing prevalence values for Cough, Stunted vs. Not Stunted.

PR period prevalence SE

Table with 6 columns: India HP, India MP, Indonesia, Peru, Senegal. Rows 1-14 showing standard error values for Cough, Stunted vs. Not Stunted.

PR period prevalence BIAS

Table with 6 columns: India HP, India MP, Indonesia, Peru, Senegal. Rows 1-14 showing bias values for Cough, Stunted vs. Not Stunted.

PR period prevalence % BIAS

Table with 6 columns: India HP, India MP, Indonesia, Peru, Senegal. Rows 1-5 showing percentage bias values for Cough, Stunted vs. Not Stunted.

Cough, Underweight vs. Not Underweight

PR period prevalence (File created by recall-empirical-tables.R / cough\_waz)

Table with 6 columns: India HP, India MP, Indonesia, Peru, Senegal. Rows 1-14 showing prevalence values for Cough, Underweight vs. Not Underweight.

PR period prevalence SE

Table with 6 columns: India HP, India MP, Indonesia, Peru, Senegal. Rows 1-14 showing standard error values for Cough, Underweight vs. Not Underweight.

PR period prevalence BIAS

Table with 6 columns: India HP, India MP, Indonesia, Peru, Senegal. Rows 1-14 showing bias values for Cough, Underweight vs. Not Underweight.

PR period prevalence % BIAS

Table with 6 columns: India HP, India MP, Indonesia, Peru, Senegal. Rows 1-5 showing percentage bias values for Cough, Underweight vs. Not Underweight.













|    |         |         |         |         |        |
|----|---------|---------|---------|---------|--------|
| 13 | 30.617  | 61.5707 | 63.2414 | 35.5766 | 3.6578 |
| 14 | 34.2323 | 64.9781 | 66.8312 | 38.7611 | 1.5075 |

RD daily prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.02     | 0.017    | 0.0213    | 0.0186 | 0.0241  |
| 2  | 0.0192   | 0.0161   | 0.0213    | 0.0179 | 0.023   |
| 3  | 0.0177   | 0.0152   | 0.0207    | 0.0175 | 0.0236  |
| 4  | 0.016    | 0.0152   | 0.0213    | 0.017  | 0.0226  |
| 5  | 0.0146   | 0.0153   | 0.0218    | 0.0165 | 0.021   |
| 6  | 0.0135   | 0.0152   | 0.0228    | 0.0169 | 0.0207  |
| 7  | 0.0132   | 0.0151   | 0.0227    | 0.0169 | 0.0206  |
| 8  | 0.0139   | 0.0158   | 0.0233    | 0.0163 | 0.0194  |
| 9  | 0.0152   | 0.0166   | 0.0236    | 0.0165 | 0.0182  |
| 10 | 0.0172   | 0.0175   | 0.0245    | 0.0165 | 0.0175  |
| 11 | 0.0197   | 0.0177   | 0.0261    | 0.0171 | 0.0167  |
| 12 | 0.022    | 0.0184   | 0.0272    | 0.0183 | 0.0158  |
| 13 | 0.0245   | 0.0192   | 0.0285    | 0.0192 | 0.015   |
| 14 | 0.0268   | 0.0199   | 0.0298    | 0.0202 | 0.0143  |

RD daily prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.0778   | 1.1145   | 0.9973    | 1.0808 | 1.0974  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.8437   | 0.8833   | 0.9466    | 0.9574 | 1.0554  |
| 4  | 0.6951   | 0.8868   | 1.001     | 0.9022 | 0.9683  |
| 5  | 0.5754   | 0.9021   | 1.0494    | 0.8466 | 0.8376  |
| 6  | 0.4934   | 0.89     | 1.1443    | 0.891  | 0.8081  |
| 7  | 0.4743   | 0.8735   | 1.137     | 0.8872 | 0.8068  |
| 8  | 0.5245   | 0.9594   | 1.1897    | 0.8321 | 0.7093  |
| 9  | 0.6246   | 1.0552   | 1.2233    | 0.8501 | 0.6282  |
| 10 | 0.7996   | 1.1786   | 1.324     | 0.8498 | 0.5778  |
| 11 | 1.0501   | 1.2077   | 1.4988    | 0.9181 | 0.5291  |
| 12 | 1.3079   | 1.3007   | 1.6288    | 1.0407 | 0.4712  |
| 13 | 1.626    | 1.4133   | 1.7915    | 1.145  | 0.4235  |
| 14 | 1.9467   | 1.5206   | 1.9485    | 1.2733 | 0.3868  |

|    |         |         |         |        |         |
|----|---------|---------|---------|--------|---------|
| 13 | 56.2002 | 29.4962 | 37.7216 | 44.973 | 45.3235 |
| 14 | 58.6415 | 35.0643 | 41.8662 | 47.479 | 47.9893 |

RD daily prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0212   | 0.0137   | 0.0209    | 0.0147 | 0.0217  |
| 2  | 0.0195   | 0.0135   | 0.02      | 0.0143 | 0.0208  |
| 3  | 0.018    | 0.0129   | 0.0187    | 0.0141 | 0.0203  |
| 4  | 0.0178   | 0.0124   | 0.0176    | 0.0141 | 0.0204  |
| 5  | 0.0193   | 0.0116   | 0.0167    | 0.014  | 0.0198  |
| 6  | 0.0228   | 0.0108   | 0.0162    | 0.0133 | 0.0197  |
| 7  | 0.0269   | 0.0101   | 0.0157    | 0.0129 | 0.0198  |
| 8  | 0.0319   | 0.0094   | 0.0145    | 0.0136 | 0.0193  |
| 9  | 0.0359   | 0.0088   | 0.014     | 0.0146 | 0.019   |
| 10 | 0.0404   | 0.0086   | 0.0143    | 0.0154 | 0.019   |
| 11 | 0.043    | 0.0084   | 0.0148    | 0.0171 | 0.0184  |
| 12 | 0.0447   | 0.0083   | 0.0155    | 0.0186 | 0.018   |
| 13 | 0.0467   | 0.0084   | 0.0161    | 0.0195 | 0.0178  |
| 14 | 0.0486   | 0.0087   | 0.0168    | 0.0203 | 0.0179  |

RD daily prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.1765   | 1.0266   | 1.0925    | 1.0497 | 1.0856  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.8546   | 0.9155   | 0.8751    | 0.9733 | 0.954   |
| 4  | 0.8289   | 0.842    | 0.7743    | 0.9705 | 0.9604  |
| 5  | 0.9741   | 0.7391   | 0.6968    | 0.9551 | 0.9034  |
| 6  | 1.3634   | 0.6327   | 0.658     | 0.8601 | 0.8993  |
| 7  | 1.9      | 0.5571   | 0.6193    | 0.813  | 0.9049  |
| 8  | 2.6727   | 0.4867   | 0.5302    | 0.8955 | 0.862   |
| 9  | 3.3803   | 0.426    | 0.4929    | 1.0413 | 0.8352  |
| 10 | 4.2857   | 0.4068   | 0.5111    | 1.1614 | 0.8327  |
| 11 | 4.8523   | 0.3842   | 0.5524    | 1.4246 | 0.7846  |
| 12 | 5.2522   | 0.3749   | 0.6053    | 1.6759 | 0.746   |
| 13 | 5.7158   | 0.3878   | 0.6508    | 1.8504 | 0.7342  |
| 14 | 6.1926   | 0.4133   | 0.711     | 2.0006 | 0.7355  |

|    |         |         |         |         |         |
|----|---------|---------|---------|---------|---------|
| 13 | 59.7994 | 39.2604 | 38.1418 | 41.8469 | 25.253  |
| 14 | 62.3606 | 41.7683 | 38.9191 | 45.6647 | 26.4974 |

RD daily prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0263   | 0.0135   | 0.027     | 0.0217 | 0.0231  |
| 2  | 0.025    | 0.0122   | 0.024     | 0.0214 | 0.0222  |
| 3  | 0.0235   | 0.0117   | 0.0231    | 0.0213 | 0.0218  |
| 4  | 0.0219   | 0.0113   | 0.0223    | 0.0207 | 0.0214  |
| 5  | 0.0224   | 0.0122   | 0.0217    | 0.0212 | 0.0208  |
| 6  | 0.026    | 0.0131   | 0.0211    | 0.0216 | 0.02    |
| 7  | 0.0304   | 0.013    | 0.0203    | 0.0214 | 0.0195  |
| 8  | 0.037    | 0.0134   | 0.0194    | 0.0223 | 0.0187  |
| 9  | 0.0431   | 0.0139   | 0.0189    | 0.022  | 0.0183  |
| 10 | 0.0497   | 0.0148   | 0.0185    | 0.0217 | 0.0179  |
| 11 | 0.0536   | 0.0159   | 0.0181    | 0.0228 | 0.0174  |
| 12 | 0.0563   | 0.0168   | 0.0178    | 0.0237 | 0.0172  |
| 13 | 0.0591   | 0.0179   | 0.0177    | 0.0251 | 0.0171  |
| 14 | 0.0615   | 0.0188   | 0.0175    | 0.0266 | 0.017   |

RD daily prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.1027   | 1.2288   | 1.2692    | 1.023  | 1.0828  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.8777   | 0.9229   | 0.9279    | 0.9856 | 0.9685  |
| 4  | 0.7622   | 0.8597   | 0.865     | 0.9316 | 0.933   |
| 5  | 0.7984   | 1        | 0.821     | 0.9771 | 0.8834  |
| 6  | 1.0791   | 1.1482   | 0.7722    | 1.016  | 0.8177  |
| 7  | 1.4771   | 1.1433   | 0.7158    | 1.0004 | 0.7729  |
| 8  | 2.1861   | 1.2085   | 0.6534    | 1.0797 | 0.7085  |
| 9  | 2.961    | 1.3023   | 0.6236    | 1.0553 | 0.6837  |
| 10 | 3.9348   | 1.4813   | 0.5953    | 1.0252 | 0.65    |
| 11 | 4.5778   | 1.689    | 0.5709    | 1.1316 | 0.617   |
| 12 | 5.0543   | 1.8949   | 0.5532    | 1.2216 | 0.6054  |
| 13 | 5.5741   | 2.1528   | 0.5439    | 1.3702 | 0.5966  |
| 14 | 6.0273   | 2.3803   | 0.5329    | 1.5446 | 0.5865  |













|    |        |         |        |        |        |
|----|--------|---------|--------|--------|--------|
| 9  | 4.8703 | 21.2122 | 1.8517 | 1.8124 | 1.3452 |
| 10 | 5.6933 | 21.8918 | 1.789  | 1.7394 | 1.4578 |
| 11 | 5.6933 | 22.8326 | 1.7634 | 1.7394 | 1.401  |
| 12 | 5.6933 | 26.5128 | 1.8284 | 1.8209 | 1.3638 |
| 13 | 4.8527 | 33.337  | 1.8472 | 1.762  | 1.3499 |
| 14 | 4.8527 | 33.337  | 1.9183 | 1.7596 | 1.3309 |

RD daily prevalence

|    | India HP | India MP | Indonesia | Peru    | Senegal |
|----|----------|----------|-----------|---------|---------|
| 1  | 0.0138   | 0.0371   | 0.0069    | -0.0041 | 0.0202  |
| 2  | 0.0125   | 0.0313   | 0.0121    | 0.0048  | 0.0214  |
| 3  | 0.0119   | 0.0311   | 0.0075    | 0.0065  | 0.0117  |
| 4  | 0.0093   | 0.0336   | 0.0056    | 0.0062  | 0.0106  |
| 5  | 0.0098   | 0.0343   | 0.0049    | 0.0048  | 0.0065  |
| 6  | 0.0093   | 0.0354   | 0.0054    | 0.0039  | 0.0031  |
| 7  | 0.0073   | 0.0358   | 0.0064    | 0.0028  | 0.0011  |
| 8  | 0.0059   | 0.0339   | 0.0058    | 0.0022  | -0.0006 |
| 9  | 0.0051   | 0.0317   | 0.0054    | 0.0015  | -0.0019 |
| 10 | 0.0047   | 0.03     | 0.005     | 0.0007  | -0.0035 |
| 11 | 0.0043   | 0.0285   | 0.005     | -0.0002 | -0.0043 |
| 12 | 0.004    | 0.0275   | 0.0051    | -0.0008 | -0.0044 |
| 13 | 0.0034   | 0.0275   | 0.0051    | -0.0017 | -0.0048 |
| 14 | 0.0028   | 0.0275   | 0.0053    | -0.0023 | -0.0045 |

RD daily prevalence SE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0082   | 0.0127   | 0.0105    | 0.0116 | 0.0202  |
| 2  | 0.0083   | 0.0127   | 0.009     | 0.0112 | 0.0197  |
| 3  | 0.0076   | 0.0131   | 0.0081    | 0.0107 | 0.02    |
| 4  | 0.0068   | 0.0124   | 0.0075    | 0.01   | 0.0189  |
| 5  | 0.0069   | 0.0115   | 0.0071    | 0.0092 | 0.0186  |
| 6  | 0.0067   | 0.0111   | 0.0068    | 0.0087 | 0.0177  |
| 7  | 0.0062   | 0.0109   | 0.0065    | 0.0083 | 0.0172  |
| 8  | 0.0058   | 0.0105   | 0.0059    | 0.0076 | 0.0168  |
| 9  | 0.0056   | 0.01     | 0.0054    | 0.007  | 0.0164  |
| 10 | 0.0056   | 0.0094   | 0.0049    | 0.0065 | 0.016   |
| 11 | 0.0053   | 0.0091   | 0.0046    | 0.0061 | 0.0155  |
| 12 | 0.0051   | 0.0087   | 0.0043    | 0.0058 | 0.0149  |
| 13 | 0.0048   | 0.0085   | 0.004     | 0.0055 | 0.0144  |
| 14 | 0.0045   | 0.0083   | 0.0038    | 0.0053 | 0.0139  |

RD daily prevalence BIAS

|    | India HP | India MP | Indonesia | Peru    | Senegal |
|----|----------|----------|-----------|---------|---------|
| 1  | 0.0013   | 0.0058   | -0.0052   | -0.0089 | -0.0011 |
| 2  | 0        | 0        | 0         | 0       | 0       |
| 3  | -0.0006  | -0.0002  | -0.0047   | 0.0017  | -0.0096 |
| 4  | -0.0032  | 0.0023   | -0.0065   | 0.0014  | -0.0108 |
| 5  | -0.0028  | 0.003    | -0.0072   | 0.0001  | -0.0149 |
| 6  | -0.0032  | 0.0041   | -0.0067   | -0.0009 | -0.0182 |
| 7  | -0.0052  | 0.0045   | -0.0057   | -0.002  | -0.0202 |
| 8  | -0.0066  | 0.0026   | -0.0063   | -0.0025 | -0.0219 |
| 9  | -0.0074  | 0.0004   | -0.0067   | -0.0032 | -0.0233 |
| 10 | -0.0078  | -0.0012  | -0.0071   | -0.004  | -0.0249 |
| 11 | -0.0082  | -0.0027  | -0.0071   | -0.005  | -0.0257 |
| 12 | -0.0085  | -0.0037  | -0.007    | -0.0056 | -0.0258 |
| 13 | -0.0092  | -0.0038  | -0.0071   | -0.0065 | -0.0261 |
| 14 | -0.0097  | -0.0037  | -0.0068   | -0.0071 | -0.0259 |

RD daily prevalence % BIAS

|   | India HP | India MP | Indonesia | Peru     | Senegal |
|---|----------|----------|-----------|----------|---------|
| 1 | 10.0572  | 18.6647  | 42.8571   | 185.9218 | 5.2782  |

|    |        |        |        |         |        |
|----|--------|--------|--------|---------|--------|
| 9  | 1.8685 | 2.3837 | 5.6106 | 12.3758 | 4.1803 |
| 10 | 2.4751 | 2.4361 | 5.3842 | 11.7813 | 3.8917 |
| 11 | 2.4751 | 3.1602 | 4.6128 | 10.7752 | 3.6251 |
| 12 | 2.4751 | 4.2096 | 4.1152 | 11.0858 | 3.9223 |
| 13 | 2.1201 | 6.4506 | 3.9164 | 11.8675 | 3.722  |
| 14 | 2.1201 | 6.4506 | 5.4939 | 11.5791 | 3.5779 |

RD daily prevalence

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0025   | 0.0161   | -0.0019   | 0.0144 | -0.0111 |
| 2  | 0.0017   | 0.0132   | -0.0038   | 0.012  | -0.0104 |
| 3  | 0.0019   | 0.0161   | -0.0006   | 0.0115 | -0.0073 |
| 4  | 0.0042   | 0.0177   | 0.0025    | 0.0122 | -0.001  |
| 5  | 0.0047   | 0.0167   | 0.0044    | 0.0136 | 0.0033  |
| 6  | 0.0031   | 0.0155   | 0.0059    | 0.0151 | 0.0049  |
| 7  | 0.0017   | 0.0153   | 0.0082    | 0.0166 | 0.0064  |
| 8  | 0.0011   | 0.0152   | 0.0076    | 0.0166 | 0.0083  |
| 9  | 0.0007   | 0.0149   | 0.007     | 0.017  | 0.0094  |
| 10 | 0.0006   | 0.014    | 0.0064    | 0.0168 | 0.0086  |
| 11 | 0.0004   | 0.0139   | 0.006     | 0.0162 | 0.0074  |
| 12 | 0.0003   | 0.0142   | 0.0055    | 0.0156 | 0.0068  |
| 13 | -0.0002  | 0.0146   | 0.0049    | 0.0151 | 0.006   |
| 14 | -0.0006  | 0.0148   | 0.0048    | 0.0146 | 0.0054  |

RD daily prevalence SE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0081   | 0.0126   | 0.0105    | 0.0095 | 0.0166  |
| 2  | 0.0081   | 0.0123   | 0.0099    | 0.0089 | 0.0166  |
| 3  | 0.0078   | 0.0124   | 0.0087    | 0.0089 | 0.0166  |
| 4  | 0.0074   | 0.012    | 0.0082    | 0.0086 | 0.0162  |
| 5  | 0.0067   | 0.0119   | 0.0078    | 0.0083 | 0.0154  |
| 6  | 0.0057   | 0.0114   | 0.0075    | 0.0079 | 0.0143  |
| 7  | 0.005    | 0.011    | 0.0075    | 0.0076 | 0.0137  |
| 8  | 0.0045   | 0.0106   | 0.0068    | 0.007  | 0.0132  |
| 9  | 0.0041   | 0.0099   | 0.0063    | 0.0065 | 0.0129  |
| 10 | 0.0039   | 0.0094   | 0.0059    | 0.0061 | 0.0123  |
| 11 | 0.0036   | 0.0089   | 0.0054    | 0.0058 | 0.0117  |
| 12 | 0.0034   | 0.0085   | 0.0051    | 0.0055 | 0.0112  |
| 13 | 0.0032   | 0.0081   | 0.0048    | 0.0053 | 0.0108  |
| 14 | 0.0031   | 0.0077   | 0.0046    | 0.0051 | 0.0105  |

RD daily prevalence BIAS

|    | India HP | India MP | Indonesia | Peru    | Senegal |
|----|----------|----------|-----------|---------|---------|
| 1  | 0.0008   | 0.003    | 0.0019    | 0.0024  | -0.0007 |
| 2  | 0        | 0        | 0         | 0       | 0       |
| 3  | 0.0002   | 0.0029   | 0.0032    | -0.0005 | 0.0032  |
| 4  | 0.0025   | 0.0045   | 0.0064    | 0.0001  | 0.0095  |
| 5  | 0.003    | 0.0036   | 0.0083    | 0.0016  | 0.0138  |
| 6  | 0.0014   | 0.0023   | 0.0098    | 0.0031  | 0.0153  |
| 7  | 0.0001   | 0.0022   | 0.012     | 0.0046  | 0.0168  |
| 8  | -0.0006  | 0.002    | 0.0115    | 0.0046  | 0.0187  |
| 9  | -0.001   | 0.0017   | 0.0109    | 0.005   | 0.0199  |
| 10 | -0.0011  | 0.0008   | 0.0103    | 0.0047  | 0.019   |
| 11 | -0.0012  | 0.0008   | 0.0098    | 0.0042  | 0.0178  |
| 12 | -0.0013  | 0.0011   | 0.0093    | 0.0036  | 0.0172  |
| 13 | -0.0018  | 0.0014   | 0.0088    | 0.0031  | 0.0165  |
| 14 | -0.0023  | 0.0016   | 0.0087    | 0.0026  | 0.0159  |

RD daily prevalence % BIAS

|   | India HP | India MP | Indonesia | Peru    | Senegal |
|---|----------|----------|-----------|---------|---------|
| 1 | 48.0478  | 22.4832  | 50.432    | 19.7016 | 6.5332  |

|    |        |        |        |        |        |
|----|--------|--------|--------|--------|--------|
| 9  | 4.6722 | 5.8244 | 4.6572 | 4.7306 | 5.1928 |
| 10 | 3.9609 | 5.9826 | 3.97   | 4.7735 | 4.8866 |
| 11 | 3.9609 | 7.0205 | 3.5788 | 4.5241 | 5.3736 |
| 12 | 3.9609 | 7.6845 | 3.3114 | 5.3103 | 5.8528 |
| 13 | 3.6083 | 7.0771 | 3.2105 | 4.9555 | 5.5967 |
| 14 | 3.6083 | 7.0771 | 3.7556 | 4.6594 | 5.4227 |

RD daily prevalence

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.028    | 0.0193   | 0.0071    | 0.0681 | 0.0149  |
| 2  | 0.0274   | 0.018    | 0.0093    | 0.0637 | 0.0142  |
| 3  | 0.025    | 0.0196   | 0.0101    | 0.06   | 0.0191  |
| 4  | 0.0232   | 0.02     | 0.0084    | 0.0499 | 0.0275  |
| 5  | 0.0216   | 0.0186   | 0.0087    | 0.0465 | 0.0306  |
| 6  | 0.0189   | 0.0182   | 0.0084    | 0.0463 | 0.0299  |
| 7  | 0.0172   | 0.0189   | 0.0092    | 0.0448 | 0.0304  |
| 8  | 0.0161   | 0.0204   | 0.0094    | 0.0395 | 0.0301  |
| 9  | 0.0139   | 0.0203   | 0.0102    | 0.035  | 0.0287  |
| 10 | 0.0115   | 0.0196   | 0.0103    | 0.0313 | 0.0265  |
| 11 | 0.01     | 0.0191   | 0.0098    | 0.0279 | 0.0254  |
| 12 | 0.0086   | 0.0187   | 0.0088    | 0.0256 | 0.025   |
| 13 | 0.0075   | 0.0179   | 0.0077    | 0.0237 | 0.0236  |
| 14 | 0.0066   | 0.0172   | 0.007     | 0.0217 | 0.0223  |

RD daily prevalence SE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0106   | 0.0123   | 0.0131    | 0.0203 | 0.0219  |
| 2  | 0.0103   | 0.0118   | 0.0128    | 0.0201 | 0.0208  |
| 3  | 0.0096   | 0.0112   | 0.0118    | 0.019  | 0.0213  |
| 4  | 0.0092   | 0.0106   | 0.0109    | 0.0172 | 0.0206  |
| 5  | 0.0089   | 0.0101   | 0.0101    | 0.0158 | 0.0198  |
| 6  | 0.0081   | 0.0097   | 0.0095    | 0.0146 | 0.0186  |
| 7  | 0.0077   | 0.0094   | 0.0092    | 0.0136 | 0.0173  |
| 8  | 0.0075   | 0.0091   | 0.0084    | 0.0124 | 0.0162  |
| 9  | 0.0068   | 0.0086   | 0.008     | 0.0114 | 0.0155  |
| 10 | 0.0062   | 0.0081   | 0.0077    | 0.0106 | 0.0147  |
| 11 | 0.0056   | 0.0076   | 0.0073    | 0.0099 | 0.0141  |
| 12 | 0.0051   | 0.0072   | 0.0068    | 0.0092 | 0.0136  |
| 13 | 0.0047   | 0.0068   | 0.0063    | 0.0086 | 0.013   |
| 14 | 0.0044   | 0.0065   | 0.006     | 0.0082 | 0.0126  |

RD daily prevalence BIAS

|    | India HP | India MP | Indonesia | Peru    | Senegal |
|----|----------|----------|-----------|---------|---------|
| 1  | 0.0005   | 0.0013   | -0.0022   | 0.0043  | 0.0007  |
| 2  | 0        | 0        | 0         | 0       | 0       |
| 3  | -0.0024  | 0.0017   | 0.0007    | -0.0037 | 0.0049  |
| 4  | -0.0042  | 0.002    | -0.001    | -0.0138 | 0.0133  |
| 5  | -0.0058  | 0.0007   | -0.0006   | -0.0172 | 0.0164  |
| 6  | -0.0085  | 0.0003   | -0.0009   | -0.0174 | 0.0157  |
| 7  | -0.0102  | 0.001    | -0.0001   | -0.0189 | 0.0162  |
| 8  | -0.0114  | 0.0025   | 0.0001    | -0.0243 | 0.0159  |
| 9  | -0.0135  | 0.0023   | 0.0008    | -0.0287 | 0.0145  |
| 10 | -0.0159  | 0.0016   | 0.001     | -0.0325 | 0.0123  |
| 11 | -0.0175  | 0.0012   | 0.0004    | -0.0358 | 0.0112  |
| 12 | -0.0188  | 0.0007   | -0.0006   | -0.0382 | 0.0108  |
| 13 | -0.0199  | 0        | -0.0016   | -0.04   | 0.0094  |
| 14 | -0.0208  | -0.0008  | -0.0023   | -0.042  | 0.0082  |

RD daily prevalence % BIAS

|   | India HP | India MP | Indonesia | Peru  | Senegal |
|---|----------|----------|-----------|-------|---------|
| 1 | 2.0042   | 7.3885   | 23.6702   | 6.788 | 5.277   |

|    |         |         |         |          |          |
|----|---------|---------|---------|----------|----------|
| 2  | 0       | 0       | 0       | 0        | 0        |
| 3  | 4.9798  | 0.6103  | 38.4615 | 35.7697  | 45.1187  |
| 4  | 25.7009 | 7.5013  | 53.5714 | 29.0642  | 50.4828  |
| 5  | 22.07   | 9.6001  | 59.8535 | 1.257    | 69.7443  |
| 6  | 25.4429 | 13.1946 | 55.6166 | 19.2163  | 85.3469  |
| 7  | 41.3546 | 14.4289 | 46.7818 | 41.7744  | 94.7109  |
| 8  | 52.734  | 8.4118  | 52.2436 | 52.9807  | 102.5952 |
| 9  | 58.9715 | 1.3015  | 55.3114 | 67.605   | 108.7762 |
| 10 | 62.5415 | 3.9045  | 58.8278 | 84.6071  | 116.302  |
| 11 | 65.6374 | 8.7564  | 58.8079 | 103.809  | 120.1929 |
| 12 | 68.2173 | 11.9514 | 57.906  | 117.6536 | 120.7835 |
| 13 | 73.188  | 11.9999 | 58.2699 | 135.0286 | 122.2759 |
| 14 | 77.4485 | 11.9585 | 56.2533 | 148.6326 | 121.282  |

RD daily prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0083   | 0.014    | 0.0117    | 0.0146 | 0.0202  |
| 2  | 0.0083   | 0.0127   | 0.009     | 0.0112 | 0.0197  |
| 3  | 0.0076   | 0.0131   | 0.0094    | 0.0108 | 0.0222  |
| 4  | 0.0076   | 0.0126   | 0.0099    | 0.0101 | 0.0218  |
| 5  | 0.0074   | 0.0119   | 0.0102    | 0.0092 | 0.0238  |
| 6  | 0.0075   | 0.0119   | 0.0096    | 0.0087 | 0.0254  |
| 7  | 0.0081   | 0.0118   | 0.0086    | 0.0085 | 0.0266  |
| 8  | 0.0088   | 0.0108   | 0.0087    | 0.0081 | 0.0276  |
| 9  | 0.0093   | 0.01     | 0.0086    | 0.0077 | 0.0285  |
| 10 | 0.0096   | 0.0095   | 0.0087    | 0.0077 | 0.0296  |
| 11 | 0.0098   | 0.0095   | 0.0085    | 0.0078 | 0.03    |
| 12 | 0.01     | 0.0095   | 0.0082    | 0.0081 | 0.0298  |
| 13 | 0.0103   | 0.0093   | 0.0081    | 0.0085 | 0.0298  |
| 14 | 0.0107   | 0.0091   | 0.0078    | 0.0088 | 0.0294  |

RD daily prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.9962   | 1.2077   | 1.6841    | 1.7018 | 1.0576  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.8266   | 1.0575   | 1.0835    | 0.9272 | 1.2709  |
| 4  | 0.8231   | 0.9767   | 1.2183    | 0.8075 | 1.2256  |
| 5  | 0.7947   | 0.8793   | 1.274     | 0.6667 | 1.4613  |
| 6  | 0.8002   | 0.8712   | 1.1243    | 0.6022 | 1.6679  |
| 7  | 0.9437   | 0.8641   | 0.9139    | 0.5798 | 1.8192  |
| 8  | 1.1132   | 0.7225   | 0.9232    | 0.5151 | 1.969   |
| 9  | 1.2384   | 0.6128   | 0.9062    | 0.4747 | 2.0911  |
| 10 | 1.3292   | 0.5606   | 0.9226    | 0.465  | 2.2554  |
| 11 | 1.3789   | 0.5534   | 0.8827    | 0.4893 | 2.3192  |
| 12 | 1.4287   | 0.5579   | 0.8299    | 0.5154 | 2.2895  |
| 13 | 1.5369   | 0.5328   | 0.8111    | 0.5714 | 2.2977  |
| 14 | 1.6426   | 0.513    | 0.7477    | 0.6199 | 2.2345  |

|    |          |         |          |         |          |
|----|----------|---------|----------|---------|----------|
| 2  | 0        | 0       | 0        | 0       | 0        |
| 3  | 11.3413  | 22.2189 | 83.6933  | 4.122   | 30.3815  |
| 4  | 152.1315 | 34.4839 | 165.4158 | 1.1069  | 90.7163  |
| 5  | 181.9602 | 27.0127 | 215.0324 | 13.1624 | 132.0652 |
| 6  | 84.5817  | 17.806  | 253.3297 | 25.7688 | 146.6956 |
| 7  | 4.3028   | 16.5531 | 312.1567 | 37.981  | 161.5396 |
| 8  | 33.6355  | 15.5666 | 298.3801 | 38.1326 | 179.6522 |
| 9  | 57.8043  | 12.838  | 282.7694 | 41.2867 | 190.5425 |
| 10 | 65.5299  | 6.2378  | 267.149  | 39.2121 | 182.0291 |
| 11 | 73.669   | 5.868   | 254.8989 | 34.4733 | 170.6837 |
| 12 | 80.4515  | 8.1046  | 242.3236 | 29.7863 | 164.9362 |
| 13 | 110.3647 | 10.7658 | 228.2937 | 25.6793 | 157.8086 |
| 14 | 136.0046 | 12.0729 | 224.7994 | 21.6734 | 152.0576 |

RD daily prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0082   | 0.013    | 0.0107    | 0.0098 | 0.0167  |
| 2  | 0.0081   | 0.0123   | 0.0099    | 0.0089 | 0.0166  |
| 3  | 0.0078   | 0.0127   | 0.0093    | 0.0089 | 0.0169  |
| 4  | 0.0078   | 0.0128   | 0.0104    | 0.0086 | 0.0187  |
| 5  | 0.0074   | 0.0124   | 0.0113    | 0.0085 | 0.0207  |
| 6  | 0.0059   | 0.0116   | 0.0123    | 0.0085 | 0.021   |
| 7  | 0.005    | 0.0113   | 0.0142    | 0.0089 | 0.0217  |
| 8  | 0.0046   | 0.0108   | 0.0133    | 0.0084 | 0.0229  |
| 9  | 0.0043   | 0.0101   | 0.0126    | 0.0082 | 0.0237  |
| 10 | 0.004    | 0.0095   | 0.0118    | 0.0077 | 0.0226  |
| 11 | 0.0038   | 0.0089   | 0.0112    | 0.0071 | 0.0213  |
| 12 | 0.0037   | 0.0085   | 0.0106    | 0.0066 | 0.0205  |
| 13 | 0.0037   | 0.0082   | 0.01      | 0.0061 | 0.0197  |
| 14 | 0.0038   | 0.0079   | 0.0098    | 0.0057 | 0.019   |

RD daily prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.0103   | 1.11     | 1.1771    | 1.2248 | 1.0026  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.9079   | 1.0691   | 0.888     | 1.0103 | 1.0337  |
| 4  | 0.9254   | 1.0795   | 1.1047    | 0.9394 | 1.2681  |
| 5  | 0.8219   | 1.0096   | 1.3161    | 0.91   | 1.5434  |
| 6  | 0.5177   | 0.8885   | 1.553     | 0.924  | 1.5874  |
| 7  | 0.384    | 0.8342   | 2.0543    | 1.0063 | 1.7045  |
| 8  | 0.3165   | 0.7659   | 1.8214    | 0.8994 | 1.8932  |
| 9  | 0.2742   | 0.668    | 1.6162    | 0.8549 | 2.0247  |
| 10 | 0.2469   | 0.5893   | 1.4343    | 0.7571 | 1.8497  |
| 11 | 0.2237   | 0.5254   | 1.2868    | 0.6406 | 1.6409  |
| 12 | 0.2064   | 0.4793   | 1.1546    | 0.5473 | 1.5258  |
| 13 | 0.2103   | 0.4417   | 1.0255    | 0.4749 | 1.4008  |
| 14 | 0.2211   | 0.4084   | 0.9818    | 0.4119 | 1.3031  |

|    |         |         |         |         |          |
|----|---------|---------|---------|---------|----------|
| 2  | 0       | 0       | 0       | 0       | 0        |
| 3  | 8.8053  | 9.3003  | 7.8901  | 5.8611  | 34.3887  |
| 4  | 15.2994 | 11.2944 | 10.5373 | 21.6945 | 93.5356  |
| 5  | 21.1353 | 3.8533  | 6.7635  | 26.9708 | 115.6025 |
| 6  | 31.0449 | 1.4025  | 9.7023  | 27.3773 | 110.6714 |
| 7  | 37.1201 | 5.3425  | 1.1567  | 29.6676 | 114.3611 |
| 8  | 41.468  | 13.831  | 1.0708  | 38.0775 | 111.8953 |
| 9  | 49.1597 | 12.8505 | 9.0698  | 45.0634 | 102.1206 |
| 10 | 57.9547 | 9.0261  | 10.4209 | 50.9254 | 86.5084  |
| 11 | 63.6918 | 6.5067  | 4.7523  | 56.2228 | 79.3076  |
| 12 | 68.4728 | 4.1278  | 5.9193  | 59.8635 | 76.4732  |
| 13 | 72.5182 | 0.0838  | 17.4667 | 62.8354 | 66.139   |
| 14 | 75.9857 | 4.1929  | 25.0267 | 65.9146 | 57.5386  |

RD daily prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0106   | 0.0123   | 0.0133    | 0.0208 | 0.0219  |
| 2  | 0.0103   | 0.0118   | 0.0128    | 0.0201 | 0.0208  |
| 3  | 0.0099   | 0.0113   | 0.0118    | 0.0194 | 0.0218  |
| 4  | 0.0101   | 0.0108   | 0.0109    | 0.0221 | 0.0245  |
| 5  | 0.0106   | 0.0101   | 0.0101    | 0.0233 | 0.0257  |
| 6  | 0.0117   | 0.0097   | 0.0095    | 0.0227 | 0.0243  |
| 7  | 0.0128   | 0.0095   | 0.0092    | 0.0233 | 0.0237  |
| 8  | 0.0136   | 0.0094   | 0.0084    | 0.0273 | 0.0226  |
| 9  | 0.0151   | 0.0089   | 0.008     | 0.0309 | 0.0212  |
| 10 | 0.0171   | 0.0083   | 0.0077    | 0.0342 | 0.0192  |
| 11 | 0.0183   | 0.0077   | 0.0073    | 0.0372 | 0.018   |
| 12 | 0.0194   | 0.0072   | 0.0068    | 0.0392 | 0.0174  |
| 13 | 0.0204   | 0.0068   | 0.0066    | 0.041  | 0.016   |
| 14 | 0.0213   | 0.0065   | 0.0064    | 0.0428 | 0.015   |

RD daily prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.056    | 1.0917   | 1.0783    | 1.0745 | 1.1012  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.9206   | 0.9147   | 0.8543    | 0.9349 | 1.0971  |
| 4  | 0.9616   | 0.8293   | 0.7317    | 1.2089 | 1.3865  |
| 5  | 1.0676   | 0.7312   | 0.6286    | 1.3526 | 1.518   |
| 6  | 1.2973   | 0.6751   | 0.5504    | 1.2832 | 1.3647  |
| 7  | 1.5431   | 0.6423   | 0.5211    | 1.3505 | 1.2918  |
| 8  | 1.7474   | 0.6386   | 0.435     | 1.8469 | 1.1815  |
| 9  | 2.1469   | 0.5677   | 0.3939    | 2.3753 | 1.0342  |
| 10 | 2.7412   | 0.4908   | 0.3634    | 2.8989 | 0.847   |
| 11 | 3.169    | 0.4197   | 0.3226    | 3.4326 | 0.749   |
| 12 | 3.5663   | 0.3746   | 0.2837    | 3.8271 | 0.695   |
| 13 | 3.9383   | 0.3332   | 0.2624    | 4.1714 | 0.5927  |
| 14 | 4.2778   | 0.3054   | 0.2517    | 4.5523 | 0.5166  |

Fever, Anemic vs. Not Anemic

PR period prevalence (File created by recall-empirical-tables.R / fever, anemia)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.009    | 1.0344   | 1.3205    | 0.7674 | 1.243   |
| 2  | 1.1709   | 1.0049   | 1.1108    | 0.8644 | 1.2368  |
| 3  | 1.1527   | 1.0553   | 1.1474    | 0.9374 | 1.0746  |
| 4  | 1.2076   | 0.9978   | 1.1107    | 0.9448 | 1.1197  |
| 5  | 1.2727   | 0.9794   | 1.1138    | 0.9771 | 1.0082  |
| 6  | 1.2938   | 1.0217   | 1.1441    | 0.947  | 1.044   |
| 7  | 1.3394   | 1.1181   | 1.1574    | 0.924  | 1.0671  |
| 8  | 1.3268   | 1.1764   | 1.1617    | 0.9403 | 1.0853  |
| 9  | 1.3194   | 1.2119   | 1.171     | 0.9417 | 1.089   |
| 10 | 1.3016   | 1.2323   | 1.167     | 0.9582 | 1.0991  |
| 11 | 1.2954   | 1.242    | 1.1864    | 0.962  | 1.0676  |
| 12 | 1.2931   | 1.2436   | 1.1718    | 0.9694 | 1.0239  |
| 13 | 1.2902   | 1.3146   | 1.18      | 0.963  | 1.0442  |
| 14 | 1.2902   | 1.3201   | 1.1803    | 0.9621 | 1.0338  |

PR period prevalence SE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.159    | 0.2043   | 0.1985    | 0.113  | 0.2916  |
| 2  | 0.1444   | 0.1635   | 0.1306    | 0.1047 | 0.2778  |
| 3  | 0.125    | 0.1418   | 0.1227    | 0.0994 | 0.1725  |
| 4  | 0.1153   | 0.1318   | 0.1129    | 0.0896 | 0.1512  |
| 5  | 0.1147   | 0.1268   | 0.1017    | 0.0892 | 0.1245  |
| 6  | 0.1066   | 0.1332   | 0.0975    | 0.0762 | 0.1224  |
| 7  | 0.1105   | 0.1292   | 0.0914    | 0.0682 | 0.1193  |
| 8  | 0.1125   | 0.1312   | 0.091     | 0.0669 | 0.1192  |
| 9  | 0.1093   | 0.129    | 0.0907    | 0.0662 | 0.1159  |
| 10 | 0.1046   | 0.1316   | 0.0868    | 0.0667 | 0.1186  |
| 11 | 0.0988   | 0.1269   | 0.0856    | 0.0668 | 0.1054  |
| 12 | 0.0949   | 0.122    | 0.0848    | 0.0661 | 0.0934  |
| 13 | 0.0923   | 0.1276   | 0.0842    | 0.0644 | 0.0946  |
| 14 | 0.0923   | 0.1277   | 0.0834    | 0.0645 | 0.0935  |

PR period prevalence BIAS

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | -0.1619  | 0.0295   | 0.2097    | -0.097 | 0.0062  |
| 2  | 0        | 0        | 0         | 0      | 0       |
| 3  | -0.0182  | 0.0504   | 0.0366    | 0.073  | -0.1622 |
| 4  | 0.0367   | -0.0071  | -0.0001   | 0.0804 | -0.1171 |
| 5  | 0.1018   | -0.0254  | 0.003     | 0.1127 | -0.2287 |
| 6  | 0.123    | 0.0169   | 0.0333    | 0.0827 | -0.1928 |
| 7  | 0.1685   | 0.1133   | 0.0466    | 0.0596 | -0.1698 |
| 8  | 0.1559   | 0.1716   | 0.0509    | 0.0759 | -0.1516 |
| 9  | 0.1485   | 0.2071   | 0.0602    | 0.0773 | -0.1478 |
| 10 | 0.1307   | 0.2274   | 0.0561    | 0.0938 | -0.1377 |
| 11 | 0.1245   | 0.2372   | 0.0756    | 0.0977 | -0.1693 |
| 12 | 0.1222   | 0.2387   | 0.061     | 0.105  | -0.2129 |
| 13 | 0.1193   | 0.3098   | 0.0692    | 0.0986 | -0.1926 |
| 14 | 0.1193   | 0.3153   | 0.0695    | 0.0978 | -0.203  |

PR period prevalence % BIAS

|   | India HP | India MP | Indonesia | Peru    | Senegal |
|---|----------|----------|-----------|---------|---------|
| 1 | 13.8244  | 2.9398   | 18.8782   | 11.2168 | 0.4989  |
| 2 | 0        | 0        | 0         | 0       | 0       |
| 3 | 1.554    | 5.0174   | 3.292     | 8.4438  | 13.1148 |
| 4 | 3.1339   | 0.7027   | 0.0134    | 9.301   | 9.4718  |
| 5 | 8.6932   | 2.5292   | 0.268     | 13.0358 | 18.4882 |

Fever, Stunted vs. Not Stunted

PR period prevalence (File created by recall-empirical-tables.R / fever, haz)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.4569   | 1.2858   | 1.265     | 1.2248 | 0.9835  |
| 2  | 1.5794   | 1.247    | 1.3538    | 1.1505 | 1.0657  |
| 3  | 1.4703   | 1.257    | 1.4365    | 1.1808 | 1.1046  |
| 4  | 1.4778   | 1.2874   | 1.401     | 1.1873 | 1.1335  |
| 5  | 1.4715   | 1.2309   | 1.3772    | 1.2468 | 1.0795  |
| 6  | 1.5234   | 1.2093   | 1.3646    | 1.2903 | 1.0594  |
| 7  | 1.5376   | 1.2128   | 1.3818    | 1.2705 | 1.0616  |
| 8  | 1.5315   | 1.2197   | 1.3687    | 1.2672 | 1.0689  |
| 9  | 1.5133   | 1.2215   | 1.3615    | 1.2574 | 1.0646  |
| 10 | 1.4711   | 1.242    | 1.337     | 1.2683 | 1.1025  |
| 11 | 1.4629   | 1.2285   | 1.3191    | 1.2507 | 1.0923  |
| 12 | 1.4617   | 1.2478   | 1.2968    | 1.2557 | 1.0931  |
| 13 | 1.4576   | 1.2262   | 1.3011    | 1.2468 | 1.0975  |
| 14 | 1.4542   | 1.2093   | 1.2895    | 1.2511 | 1.0938  |

PR period prevalence SE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.1854   | 0.2108   | 0.1873    | 0.1853 | 0.1375  |
| 2  | 0.1777   | 0.1529   | 0.1589    | 0.142  | 0.1186  |
| 3  | 0.1441   | 0.1277   | 0.1516    | 0.1217 | 0.1114  |
| 4  | 0.1341   | 0.1322   | 0.1351    | 0.1087 | 0.1039  |
| 5  | 0.1191   | 0.1193   | 0.117     | 0.1091 | 0.0928  |
| 6  | 0.1135   | 0.1148   | 0.108     | 0.1039 | 0.087   |
| 7  | 0.1099   | 0.1088   | 0.0984    | 0.0938 | 0.086   |
| 8  | 0.1074   | 0.1017   | 0.0988    | 0.0902 | 0.0828  |
| 9  | 0.1055   | 0.1008   | 0.0979    | 0.0885 | 0.0787  |
| 10 | 0.0971   | 0.1044   | 0.0942    | 0.0866 | 0.0748  |
| 11 | 0.0875   | 0.1016   | 0.0927    | 0.0849 | 0.0733  |
| 12 | 0.0849   | 0.1024   | 0.0905    | 0.084  | 0.0725  |
| 13 | 0.0829   | 0.097    | 0.0904    | 0.0822 | 0.0727  |
| 14 | 0.0825   | 0.0963   | 0.0894    | 0.0823 | 0.0725  |

PR period prevalence BIAS

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | -0.1225  | 0.0389   | -0.0888   | 0.0743 | -0.0821 |
| 2  | 0        | 0        | 0         | 0      | 0       |
| 3  | -0.1091  | 0.01     | 0.0828    | 0.0303 | 0.0389  |
| 4  | -0.1016  | 0.0404   | 0.0472    | 0.0368 | 0.0678  |
| 5  | -0.1079  | -0.0161  | 0.0235    | 0.0963 | 0.0138  |
| 6  | -0.056   | -0.0377  | 0.0108    | 0.1398 | -0.0063 |
| 7  | -0.0418  | -0.0341  | 0.0281    | 0.12   | -0.0041 |
| 8  | -0.0479  | -0.0273  | 0.0149    | 0.1167 | 0.0032  |
| 9  | -0.0661  | -0.0255  | 0.0078    | 0.1069 | -0.0011 |
| 10 | -0.1082  | -0.005   | -0.0167   | 0.1178 | 0.0368  |
| 11 | -0.1165  | -0.0185  | -0.0347   | 0.1002 | 0.0266  |
| 12 | -0.1177  | 0.0009   | -0.0569   | 0.1052 | 0.0274  |
| 13 | -0.1217  | -0.0208  | -0.0527   | 0.0964 | 0.0318  |
| 14 | -0.1251  | -0.0377  | -0.0643   | 0.1006 | 0.0281  |

PR period prevalence % BIAS

|   | India HP | India MP | Indonesia | Peru   | Senegal |
|---|----------|----------|-----------|--------|---------|
| 1 | 7.7532   | 3.1172   | 6.5581    | 6.4617 | 7.7083  |
| 2 | 0        | 0        | 0         | 0      | 0       |
| 3 | 6.9086   | 0.8      | 6.1147    | 2.637  | 3.6506  |
| 4 | 6.4336   | 3.2436   | 3.4891    | 3.1962 | 6.3596  |
| 5 | 6.83     | 1.2891   | 1.7324    | 8.3723 | 1.2957  |

Fever, Underweight vs. Not Underweight

PR period prevalence (File created by recall-empirical-tables.R / fever, waz)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.7893   | 1.3742   | 1.3411    | 1.9034 | 1.151   |
| 2  | 1.7601   | 1.4712   | 1.245     | 1.5093 | 1.1656  |
| 3  | 1.7737   | 1.5298   | 1.3981    | 1.5898 | 1.1293  |
| 4  | 1.751    | 1.4939   | 1.2995    | 1.493  | 1.2255  |
| 5  | 1.6886   | 1.3598   | 1.2715    | 1.5664 | 1.2696  |
| 6  | 1.6379   | 1.3309   | 1.264     | 1.6127 | 1.2804  |
| 7  | 1.6103   | 1.3385   | 1.2824    | 1.5696 | 1.2976  |
| 8  | 1.5852   | 1.3217   | 1.2599    | 1.5465 | 1.3332  |
| 9  | 1.5623   | 1.3367   | 1.2699    | 1.5736 | 1.3271  |
| 10 | 1.5385   | 1.3302   | 1.2466    | 1.6017 | 1.3331  |
| 11 | 1.5126   | 1.3541   | 1.2367    | 1.5851 | 1.3081  |
| 12 | 1.5092   | 1.3544   | 1.2153    | 1.5572 | 1.297   |
| 13 | 1.5044   | 1.3577   | 1.233     | 1.5507 | 1.2786  |
| 14 | 1.5132   | 1.3652   | 1.2375    | 1.5328 | 1.273   |

PR period prevalence SE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.2591   | 0.1997   | 0.1923    | 0.28   | 0.1686  |
| 2  | 0.2031   | 0.1901   | 0.1574    | 0.2073 | 0.1325  |
| 3  | 0.1775   | 0.1733   | 0.1553    | 0.1885 | 0.1119  |
| 4  | 0.1462   | 0.1543   | 0.1342    | 0.1664 | 0.1043  |
| 5  | 0.1252   | 0.1277   | 0.1213    | 0.1566 | 0.1013  |
| 6  | 0.1149   | 0.1206   | 0.1123    | 0.1433 | 0.0899  |
| 7  | 0.1082   | 0.1214   | 0.1057    | 0.1227 | 0.0921  |
| 8  | 0.1038   | 0.1091   | 0.1044    | 0.1172 | 0.0876  |
| 9  | 0.1007   | 0.1067   | 0.1036    | 0.1159 | 0.084   |
| 10 | 0.0984   | 0.1042   | 0.1004    | 0.1156 | 0.08    |
| 11 | 0.0959   | 0.1036   | 0.0988    | 0.1135 | 0.0791  |
| 12 | 0.0939   | 0.1014   | 0.0969    | 0.1118 | 0.0762  |
| 13 | 0.0934   | 0.1009   | 0.095     | 0.1089 | 0.0782  |
| 14 | 0.0927   | 0.1011   | 0.0964    | 0.1078 | 0.0773  |

PR period prevalence BIAS

|    | India HP | India MP | Indonesia | Peru    | Senegal |
|----|----------|----------|-----------|---------|---------|
| 1  | 0.0292   | -0.0971  | 0.0961    | 0.3941  | -0.0146 |
| 2  | 0        | 0        | 0         | 0       | 0       |
| 3  | 0.0135   | 0.0586   | 0.1531    | 0.0806  | -0.0363 |
| 4  | -0.0091  | 0.0227   | 0.0545    | -0.0162 | 0.0599  |
| 5  | -0.0715  | -0.1114  | 0.0265    | 0.0571  | 0.104   |
| 6  | -0.1222  | -0.1403  | 0.019     | 0.1035  | 0.1149  |
| 7  | -0.1499  | -0.1327  | 0.0374    | 0.0603  | 0.132   |
| 8  | -0.1749  | -0.1495  | 0.0149    | 0.0373  | 0.1676  |
| 9  | -0.1978  | -0.1346  | 0.0249    | 0.0644  | 0.1616  |
| 10 | -0.2216  | -0.1411  | 0.0016    | 0.0924  | 0.1675  |
| 11 | -0.2475  | -0.1171  | -0.0083   | 0.0758  | 0.1425  |
| 12 | -0.2509  | -0.1168  | -0.0297   | 0.048   | 0.1314  |
| 13 | -0.2557  | -0.1135  | -0.012    | 0.0414  | 0.1131  |
| 14 | -0.247   | -0.106   | -0.0075   | 0.0235  | 0.1074  |

PR period prevalence % BIAS

|   | India HP | India MP | Indonesia | Peru    | Senegal |
|---|----------|----------|-----------|---------|---------|
| 1 | 1.6572   | 6.5975   | 7.7224    | 26.1141 | 1.2539  |
| 2 | 0        | 0        | 0         | 0       | 0       |
| 3 | 0.7688   | 3.9833   | 12.2961   | 5.3889  | 3.11    |
| 4 | 0.5175   | 1.5424   | 4.377     | 1.0766  | 5.137   |
| 5 | 4.0643   | 7.5704   | 2.127     | 3.7843  | 8.9259  |

|    |         |         |        |         |         |
|----|---------|---------|--------|---------|---------|
| 6  | 10.5006 | 1.6781  | 2.9995 | 9.5636  | 15.5882 |
| 7  | 14.3879 | 11.2706 | 4.196  | 6.8983  | 13.726  |
| 8  | 13.3159 | 17.0741 | 4.5796 | 8.7786  | 12.2548 |
| 9  | 12.6833 | 20.607  | 5.4178 | 8.9452  | 11.9513 |
| 10 | 11.1623 | 22.634  | 5.0538 | 10.8553 | 11.1371 |
| 11 | 10.6291 | 23.6008 | 6.8031 | 11.2982 | 13.686  |
| 12 | 10.438  | 23.7576 | 5.4914 | 12.1488 | 17.2131 |
| 13 | 10.1919 | 30.8265 | 6.2284 | 11.4117 | 15.5738 |
| 14 | 10.1919 | 31.3732 | 6.2539 | 11.3102 | 16.4165 |

PR period prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.2269   | 0.2064   | 0.2888    | 0.1489 | 0.2917  |
| 2  | 0.1444   | 0.1635   | 0.1306    | 0.1047 | 0.2778  |
| 3  | 0.1264   | 0.1505   | 0.128     | 0.1233 | 0.2368  |
| 4  | 0.121    | 0.132    | 0.1129    | 0.1204 | 0.1912  |
| 5  | 0.1534   | 0.1293   | 0.1018    | 0.1437 | 0.2604  |
| 6  | 0.1627   | 0.1343   | 0.1031    | 0.1124 | 0.2284  |
| 7  | 0.2015   | 0.1718   | 0.1026    | 0.0906 | 0.2075  |
| 8  | 0.1923   | 0.216    | 0.1043    | 0.1011 | 0.1928  |
| 9  | 0.1844   | 0.244    | 0.1089    | 0.1018 | 0.1879  |
| 10 | 0.1674   | 0.2628   | 0.1034    | 0.1151 | 0.1818  |
| 11 | 0.1589   | 0.269    | 0.1141    | 0.1183 | 0.1994  |
| 12 | 0.1547   | 0.2681   | 0.1044    | 0.1241 | 0.2325  |
| 13 | 0.1509   | 0.335    | 0.1089    | 0.1178 | 0.2146  |
| 14 | 0.1509   | 0.3401   | 0.1085    | 0.1171 | 0.2235  |

PR period prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 2.4703   | 1.5935   | 4.8893    | 2.0241 | 1.1027  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.7659   | 0.8477   | 0.961     | 1.3872 | 0.7263  |
| 4  | 0.7021   | 0.652    | 0.747     | 1.3224 | 0.474   |
| 5  | 1.1284   | 0.6259   | 0.6075    | 1.8853 | 0.8784  |
| 6  | 1.2699   | 0.6745   | 0.6228    | 1.1529 | 0.6759  |
| 7  | 1.9469   | 1.1044   | 0.6168    | 0.7492 | 0.558   |
| 8  | 1.773    | 1.7449   | 0.6378    | 0.9334 | 0.4819  |
| 9  | 1.6313   | 2.2273   | 0.6949    | 0.9459 | 0.4573  |
| 10 | 1.3445   | 2.5836   | 0.6265    | 1.2094 | 0.4282  |
| 11 | 1.2108   | 2.7064   | 0.7641    | 1.2779 | 0.5151  |
| 12 | 1.1484   | 2.6889   | 0.6395    | 1.405  | 0.7003  |
| 13 | 1.0917   | 4.1988   | 0.696     | 1.2659 | 0.5968  |
| 14 | 1.0917   | 4.3286   | 0.6908    | 1.2517 | 0.6476  |

PR daily prevalence

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.009    | 1.0344   | 1.3205    | 0.7674 | 1.243   |
| 2  | 1.1211   | 1.0276   | 1.1576    | 0.7843 | 1.2621  |
| 3  | 1.1129   | 1.0662   | 1.1557    | 0.8343 | 1.1811  |
| 4  | 1.1672   | 1.0135   | 1.1153    | 0.8709 | 1.1856  |
| 5  | 1.2239   | 0.9379   | 1.1015    | 0.887  | 1.1563  |
| 6  | 1.2699   | 0.9224   | 1.1041    | 0.8755 | 1.1385  |
| 7  | 1.296    | 0.9465   | 1.1275    | 0.869  | 1.1062  |
| 8  | 1.3282   | 0.9604   | 1.143     | 0.8634 | 1.0965  |
| 9  | 1.3543   | 0.9891   | 1.1556    | 0.8553 | 1.0991  |
| 10 | 1.3565   | 1.0146   | 1.156     | 0.8588 | 1.1075  |
| 11 | 1.3624   | 1.0519   | 1.1558    | 0.8612 | 1.1087  |
| 12 | 1.372    | 1.0652   | 1.1581    | 0.8649 | 1.0954  |
| 13 | 1.3767   | 1.0912   | 1.1572    | 0.8641 | 1.0917  |
| 14 | 1.3814   | 1.1125   | 1.1563    | 0.859  | 1.085   |

PR daily prevalence SE

|    |        |        |        |         |        |
|----|--------|--------|--------|---------|--------|
| 6  | 3.5452 | 3.0218 | 0.7991 | 12.1483 | 0.5891 |
| 7  | 2.6465 | 2.7368 | 2.0726 | 10.432  | 0.3836 |
| 8  | 3.0307 | 2.1898 | 1.1013 | 10.1436 | 0.3019 |
| 9  | 4.186  | 2.0452 | 0.5747 | 9.29    | 0.1025 |
| 10 | 6.8522 | 0.4    | 1.2359 | 10.2357 | 3.4551 |
| 11 | 7.3765 | 1.4823 | 2.5629 | 8.7061  | 2.498  |
| 12 | 7.4493 | 0.0696 | 4.2048 | 9.1461  | 2.5698 |
| 13 | 7.708  | 1.6671 | 3.8896 | 8.3747  | 2.9846 |
| 14 | 7.9236 | 3.0234 | 4.7493 | 8.7405  | 2.6383 |

PR period prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.2222   | 0.2143   | 0.2073    | 0.1997 | 0.1602  |
| 2  | 0.1777   | 0.1529   | 0.1589    | 0.142  | 0.1186  |
| 3  | 0.1807   | 0.1281   | 0.1727    | 0.1254 | 0.118   |
| 4  | 0.1682   | 0.1383   | 0.1431    | 0.1148 | 0.124   |
| 5  | 0.1607   | 0.1203   | 0.1194    | 0.1455 | 0.0938  |
| 6  | 0.1265   | 0.1208   | 0.1086    | 0.1741 | 0.0873  |
| 7  | 0.1176   | 0.114    | 0.1024    | 0.1523 | 0.0861  |
| 8  | 0.1176   | 0.1053   | 0.0999    | 0.1475 | 0.0829  |
| 9  | 0.1245   | 0.104    | 0.0982    | 0.1388 | 0.0787  |
| 10 | 0.1454   | 0.1045   | 0.0957    | 0.1462 | 0.0834  |
| 11 | 0.1457   | 0.1033   | 0.099     | 0.1313 | 0.078   |
| 12 | 0.1451   | 0.1024   | 0.1069    | 0.1347 | 0.0775  |
| 13 | 0.1473   | 0.0992   | 0.1046    | 0.1266 | 0.0794  |
| 14 | 0.1499   | 0.1034   | 0.1101    | 0.1299 | 0.0778  |

PR period prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.5637   | 1.9638   | 1.7017    | 1.9784 | 1.8228  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 1.0349   | 0.7011   | 1.1816    | 0.7806 | 0.9891  |
| 4  | 0.8965   | 0.8175   | 0.8113    | 0.6536 | 1.0932  |
| 5  | 0.818    | 0.6192   | 0.5643    | 1.0513 | 0.6254  |
| 6  | 0.5072   | 0.6237   | 0.4668    | 1.5051 | 0.5411  |
| 7  | 0.4382   | 0.5558   | 0.415     | 1.1513 | 0.5264  |
| 8  | 0.4379   | 0.4738   | 0.3955    | 1.0795 | 0.4878  |
| 9  | 0.4914   | 0.4623   | 0.3822    | 0.9557 | 0.4404  |
| 10 | 0.6697   | 0.4672   | 0.3627    | 1.0606 | 0.4941  |
| 11 | 0.6724   | 0.4561   | 0.3882    | 0.856  | 0.4318  |
| 12 | 0.6667   | 0.4484   | 0.4529    | 0.9    | 0.4269  |
| 13 | 0.6872   | 0.4209   | 0.4338    | 0.796  | 0.4479  |
| 14 | 0.7119   | 0.4569   | 0.4802    | 0.8379 | 0.4299  |

PR daily prevalence

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.4569   | 1.2858   | 1.265     | 1.2248 | 0.9835  |
| 2  | 1.5817   | 1.296    | 1.2983    | 1.2435 | 1.0569  |
| 3  | 1.5783   | 1.3368   | 1.3757    | 1.2369 | 1.1011  |
| 4  | 1.6037   | 1.3403   | 1.3881    | 1.2556 | 1.1374  |
| 5  | 1.5918   | 1.316    | 1.3709    | 1.3234 | 1.1486  |
| 6  | 1.5727   | 1.2785   | 1.3719    | 1.3633 | 1.1393  |
| 7  | 1.583    | 1.2588   | 1.3581    | 1.3716 | 1.1272  |
| 8  | 1.5862   | 1.2487   | 1.3668    | 1.378  | 1.1187  |
| 9  | 1.5857   | 1.2632   | 1.3646    | 1.3704 | 1.1157  |
| 10 | 1.5574   | 1.2763   | 1.3539    | 1.3795 | 1.1151  |
| 11 | 1.5461   | 1.2754   | 1.3466    | 1.3793 | 1.1158  |
| 12 | 1.5476   | 1.2867   | 1.3275    | 1.3861 | 1.1155  |
| 13 | 1.5534   | 1.2839   | 1.3169    | 1.3852 | 1.1107  |
| 14 | 1.5515   | 1.2753   | 1.3016    | 1.3905 | 1.1023  |

PR daily prevalence SE

|    |         |         |        |        |         |
|----|---------|---------|--------|--------|---------|
| 6  | 6.9426  | 9.537   | 1.528  | 6.8561 | 9.8538  |
| 7  | 8.5138  | 9.0203  | 3.0048 | 3.9971 | 11.3246 |
| 8  | 9.9374  | 10.1619 | 1.1986 | 2.4697 | 14.3806 |
| 9  | 11.2363 | 9.1455  | 1.9981 | 4.2647 | 13.8603 |
| 10 | 12.5902 | 9.5885  | 0.1274 | 6.125  | 14.3695 |
| 11 | 14.0625 | 7.9604  | 0.6645 | 5.0241 | 12.2242 |
| 12 | 14.2556 | 7.9416  | 2.3874 | 3.1771 | 11.2727 |
| 13 | 14.5303 | 7.716   | 0.9628 | 2.7461 | 9.7004  |
| 14 | 14.0304 | 7.208   | 0.6006 | 1.5583 | 9.2123  |

PR period prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.2607   | 0.2221   | 0.215     | 0.4835 | 0.1692  |
| 2  | 0.2031   | 0.1901   | 0.1574    | 0.2073 | 0.1325  |
| 3  | 0.178    | 0.183    | 0.2181    | 0.205  | 0.1176  |
| 4  | 0.1464   | 0.1559   | 0.1449    | 0.1672 | 0.1202  |
| 5  | 0.1442   | 0.1694   | 0.1241    | 0.1667 | 0.1452  |
| 6  | 0.1677   | 0.185    | 0.1139    | 0.1768 | 0.1459  |
| 7  | 0.1848   | 0.1799   | 0.1121    | 0.1367 | 0.1609  |
| 8  | 0.2034   | 0.1851   | 0.1055    | 0.123  | 0.1891  |
| 9  | 0.2219   | 0.1717   | 0.1065    | 0.1326 | 0.1821  |
| 10 | 0.2424   | 0.1754   | 0.1004    | 0.148  | 0.1856  |
| 11 | 0.2655   | 0.1564   | 0.0991    | 0.1365 | 0.163   |
| 12 | 0.2679   | 0.1547   | 0.1014    | 0.1216 | 0.1519  |
| 13 | 0.2723   | 0.1518   | 0.0958    | 0.1165 | 0.1375  |
| 14 | 0.2638   | 0.1465   | 0.0967    | 0.1104 | 0.1323  |

PR period prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.6487   | 1.3645   | 1.8664    | 5.4403 | 1.632   |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.7684   | 0.9263   | 1.9196    | 0.9784 | 0.7882  |
| 4  | 0.5201   | 0.6729   | 0.8472    | 0.6503 | 0.8237  |
| 5  | 0.5045   | 0.7942   | 0.622     | 0.6466 | 1.2016  |
| 6  | 0.6821   | 0.9474   | 0.5236    | 0.7275 | 1.2127  |
| 7  | 0.8285   | 0.8951   | 0.5072    | 0.4351 | 1.4758  |
| 8  | 1.0033   | 0.9477   | 0.4492    | 0.3519 | 2.0387  |
| 9  | 1.1946   | 0.8161   | 0.4581    | 0.409  | 1.8897  |
| 10 | 1.4256   | 0.8509   | 0.4072    | 0.5101 | 1.9636  |
| 11 | 1.7091   | 0.6765   | 0.3965    | 0.4335 | 1.5137  |
| 12 | 1.7408   | 0.6622   | 0.4146    | 0.3444 | 1.315   |
| 13 | 1.7979   | 0.6381   | 0.3704    | 0.3162 | 1.0771  |
| 14 | 1.6876   | 0.594    | 0.3773    | 0.2835 | 0.9979  |

PR daily prevalence

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.7893   | 1.3742   | 1.3411    | 1.9034 | 1.151   |
| 2  | 1.8135   | 1.4352   | 1.2596    | 1.7706 | 1.2001  |
| 3  | 1.816    | 1.4672   | 1.3247    | 1.7124 | 1.2139  |
| 4  | 1.8214   | 1.4791   | 1.2561    | 1.6487 | 1.2253  |
| 5  | 1.7905   | 1.4213   | 1.2689    | 1.681  | 1.2679  |
| 6  | 1.7224   | 1.3813   | 1.2707    | 1.6869 | 1.2661  |
| 7  | 1.6641   | 1.354    | 1.254     | 1.6614 | 1.2828  |
| 8  | 1.6218   | 1.3426   | 1.2408    | 1.6417 | 1.3034  |
| 9  | 1.5975   | 1.3508   | 1.2357    | 1.6334 | 1.322   |
| 10 | 1.56     | 1.3563   | 1.2303    | 1.6507 | 1.3442  |
| 11 | 1.5326   | 1.3657   | 1.2176    | 1.6527 | 1.3586  |
| 12 | 1.509    | 1.3843   | 1.1928    | 1.6401 | 1.3612  |
| 13 | 1.4909   | 1.3955   | 1.1839    | 1.6179 | 1.3551  |
| 14 | 1.4774   | 1.4076   | 1.1747    | 1.5954 | 1.3471  |

PR daily prevalence SE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.159    | 0.2043   | 0.1985    | 0.113  | 0.2916  |
| 2  | 0.1536   | 0.1767   | 0.1474    | 0.1014 | 0.2852  |
| 3  | 0.1381   | 0.1636   | 0.1347    | 0.1014 | 0.2321  |
| 4  | 0.132    | 0.1486   | 0.1261    | 0.1023 | 0.2186  |
| 5  | 0.1267   | 0.1341   | 0.119     | 0.0977 | 0.1894  |
| 6  | 0.1224   | 0.1324   | 0.1136    | 0.0901 | 0.1711  |
| 7  | 0.1202   | 0.1325   | 0.112     | 0.0833 | 0.1572  |
| 8  | 0.1244   | 0.1318   | 0.1129    | 0.0798 | 0.1533  |
| 9  | 0.128    | 0.1321   | 0.1146    | 0.0777 | 0.1502  |
| 10 | 0.1296   | 0.1347   | 0.1147    | 0.0772 | 0.1505  |
| 11 | 0.1291   | 0.1375   | 0.1149    | 0.0767 | 0.1472  |
| 12 | 0.1287   | 0.1376   | 0.1161    | 0.0758 | 0.139   |
| 13 | 0.1274   | 0.1368   | 0.1175    | 0.0746 | 0.1359  |
| 14 | 0.127    | 0.1375   | 0.12      | 0.0734 | 0.1343  |

PR daily prevalence BIAS

|    | India HP | India MP | Indonesia | Peru    | Senegal |
|----|----------|----------|-----------|---------|---------|
| 1  | -0.112   | 0.0068   | 0.163     | -0.0169 | -0.0191 |
| 2  | 0        | 0        | 0         | 0       | 0       |
| 3  | -0.0081  | 0.0386   | -0.0019   | 0.05    | -0.081  |
| 4  | 0.0462   | -0.0141  | -0.0423   | 0.0866  | -0.0765 |
| 5  | 0.1029   | -0.0897  | -0.0561   | 0.1027  | -0.1058 |
| 6  | 0.1488   | -0.1051  | -0.0535   | 0.0912  | -0.1235 |
| 7  | 0.175    | -0.081   | -0.0301   | 0.0847  | -0.1559 |
| 8  | 0.2072   | -0.0672  | -0.0145   | 0.0792  | -0.1655 |
| 9  | 0.2333   | -0.0385  | -0.002    | 0.071   | -0.163  |
| 10 | 0.2355   | -0.0129  | -0.0015   | 0.0745  | -0.1545 |
| 11 | 0.2414   | 0.0243   | -0.0018   | 0.0769  | -0.1534 |
| 12 | 0.2509   | 0.0376   | 0.0005    | 0.0806  | -0.1666 |
| 13 | 0.2556   | 0.0636   | -0.0003   | 0.0798  | -0.1704 |
| 14 | 0.2604   | 0.085    | -0.0012   | 0.0748  | -0.1771 |

PR daily prevalence % BIAS

|    | India HP | India MP | Indonesia | Peru    | Senegal |
|----|----------|----------|-----------|---------|---------|
| 1  | 9.9929   | 0.6655   | 14.0768   | 2.1507  | 1.511   |
| 2  | 0        | 0        | 0         | 0       | 0       |
| 3  | 0.7248   | 3.7571   | 0.1602    | 6.3753  | 6.418   |
| 4  | 4.1169   | 1.3678   | 3.6514    | 11.0393 | 6.061   |
| 5  | 9.175    | 8.7251   | 4.8444    | 13.0934 | 8.3797  |
| 6  | 13.2757  | 10.2326  | 4.6194    | 11.6249 | 9.7894  |
| 7  | 15.6067  | 7.8861   | 2.6026    | 10.7985 | 12.3506 |
| 8  | 18.4806  | 6.5391   | 1.2553    | 10.0929 | 13.1171 |
| 9  | 20.8067  | 3.7439   | 0.1747    | 9.0567  | 12.9133 |
| 10 | 21.005   | 1.2601   | 0.1338    | 9.4949  | 12.2443 |
| 11 | 21.5295  | 2.3681   | 0.1567    | 9.8012  | 12.1555 |
| 12 | 22.3841  | 3.6627   | 0.0436    | 10.279  | 13.203  |
| 13 | 22.8     | 6.1939   | 0.0288    | 10.1716 | 13.4999 |
| 14 | 23.2275  | 8.2691   | 0.1072    | 9.5312  | 14.0321 |

PR daily prevalence root MSE

|   | India HP | India MP | Indonesia | Peru   | Senegal |
|---|----------|----------|-----------|--------|---------|
| 1 | 0.1945   | 0.2044   | 0.2568    | 0.1143 | 0.2923  |
| 2 | 0.1536   | 0.1767   | 0.1474    | 0.1014 | 0.2852  |
| 3 | 0.1384   | 0.1681   | 0.1347    | 0.113  | 0.2459  |
| 4 | 0.1398   | 0.1493   | 0.133     | 0.134  | 0.2316  |
| 5 | 0.1632   | 0.1613   | 0.1316    | 0.1418 | 0.2169  |
| 6 | 0.1927   | 0.169    | 0.1256    | 0.1282 | 0.2111  |
| 7 | 0.2123   | 0.1553   | 0.1159    | 0.1188 | 0.2214  |
| 8 | 0.2416   | 0.1479   | 0.1138    | 0.1124 | 0.2256  |
| 9 | 0.266    | 0.1376   | 0.1146    | 0.1053 | 0.2216  |

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.1854   | 0.2108   | 0.1873    | 0.1853 | 0.1375  |
| 2  | 0.1897   | 0.1788   | 0.1657    | 0.1631 | 0.1274  |
| 3  | 0.1748   | 0.1629   | 0.162     | 0.1477 | 0.1246  |
| 4  | 0.1648   | 0.1593   | 0.1535    | 0.1376 | 0.1227  |
| 5  | 0.1541   | 0.157    | 0.14      | 0.1357 | 0.1229  |
| 6  | 0.1442   | 0.1499   | 0.1297    | 0.1336 | 0.1173  |
| 7  | 0.136    | 0.144    | 0.1198    | 0.1287 | 0.1132  |
| 8  | 0.1332   | 0.1402   | 0.1174    | 0.1256 | 0.1118  |
| 9  | 0.1312   | 0.1384   | 0.1164    | 0.1226 | 0.1117  |
| 10 | 0.1264   | 0.1399   | 0.1132    | 0.1209 | 0.1094  |
| 11 | 0.1227   | 0.1401   | 0.1106    | 0.1198 | 0.1079  |
| 12 | 0.1211   | 0.1408   | 0.1065    | 0.1186 | 0.107   |
| 13 | 0.1202   | 0.1397   | 0.1038    | 0.1171 | 0.1065  |
| 14 | 0.1207   | 0.1393   | 0.1018    | 0.1171 | 0.1064  |

PR daily prevalence BIAS

|    | India HP | India MP | Indonesia | Peru    | Senegal |
|----|----------|----------|-----------|---------|---------|
| 1  | -0.1248  | -0.0102  | -0.0333   | -0.0186 | -0.0734 |
| 2  | 0        | 0        | 0         | 0       | 0       |
| 3  | -0.0034  | 0.0408   | 0.0774    | -0.0066 | 0.0442  |
| 4  | 0.022    | 0.0443   | 0.0898    | 0.0121  | 0.0805  |
| 5  | 0.0101   | 0.0199   | 0.0726    | 0.08    | 0.0917  |
| 6  | -0.009   | -0.0176  | 0.0736    | 0.1198  | 0.0824  |
| 7  | 0.0013   | -0.0372  | 0.0598    | 0.1281  | 0.0702  |
| 8  | 0.0045   | -0.0474  | 0.0684    | 0.1345  | 0.0618  |
| 9  | 0.004    | -0.0328  | 0.0663    | 0.1269  | 0.0588  |
| 10 | -0.0243  | -0.0198  | 0.0556    | 0.136   | 0.0582  |
| 11 | -0.0356  | -0.0206  | 0.0483    | 0.1359  | 0.0589  |
| 12 | -0.0341  | -0.0094  | 0.0292    | 0.1426  | 0.0585  |
| 13 | -0.0283  | -0.0121  | 0.0186    | 0.1417  | 0.0538  |
| 14 | -0.0302  | -0.0207  | 0.0033    | 0.147   | 0.0453  |

PR daily prevalence % BIAS

|    | India HP | India MP | Indonesia | Peru    | Senegal |
|----|----------|----------|-----------|---------|---------|
| 1  | 7.8894   | 0.7855   | 2.5681    | 1.4988  | 6.9444  |
| 2  | 0        | 0        | 0         | 0       | 0       |
| 3  | 0.2152   | 3.1478   | 5.9581    | 0.5284  | 4.1827  |
| 4  | 1.3921   | 3.4176   | 6.9191    | 0.9743  | 7.6128  |
| 5  | 0.6385   | 1.5373   | 5.5945    | 6.4296  | 8.6722  |
| 6  | 0.57     | 1.3544   | 5.6691    | 9.6327  | 7.7929  |
| 7  | 0.0817   | 2.8729   | 4.6026    | 10.3023 | 6.6454  |
| 8  | 0.2847   | 3.6548   | 5.2722    | 10.815  | 5.8477  |
| 9  | 0.2498   | 2.5338   | 5.1032    | 10.2038 | 5.5593  |
| 10 | 1.5368   | 1.5248   | 4.2812    | 10.9364 | 5.5044  |
| 11 | 2.2492   | 1.592    | 3.7183    | 10.9254 | 5.5708  |
| 12 | 2.1535   | 0.7233   | 2.2483    | 11.4691 | 5.5393  |
| 13 | 1.7872   | 0.9347   | 1.4353    | 11.395  | 5.0881  |
| 14 | 1.9122   | 1.5999   | 0.2543    | 11.8206 | 4.2873  |

PR daily prevalence root MSE

|   | India HP | India MP | Indonesia | Peru   | Senegal |
|---|----------|----------|-----------|--------|---------|
| 1 | 0.2235   | 0.211    | 0.1902    | 0.1862 | 0.1559  |
| 2 | 0.1897   | 0.1788   | 0.1657    | 0.1631 | 0.1274  |
| 3 | 0.1748   | 0.168    | 0.1795    | 0.1479 | 0.1322  |
| 4 | 0.1663   | 0.1653   | 0.1778    | 0.1381 | 0.1467  |
| 5 | 0.1544   | 0.1583   | 0.1577    | 0.1575 | 0.1534  |
| 6 | 0.1445   | 0.151    | 0.1491    | 0.1795 | 0.1433  |
| 7 | 0.136    | 0.1487   | 0.1339    | 0.1816 | 0.1332  |
| 8 | 0.1332   | 0.148    | 0.1359    | 0.184  | 0.1278  |
| 9 | 0.1313   | 0.1422   | 0.1339    | 0.1764 | 0.1262  |

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.2591   | 0.1997   | 0.1923    | 0.28   | 0.1686  |
| 2  | 0.2267   | 0.1847   | 0.1667    | 0.246  | 0.1491  |
| 3  | 0.2001   | 0.1721   | 0.1564    | 0.2216 | 0.1336  |
| 4  | 0.1796   | 0.1664   | 0.1522    | 0.2112 | 0.1225  |
| 5  | 0.1657   | 0.1517   | 0.1444    | 0.2044 | 0.1245  |
| 6  | 0.1526   | 0.1398   | 0.1382    | 0.1924 | 0.1197  |
| 7  | 0.1452   | 0.1337   | 0.1284    | 0.1699 | 0.1189  |
| 8  | 0.1405   | 0.1313   | 0.1228    | 0.1609 | 0.1172  |
| 9  | 0.1386   | 0.1287   | 0.1222    | 0.1563 | 0.1175  |
| 10 | 0.1351   | 0.1249   | 0.1225    | 0.1552 | 0.1181  |
| 11 | 0.1345   | 0.1227   | 0.1216    | 0.1537 | 0.1216  |
| 12 | 0.1334   | 0.1214   | 0.1194    | 0.1516 | 0.1239  |
| 13 | 0.1326   | 0.1215   | 0.1179    | 0.149  | 0.1262  |
| 14 | 0.1327   | 0.1217   | 0.1172    | 0.1473 | 0.1273  |

PR daily prevalence BIAS

|    | India HP | India MP | Indonesia | Peru    | Senegal |
|----|----------|----------|-----------|---------|---------|
| 1  | -0.0242  | -0.0611  | 0.0815    | 0.1328  | -0.0491 |
| 2  | 0        | 0        | 0         | 0       | 0       |
| 3  | 0.0025   | 0.032    | 0.0651    | -0.0582 | 0.0138  |
| 4  | 0.0079   | 0.0439   | 0.0365    | -0.1219 | 0.0253  |
| 5  | -0.023   | -0.014   | 0.0093    | -0.0896 | 0.0678  |
| 6  | -0.0911  | -0.0539  | 0.0111    | -0.0837 | 0.0661  |
| 7  | -0.1494  | -0.0812  | -0.0056   | -0.1092 | 0.0828  |
| 8  | -0.1917  | -0.0926  | -0.0188   | -0.1289 | 0.1034  |
| 9  | -0.216   | -0.0844  | -0.0238   | -0.1372 | 0.122   |
| 10 | -0.2535  | -0.0789  | -0.0293   | -0.1199 | 0.1442  |
| 11 | -0.2809  | -0.0695  | -0.042    | -0.1179 | 0.1586  |
| 12 | -0.3045  | -0.0509  | -0.0667   | -0.1305 | 0.1611  |
| 13 | -0.3226  | -0.0397  | -0.0757   | -0.1527 | 0.155   |
| 14 | -0.3362  | -0.0276  | -0.0849   | -0.1752 | 0.1471  |

PR daily prevalence % BIAS

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.3361   | 4.2538   | 6.4732    | 7.5003 | 4.0902  |
| 2  | 0        | 0        | 0         | 0      | 0       |
| 3  | 0.136    | 2.2271   | 5.1665    | 3.2895 | 1.1538  |
| 4  | 0.4362   | 3.0602   | 2.8954    | 6.8853 | 2.1069  |
| 5  | 1.2689   | 0.9722   | 0.7382    | 5.0598 | 5.6512  |
| 6  | 5.0236   | 3.7541   | 0.8804    | 4.7292 | 5.5075  |
| 7  | 8.2405   | 5.6557   | 0.4468    | 6.17   | 6.8979  |
| 8  | 10.5708  | 6.4512   | 1.4954    | 7.2818 | 8.6131  |
| 9  | 11.9133  | 5.8793   | 1.8934    | 7.7477 | 10.1644 |
| 10 | 13.9804  | 5.4998   | 2.3239    | 6.7707 | 12.0122 |
| 11 | 15.488   | 4.8459   | 3.3346    | 6.6585 | 13.2141 |
| 12 | 16.7889  | 3.545    | 5.2984    | 7.3716 | 13.426  |
| 13 | 17.7882  | 2.7681   | 6.0099    | 8.6247 | 12.9165 |
| 14 | 18.5368  | 1.9218   | 6.7432    | 9.8958 | 12.2541 |

PR daily prevalence root MSE

|   | India HP | India MP | Indonesia | Peru   | Senegal |
|---|----------|----------|-----------|--------|---------|
| 1 | 0.2602   | 0.2088   | 0.2089    | 0.3099 | 0.1756  |
| 2 | 0.2267   | 0.1847   | 0.1667    | 0.246  | 0.1491  |
| 3 | 0.2001   | 0.175    | 0.1694    | 0.2292 | 0.1343  |
| 4 | 0.1798   | 0.1721   | 0.1566    | 0.2438 | 0.1251  |
| 5 | 0.1673   | 0.1524   | 0.1447    | 0.2232 | 0.1418  |
| 6 | 0.1777   | 0.1499   | 0.1386    | 0.2098 | 0.1367  |
| 7 | 0.2084   | 0.1565   | 0.1285    | 0.202  | 0.1449  |
| 8 | 0.2377   | 0.1606   | 0.1243    | 0.2062 | 0.1563  |
| 9 | 0.2567   | 0.1539   | 0.1245    | 0.208  | 0.1694  |

|    |        |        |        |        |        |
|----|--------|--------|--------|--------|--------|
| 10 | 0.2688 | 0.1353 | 0.1147 | 0.1072 | 0.2157 |
| 11 | 0.2737 | 0.1396 | 0.1149 | 0.1086 | 0.2126 |
| 12 | 0.282  | 0.1426 | 0.1161 | 0.1106 | 0.217  |
| 13 | 0.2856 | 0.1508 | 0.1175 | 0.1092 | 0.218  |
| 14 | 0.2897 | 0.1616 | 0.12   | 0.1048 | 0.2223 |

PR daily prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.6043   | 1.3372   | 3.0368    | 1.2718 | 1.0505  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.8115   | 0.905    | 0.836     | 1.2442 | 0.7435  |
| 4  | 0.8286   | 0.7137   | 0.8143    | 1.7479 | 0.6595  |
| 5  | 1.1293   | 0.833    | 0.797     | 1.9565 | 0.5786  |
| 6  | 1.5745   | 0.9149   | 0.7263    | 1.6    | 0.5479  |
| 7  | 1.9105   | 0.7724   | 0.619     | 1.3732 | 0.6028  |
| 8  | 2.475    | 0.7004   | 0.5965    | 1.23   | 0.6261  |
| 9  | 3.0004   | 0.6061   | 0.6052    | 1.0795 | 0.6041  |
| 10 | 3.0626   | 0.5862   | 0.6058    | 1.1194 | 0.5722  |
| 11 | 3.1755   | 0.6241   | 0.6083    | 1.148  | 0.556   |
| 12 | 3.371    | 0.6513   | 0.6212    | 1.1918 | 0.5791  |
| 13 | 3.4576   | 0.7285   | 0.6362    | 1.1616 | 0.5842  |
| 14 | 3.5583   | 0.8364   | 0.663     | 1.0684 | 0.6077  |

RD period prevalence

|    | India HP | India MP | Indonesia | Peru    | Senegal |
|----|----------|----------|-----------|---------|---------|
| 1  | 0.0013   | 0.0031   | 0.0355    | -0.0168 | 0.038   |
| 2  | 0.0304   | 0.0006   | 0.019     | -0.0138 | 0.0483  |
| 3  | 0.033    | 0.0087   | 0.0288    | -0.0082 | 0.0203  |
| 4  | 0.0508   | -0.0004  | 0.025     | -0.0085 | 0.0366  |
| 5  | 0.0721   | -0.0041  | 0.0292    | -0.0042 | 0.003   |
| 6  | 0.0849   | 0.0046   | 0.0398    | -0.0117 | 0.0171  |
| 7  | 0.1023   | 0.0266   | 0.0479    | -0.0199 | 0.0269  |
| 8  | 0.1008   | 0.0404   | 0.0503    | -0.0162 | 0.0354  |
| 9  | 0.1017   | 0.0505   | 0.0539    | -0.0161 | 0.0375  |
| 10 | 0.099    | 0.0565   | 0.0541    | -0.0118 | 0.0425  |
| 11 | 0.0998   | 0.0615   | 0.0608    | -0.0108 | 0.0303  |
| 12 | 0.1016   | 0.0649   | 0.0579    | -0.009  | 0.0114  |
| 13 | 0.1021   | 0.0849   | 0.061     | -0.0111 | 0.0211  |
| 14 | 0.1021   | 0.0869   | 0.0615    | -0.0114 | 0.0163  |

RD period prevalence SE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0226   | 0.0176   | 0.0176    | 0.009  | 0.0321  |
| 2  | 0.0236   | 0.0209   | 0.0203    | 0.0112 | 0.0399  |
| 3  | 0.0252   | 0.0217   | 0.0214    | 0.0132 | 0.0404  |
| 4  | 0.0257   | 0.0229   | 0.0232    | 0.0139 | 0.0393  |
| 5  | 0.0268   | 0.0254   | 0.0239    | 0.0163 | 0.0429  |
| 6  | 0.0272   | 0.028    | 0.0242    | 0.0171 | 0.0433  |
| 7  | 0.0285   | 0.0278   | 0.0248    | 0.0183 | 0.0429  |
| 8  | 0.0299   | 0.0282   | 0.0252    | 0.0185 | 0.0437  |
| 9  | 0.0302   | 0.0285   | 0.0254    | 0.0187 | 0.0431  |
| 10 | 0.0301   | 0.0294   | 0.0251    | 0.0189 | 0.0444  |
| 11 | 0.0293   | 0.0294   | 0.0246    | 0.0192 | 0.0428  |
| 12 | 0.0291   | 0.0293   | 0.0254    | 0.0195 | 0.0423  |
| 13 | 0.0288   | 0.0301   | 0.0253    | 0.0194 | 0.0421  |
| 14 | 0.0288   | 0.0303   | 0.0251    | 0.0196 | 0.0426  |

RD period prevalence BIAS

|   | India HP | India MP | Indonesia | Peru    | Senegal |
|---|----------|----------|-----------|---------|---------|
| 1 | -0.0291  | 0.0024   | 0.0165    | -0.0029 | -0.0103 |
| 2 | 0        | 0        | 0         | 0       | 0       |
| 3 | 0.0026   | 0.0081   | 0.0098    | 0.0056  | -0.028  |

|    |        |        |        |        |        |
|----|--------|--------|--------|--------|--------|
| 10 | 0.1287 | 0.1412 | 0.1261 | 0.1819 | 0.1239 |
| 11 | 0.1278 | 0.1417 | 0.1207 | 0.1811 | 0.123  |
| 12 | 0.1258 | 0.1411 | 0.1104 | 0.1855 | 0.122  |
| 13 | 0.1234 | 0.1402 | 0.1055 | 0.1838 | 0.1193 |
| 14 | 0.1244 | 0.1408 | 0.1019 | 0.1879 | 0.1157 |

PR daily prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.3876   | 1.3927   | 1.3183    | 1.3044 | 1.4977  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.849    | 0.8826   | 1.1737    | 0.8224 | 1.0776  |
| 4  | 0.7686   | 0.8551   | 1.1521    | 0.7177 | 1.3271  |
| 5  | 0.6626   | 0.7837   | 0.9061    | 0.9327 | 1.45    |
| 6  | 0.5805   | 0.7128   | 0.8098    | 1.211  | 1.2666  |
| 7  | 0.5137   | 0.6916   | 0.653     | 1.2395 | 1.0937  |
| 8  | 0.4934   | 0.6848   | 0.6729    | 1.2735 | 1.0068  |
| 9  | 0.4788   | 0.6326   | 0.6535    | 1.1705 | 0.9819  |
| 10 | 0.4601   | 0.6241   | 0.5794    | 1.2449 | 0.946   |
| 11 | 0.4536   | 0.6277   | 0.5306    | 1.234  | 0.9322  |
| 12 | 0.4399   | 0.6232   | 0.4441    | 1.2941 | 0.9177  |
| 13 | 0.4234   | 0.6149   | 0.4051    | 1.2705 | 0.878   |
| 14 | 0.4301   | 0.6204   | 0.378     | 1.3279 | 0.8252  |

RD period prevalence

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0524   | 0.022    | 0.0323    | 0.0129 | -0.003  |
| 2  | 0.0819   | 0.0275   | 0.0559    | 0.0129 | 0.0152  |
| 3  | 0.082    | 0.0346   | 0.0789    | 0.0204 | 0.0284  |
| 4  | 0.0954   | 0.042    | 0.0829    | 0.0251 | 0.0417  |
| 5  | 0.1045   | 0.0394   | 0.09      | 0.0392 | 0.0273  |
| 6  | 0.1261   | 0.0391   | 0.0958    | 0.0539 | 0.0222  |
| 7  | 0.1358   | 0.0429   | 0.1112    | 0.0589 | 0.0244  |
| 8  | 0.1368   | 0.0459   | 0.1102    | 0.0608 | 0.0286  |
| 9  | 0.1363   | 0.0486   | 0.1105    | 0.0601 | 0.0275  |
| 10 | 0.1293   | 0.054    | 0.106     | 0.0637 | 0.0448  |
| 11 | 0.1303   | 0.0536   | 0.1023    | 0.0608 | 0.041   |
| 12 | 0.1331   | 0.0605   | 0.0979    | 0.0637 | 0.0424  |
| 13 | 0.1341   | 0.0572   | 0.1005    | 0.0627 | 0.0453  |
| 14 | 0.1334   | 0.0537   | 0.0975    | 0.0643 | 0.0438  |

RD period prevalence SE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0192   | 0.0146   | 0.0217    | 0.0098 | 0.0247  |
| 2  | 0.0222   | 0.0153   | 0.0235    | 0.0115 | 0.0272  |
| 3  | 0.0224   | 0.0154   | 0.0253    | 0.0129 | 0.0299  |
| 4  | 0.024    | 0.017    | 0.0259    | 0.0136 | 0.032   |
| 5  | 0.0234   | 0.0185   | 0.0259    | 0.016  | 0.0316  |
| 6  | 0.0233   | 0.0197   | 0.0263    | 0.0177 | 0.0322  |
| 7  | 0.0234   | 0.0202   | 0.0264    | 0.0187 | 0.0337  |
| 8  | 0.0232   | 0.0196   | 0.0274    | 0.0187 | 0.034   |
| 9  | 0.0236   | 0.0204   | 0.0277    | 0.0188 | 0.0331  |
| 10 | 0.0231   | 0.0213   | 0.0275    | 0.0187 | 0.0322  |
| 11 | 0.0216   | 0.0218   | 0.0276    | 0.0188 | 0.0321  |
| 12 | 0.0214   | 0.0225   | 0.0279    | 0.019  | 0.0326  |
| 13 | 0.0214   | 0.0224   | 0.0283    | 0.019  | 0.0333  |
| 14 | 0.0214   | 0.0226   | 0.0283    | 0.0192 | 0.0333  |

RD period prevalence BIAS

|   | India HP | India MP | Indonesia | Peru   | Senegal |
|---|----------|----------|-----------|--------|---------|
| 1 | -0.0295  | -0.0055  | -0.0236   | 0      | -0.0182 |
| 2 | 0        | 0        | 0         | 0      | 0       |
| 3 | 0.0001   | 0.007    | 0.0231    | 0.0076 | 0.0132  |

|    |        |        |        |        |        |
|----|--------|--------|--------|--------|--------|
| 10 | 0.2873 | 0.1477 | 0.126  | 0.1961 | 0.1864 |
| 11 | 0.3114 | 0.141  | 0.1286 | 0.1937 | 0.1998 |
| 12 | 0.3324 | 0.1316 | 0.1368 | 0.2    | 0.2032 |
| 13 | 0.3488 | 0.1278 | 0.1401 | 0.2133 | 0.1999 |
| 14 | 0.3614 | 0.1247 | 0.1447 | 0.2289 | 0.1945 |

PR daily prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.3172   | 1.279    | 1.5711    | 1.5871 | 1.3875  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.7788   | 0.8984   | 1.033     | 0.868  | 0.8117  |
| 4  | 0.6288   | 0.868    | 0.8823    | 0.9828 | 0.704   |
| 5  | 0.5446   | 0.6807   | 0.7535    | 0.8235 | 0.9048  |
| 6  | 0.6146   | 0.6585   | 0.6919    | 0.7277 | 0.8415  |
| 7  | 0.8448   | 0.7178   | 0.5946    | 0.6744 | 0.9448  |
| 8  | 1.099    | 0.7566   | 0.5558    | 0.7024 | 1.0987  |
| 9  | 1.2815   | 0.6946   | 0.5579    | 0.7149 | 1.2908  |
| 10 | 1.6057   | 0.64     | 0.5714    | 0.6354 | 1.5628  |
| 11 | 1.8866   | 0.583    | 0.5954    | 0.6204 | 1.7972  |
| 12 | 2.1496   | 0.508    | 0.6734    | 0.6614 | 1.8589  |
| 13 | 2.3663   | 0.4792   | 0.7063    | 0.7522 | 1.7976  |
| 14 | 2.5409   | 0.4563   | 0.754     | 0.8662 | 1.7019  |

RD period prevalence

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0892   | 0.0264   | 0.0422    | 0.0508 | 0.0269  |
| 2  | 0.1103   | 0.0459   | 0.0405    | 0.0433 | 0.0381  |
| 3  | 0.1346   | 0.063    | 0.075     | 0.0665 | 0.0352  |
| 4  | 0.1494   | 0.0651   | 0.0649    | 0.0662 | 0.07    |
| 5  | 0.1529   | 0.0575   | 0.0678    | 0.0909 | 0.0912  |
| 6  | 0.1564   | 0.0578   | 0.0724    | 0.1158 | 0.1026  |
| 7  | 0.1582   | 0.0641   | 0.0859    | 0.1261 | 0.1152  |
| 8  | 0.1551   | 0.0639   | 0.0812    | 0.1266 | 0.1353  |
| 9  | 0.1541   | 0.0697   | 0.0859    | 0.1355 | 0.1359  |
| 10 | 0.1517   | 0.0702   | 0.0807    | 0.1446 | 0.1426  |
| 11 | 0.1487   | 0.0779   | 0.0788    | 0.1431 | 0.1344  |
| 12 | 0.1517   | 0.0819   | 0.0735    | 0.1406 | 0.1329  |
| 13 | 0.1525   | 0.0844   | 0.0805    | 0.1415 | 0.1276  |
| 14 | 0.1551   | 0.0865   | 0.0824    | 0.1385 | 0.1255  |

RD period prevalence SE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0256   | 0.0122   | 0.0222    | 0.015  | 0.0297  |
| 2  | 0.0254   | 0.0156   | 0.0248    | 0.0171 | 0.0299  |
| 3  | 0.0267   | 0.0168   | 0.0273    | 0.0204 | 0.0299  |
| 4  | 0.0255   | 0.0166   | 0.0274    | 0.0213 | 0.0315  |
| 5  | 0.025    | 0.0177   | 0.0289    | 0.0242 | 0.033   |
| 6  | 0.0254   | 0.0185   | 0.0295    | 0.026  | 0.0318  |
| 7  | 0.0261   | 0.0202   | 0.0307    | 0.0258 | 0.0346  |
| 8  | 0.0258   | 0.0193   | 0.0313    | 0.0257 | 0.0346  |
| 9  | 0.0259   | 0.0195   | 0.0315    | 0.0258 | 0.0339  |
| 10 | 0.0262   | 0.0197   | 0.0315    | 0.026  | 0.0333  |
| 11 | 0.0262   | 0.0201   | 0.0315    | 0.026  | 0.0336  |
| 12 | 0.0265   | 0.0207   | 0.0319    | 0.0264 | 0.0332  |
| 13 | 0.0269   | 0.021    | 0.0316    | 0.0261 | 0.0348  |
| 14 | 0.0267   | 0.021    | 0.0321    | 0.0262 | 0.0347  |

RD period prevalence BIAS

|   | India HP | India MP | Indonesia | Peru   | Senegal |
|---|----------|----------|-----------|--------|---------|
| 1 | -0.0211  | -0.0195  | 0.0017    | 0.0075 | -0.0112 |
| 2 | 0        | 0        | 0         | 0      | 0       |
| 3 | 0.0243   | 0.017    | 0.0345    | 0.0232 | -0.0029 |

|    |        |         |        |         |         |
|----|--------|---------|--------|---------|---------|
| 4  | 0.0204 | -0.001  | 0.006  | 0.0054  | -0.0117 |
| 5  | 0.0417 | -0.0048 | 0.0102 | 0.0096  | -0.0453 |
| 6  | 0.0545 | 0.004   | 0.0208 | 0.0021  | -0.0313 |
| 7  | 0.072  | 0.026   | 0.0289 | -0.006  | -0.0214 |
| 8  | 0.0704 | 0.0398  | 0.0312 | -0.0024 | -0.013  |
| 9  | 0.0713 | 0.0499  | 0.0349 | -0.0023 | -0.0108 |
| 10 | 0.0686 | 0.0559  | 0.035  | 0.0021  | -0.0059 |
| 11 | 0.0694 | 0.0609  | 0.0417 | 0.003   | -0.018  |
| 12 | 0.0713 | 0.0643  | 0.0389 | 0.0049  | -0.0369 |
| 13 | 0.0717 | 0.0842  | 0.042  | 0.0028  | -0.0273 |
| 14 | 0.0717 | 0.0862  | 0.0425 | 0.0024  | -0.032  |

RD period prevalence % BIAS

|    | India HP | India MP   | Indonesia | Peru    | Senegal |
|----|----------|------------|-----------|---------|---------|
| 1  | 95.6512  | 382.9694   | 86.7133   | 21.1614 | 21.3357 |
| 2  | 0        | 0          | 0         | 0       | 0       |
| 3  | 8.6056   | 1275.1092  | 51.5152   | 40.7642 | 57.9887 |
| 4  | 67.1077  | 160.917    | 31.4685   | 38.6979 | 24.1992 |
| 5  | 137.1376 | 750.4367   | 53.38     | 69.6606 | 93.7973 |
| 6  | 179.2913 | 630.3493   | 109.0909  | 15.1167 | 64.6768 |
| 7  | 236.8155 | 4089.083   | 151.7483  | 43.4347 | 44.3118 |
| 8  | 231.7533 | 6265.9389  | 164.1026  | 17.0673 | 26.8006 |
| 9  | 234.5605 | 7860.0437  | 183.2168  | 16.582  | 22.3258 |
| 10 | 225.6558 | 8796.7249  | 184.1492  | 15.0942 | 12.1433 |
| 11 | 228.463  | 9586.0262  | 219.3473  | 21.8073 | 37.2452 |
| 12 | 234.503  | 10129.0393 | 204.1958  | 35.2336 | 76.4221 |
| 13 | 235.9066 | 13266.8122 | 220.7459  | 20.1234 | 56.4454 |
| 14 | 235.9066 | 13579.0393 | 223.31    | 17.469  | 66.2396 |

RD period prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0368   | 0.0178   | 0.0241    | 0.0094 | 0.0337  |
| 2  | 0.0236   | 0.0209   | 0.0203    | 0.0112 | 0.0399  |
| 3  | 0.0254   | 0.0232   | 0.0235    | 0.0144 | 0.0492  |
| 4  | 0.0328   | 0.023    | 0.024     | 0.0149 | 0.041   |
| 5  | 0.0495   | 0.0259   | 0.026     | 0.019  | 0.0624  |
| 6  | 0.0609   | 0.0283   | 0.0319    | 0.0173 | 0.0534  |
| 7  | 0.0774   | 0.038    | 0.0381    | 0.0192 | 0.0479  |
| 8  | 0.0765   | 0.0487   | 0.0402    | 0.0186 | 0.0456  |
| 9  | 0.0774   | 0.0574   | 0.0431    | 0.0188 | 0.0444  |
| 10 | 0.0749   | 0.0631   | 0.0431    | 0.0191 | 0.0447  |
| 11 | 0.0754   | 0.0676   | 0.0485    | 0.0195 | 0.0464  |
| 12 | 0.077    | 0.0707   | 0.0464    | 0.0201 | 0.0561  |
| 13 | 0.0772   | 0.0895   | 0.049     | 0.0196 | 0.0501  |
| 14 | 0.0772   | 0.0914   | 0.0494    | 0.0198 | 0.0533  |

RD period prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 2.437    | 0.7209   | 1.4125    | 0.712  | 0.7142  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 1.1566   | 1.2248   | 1.3421    | 1.644  | 1.5216  |
| 4  | 1.9352   | 1.2032   | 1.3972    | 1.7808 | 1.0581  |
| 5  | 4.4066   | 1.5249   | 1.641     | 2.8698 | 2.4512  |
| 6  | 6.6551   | 1.8264   | 2.4646    | 2.3747 | 1.7969  |
| 7  | 10.7526  | 3.2974   | 3.5206    | 2.954  | 1.4463  |
| 8  | 10.5036  | 5.4171   | 3.9102    | 2.7677 | 1.3073  |
| 9  | 10.7585  | 7.5246   | 4.5144    | 2.8197 | 1.2417  |
| 10 | 10.0659  | 9.0826   | 4.5102    | 2.8978 | 1.2607  |
| 11 | 10.197   | 10.4166  | 5.6945    | 3.02   | 1.3561  |
| 12 | 10.6334  | 11.3896  | 5.23      | 3.2142 | 1.9843  |
| 13 | 10.7138  | 18.2464  | 5.8282    | 3.0664 | 1.5823  |

|    |        |        |        |        |        |
|----|--------|--------|--------|--------|--------|
| 4  | 0.0135 | 0.0144 | 0.027  | 0.0122 | 0.0265 |
| 5  | 0.0226 | 0.0119 | 0.0342 | 0.0263 | 0.0121 |
| 6  | 0.0442 | 0.0115 | 0.0399 | 0.0411 | 0.0069 |
| 7  | 0.0539 | 0.0154 | 0.0553 | 0.0461 | 0.0091 |
| 8  | 0.0549 | 0.0183 | 0.0544 | 0.048  | 0.0134 |
| 9  | 0.0544 | 0.0211 | 0.0546 | 0.0472 | 0.0122 |
| 10 | 0.0474 | 0.0264 | 0.0502 | 0.0508 | 0.0295 |
| 11 | 0.0483 | 0.026  | 0.0464 | 0.0479 | 0.0258 |
| 12 | 0.0512 | 0.033  | 0.042  | 0.0508 | 0.0272 |
| 13 | 0.0522 | 0.0297 | 0.0447 | 0.0498 | 0.0301 |
| 14 | 0.0515 | 0.0262 | 0.0417 | 0.0515 | 0.0285 |

RD period prevalence % BIAS

|    | India HP | India MP | Indonesia | Peru     | Senegal  |
|----|----------|----------|-----------|----------|----------|
| 1  | 36.0661  | 20.0851  | 42.2502   | 0.0371   | 119.4598 |
| 2  | 0        | 0        | 0         | 0        | 0        |
| 3  | 0.0797   | 25.5076  | 41.2977   | 58.8     | 86.9043  |
| 4  | 16.4874  | 52.3985  | 48.3965   | 94.5993  | 173.8085 |
| 5  | 27.6027  | 43.2049  | 61.1653   | 204.1654 | 79.2109  |
| 6  | 53.9217  | 41.9109  | 71.5009   | 318.8754 | 45.5664  |
| 7  | 65.7529  | 55.948   | 98.9731   | 357.6874 | 60.0339  |
| 8  | 66.9991  | 66.5928  | 97.2915   | 372.4088 | 88.2478  |
| 9  | 66.4264  | 76.5013  | 97.7677   | 366.3462 | 80.4695  |
| 10 | 57.9045  | 95.9608  | 89.8132   | 394.6992 | 194.1451 |
| 11 | 59.0076  | 94.5775  | 83.1386   | 371.784  | 169.6365 |
| 12 | 62.4811  | 119.817  | 75.1842   | 394.7847 | 178.5886 |
| 13 | 63.7273  | 107.8782 | 79.9762   | 387.0075 | 197.8504 |
| 14 | 62.8894  | 95.0243  | 74.5814   | 399.7204 | 187.5407 |

RD period prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0352   | 0.0156   | 0.0321    | 0.0098 | 0.0307  |
| 2  | 0.0222   | 0.0153   | 0.0235    | 0.0115 | 0.0272  |
| 3  | 0.0224   | 0.0169   | 0.0343    | 0.015  | 0.0327  |
| 4  | 0.0275   | 0.0223   | 0.0374    | 0.0183 | 0.0415  |
| 5  | 0.0326   | 0.022    | 0.0429    | 0.0308 | 0.0338  |
| 6  | 0.05     | 0.0228   | 0.0478    | 0.0447 | 0.033   |
| 7  | 0.0587   | 0.0254   | 0.0613    | 0.0497 | 0.0349  |
| 8  | 0.0596   | 0.0268   | 0.0608    | 0.0515 | 0.0366  |
| 9  | 0.0593   | 0.0293   | 0.0612    | 0.0508 | 0.0353  |
| 10 | 0.0527   | 0.0339   | 0.0572    | 0.0541 | 0.0437  |
| 11 | 0.0529   | 0.0339   | 0.054     | 0.0514 | 0.0412  |
| 12 | 0.0555   | 0.0399   | 0.0504    | 0.0543 | 0.0424  |
| 13 | 0.0564   | 0.0372   | 0.0529    | 0.0533 | 0.0449  |
| 14 | 0.0558   | 0.0346   | 0.0503    | 0.0549 | 0.0439  |

RD period prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru    | Senegal |
|----|----------|----------|-----------|---------|---------|
| 1  | 2.5113   | 1.0374   | 1.8672    | 0.715   | 1.2671  |
| 2  | 1        | 1        | 1         | 1       | 1       |
| 3  | 1.0143   | 1.2267   | 2.1285    | 1.6834  | 1.4408  |
| 4  | 1.5309   | 1.2151   | 2.54      | 2.5027  | 2.3233  |
| 5  | 2.1455   | 2.0612   | 3.3296    | 7.0961  | 1.539   |
| 6  | 5.0479   | 2.2195   | 4.149     | 14.9849 | 1.4652  |
| 7  | 6.9815   | 2.7548   | 6.8047    | 18.5135 | 1.6431  |
| 8  | 7.1843   | 3.0775   | 6.714     | 19.8667 | 1.8046  |
| 9  | 7.12     | 3.6732   | 6.7976    | 19.3409 | 1.6817  |
| 10 | 5.6281   | 4.9181   | 5.9387    | 21.9777 | 2.5751  |
| 11 | 5.6682   | 4.9217   | 5.2958    | 19.8272 | 2.2895  |
| 12 | 6.2254   | 6.8051   | 4.6095    | 22.0765 | 2.4245  |
| 13 | 6.4407   | 5.9181   | 5.0694    | 21.3216 | 2.7175  |

|    |        |        |        |        |        |
|----|--------|--------|--------|--------|--------|
| 4  | 0.0392 | 0.0192 | 0.0244 | 0.0229 | 0.0319 |
| 5  | 0.0427 | 0.0115 | 0.0273 | 0.0476 | 0.053  |
| 6  | 0.0461 | 0.0118 | 0.0319 | 0.0725 | 0.0645 |
| 7  | 0.048  | 0.0182 | 0.0454 | 0.0828 | 0.0771 |
| 8  | 0.0449 | 0.018  | 0.0407 | 0.0833 | 0.0972 |
| 9  | 0.0439 | 0.0238 | 0.0454 | 0.0922 | 0.0978 |
| 10 | 0.0415 | 0.0243 | 0.0402 | 0.1013 | 0.1045 |
| 11 | 0.0385 | 0.032  | 0.0383 | 0.0998 | 0.0963 |
| 12 | 0.0414 | 0.036  | 0.033  | 0.0973 | 0.0948 |
| 13 | 0.0422 | 0.0384 | 0.04   | 0.0982 | 0.0895 |
| 14 | 0.0449 | 0.0405 | 0.042  | 0.0952 | 0.0874 |

RD period prevalence % BIAS

|    | India HP | India MP | Indonesia | Peru     | Senegal  |
|----|----------|----------|-----------|----------|----------|
| 1  | 19.1355  | 42.5282  | 4.3174    | 17.2164  | 29.4926  |
| 2  | 0        | 0        | 0         | 0        | 0        |
| 3  | 22.0461  | 37.0652  | 85.313    | 53.4748  | 7.6596   |
| 4  | 35.5245  | 41.7504  | 60.2661   | 52.9108  | 83.6661  |
| 5  | 38.689   | 25.0919  | 67.5111   | 109.8549 | 139.1817 |
| 6  | 41.8533  | 25.7349  | 78.7679   | 167.4224 | 169.0998 |
| 7  | 43.5193  | 39.5701  | 112.0355  | 191.2731 | 202.3241 |
| 8  | 40.6923  | 39.1475  | 100.4731  | 192.3788 | 255.0573 |
| 9  | 39.7789  | 51.7393  | 112.2031  | 212.8418 | 256.4975 |
| 10 | 37.6177  | 52.805   | 99.2755   | 233.9987 | 274.1408 |
| 11 | 34.8743  | 69.6166  | 94.5392   | 230.459  | 252.6678 |
| 12 | 37.5372  | 78.3439  | 81.6116   | 224.7672 | 248.7398 |
| 13 | 38.2865  | 83.6293  | 98.8024   | 226.7077 | 234.6972 |
| 14 | 40.6985  | 88.2043  | 103.6225  | 219.7692 | 229.329  |

RD period prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0331   | 0.023    | 0.0223    | 0.0168 | 0.0317  |
| 2  | 0.0254   | 0.0156   | 0.0248    | 0.0171 | 0.0299  |
| 3  | 0.0361   | 0.0239   | 0.044     | 0.0309 | 0.03    |
| 4  | 0.0467   | 0.0254   | 0.0367    | 0.0313 | 0.0449  |
| 5  | 0.0495   | 0.0211   | 0.0398    | 0.0534 | 0.0625  |
| 6  | 0.0527   | 0.0219   | 0.0435    | 0.077  | 0.0719  |
| 7  | 0.0546   | 0.0272   | 0.0548    | 0.0868 | 0.0845  |
| 8  | 0.0518   | 0.0264   | 0.0513    | 0.0872 | 0.1032  |
| 9  | 0.0509   | 0.0308   | 0.0553    | 0.0957 | 0.1035  |
| 10 | 0.0491   | 0.0312   | 0.0511    | 0.1046 | 0.1097  |
| 11 | 0.0465   | 0.0378   | 0.0496    | 0.1031 | 0.102   |
| 12 | 0.0491   | 0.0415   | 0.0459    | 0.1009 | 0.1004  |
| 13 | 0.0501   | 0.0438   | 0.051     | 0.1016 | 0.096   |
| 14 | 0.0522   | 0.0457   | 0.0528    | 0.0987 | 0.094   |

RD period prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru    | Senegal |
|----|----------|----------|-----------|---------|---------|
| 1  | 1.7035   | 2.1917   | 0.807     | 0.9612  | 1.1219  |
| 2  | 1        | 1        | 1         | 1       | 1       |
| 3  | 2.0188   | 2.3635   | 3.1392    | 3.2519  | 1.0061  |
| 4  | 3.3867   | 2.6648   | 2.1842    | 3.341   | 2.2431  |
| 5  | 3.7922   | 1.8435   | 2.5644    | 9.7253  | 4.352   |
| 6  | 4.3062   | 1.9906   | 3.0603    | 20.2681 | 5.7604  |
| 7  | 4.6285   | 3.056    | 4.8581    | 25.7066 | 7.9673  |
| 8  | 4.1571   | 2.8779   | 4.2676    | 25.9608 | 11.8677 |
| 9  | 4.0232   | 3.9112   | 4.9539    | 31.2833 | 11.9398 |
| 10 | 3.7317   | 4.0348   | 4.2246    | 37.3768 | 13.4117 |
| 11 | 3.355    | 5.9056   | 3.9862    | 36.3317 | 11.5977 |
| 12 | 3.7445   | 7.123    | 3.4172    | 34.7475 | 11.2481 |
| 13 | 3.8846   | 7.9226   | 4.2093    | 35.2491 | 10.2738 |

|    |         |         |        |        |        |
|----|---------|---------|--------|--------|--------|
| 14 | 10.7138 | 19.0423 | 5.9151 | 3.1191 | 1.7904 |
|----|---------|---------|--------|--------|--------|

| RD daily prevalence |          |          |           |         |         |
|---------------------|----------|----------|-----------|---------|---------|
|                     | India HP | India MP | Indonesia | Peru    | Senegal |
| 1                   | 0.0013   | 0.0031   | 0.0355    | -0.0168 | 0.038   |
| 2                   | 0.0183   | 0.0028   | 0.0209    | -0.0162 | 0.0437  |
| 3                   | 0.0175   | 0.0069   | 0.0208    | -0.0125 | 0.0328  |
| 4                   | 0.0252   | 0.0014   | 0.0152    | -0.0093 | 0.0341  |
| 5                   | 0.0326   | -0.0066  | 0.0133    | -0.008  | 0.0293  |
| 6                   | 0.0377   | -0.0081  | 0.0134    | -0.0092 | 0.0259  |
| 7                   | 0.0397   | -0.0055  | 0.0161    | -0.0103 | 0.0198  |
| 8                   | 0.0409   | -0.0039  | 0.0168    | -0.0101 | 0.0174  |
| 9                   | 0.0414   | -0.001   | 0.0169    | -0.0099 | 0.017   |
| 10                  | 0.0395   | 0.0013   | 0.016     | -0.009  | 0.0175  |
| 11                  | 0.0379   | 0.0043   | 0.015     | -0.0083 | 0.0167  |
| 12                  | 0.0369   | 0.0052   | 0.0144    | -0.0076 | 0.0142  |
| 13                  | 0.0356   | 0.007    | 0.0137    | -0.0073 | 0.0131  |
| 14                  | 0.0344   | 0.0084   | 0.0131    | -0.0072 | 0.0116  |

| RD daily prevalence SE |          |          |           |        |         |
|------------------------|----------|----------|-----------|--------|---------|
|                        | India HP | India MP | Indonesia | Peru   | Senegal |
| 1                      | 0.0226   | 0.0176   | 0.0176    | 0.009  | 0.0321  |
| 2                      | 0.0217   | 0.0172   | 0.0172    | 0.0084 | 0.0328  |
| 3                      | 0.0201   | 0.0166   | 0.0159    | 0.0082 | 0.0324  |
| 4                      | 0.0184   | 0.0153   | 0.0151    | 0.0077 | 0.0314  |
| 5                      | 0.0167   | 0.0143   | 0.0144    | 0.0072 | 0.0289  |
| 6                      | 0.0154   | 0.014    | 0.0135    | 0.007  | 0.0266  |
| 7                      | 0.0145   | 0.0137   | 0.0129    | 0.0069 | 0.0251  |
| 8                      | 0.0138   | 0.0131   | 0.0119    | 0.0062 | 0.0238  |
| 9                      | 0.0133   | 0.0123   | 0.0111    | 0.0057 | 0.0222  |
| 10                     | 0.0129   | 0.0117   | 0.0105    | 0.0052 | 0.0208  |
| 11                     | 0.0122   | 0.0111   | 0.0099    | 0.0048 | 0.0193  |
| 12                     | 0.0116   | 0.0107   | 0.0095    | 0.0045 | 0.0179  |
| 13                     | 0.011    | 0.0101   | 0.0092    | 0.0042 | 0.0169  |
| 14                     | 0.0105   | 0.0098   | 0.009     | 0.004  | 0.0162  |

| RD daily prevalence BIAS |          |          |           |         |         |
|--------------------------|----------|----------|-----------|---------|---------|
|                          | India HP | India MP | Indonesia | Peru    | Senegal |
| 1                        | -0.0169  | 0.0003   | 0.0146    | -0.0006 | -0.0057 |
| 2                        | 0        | 0        | 0         | 0       | 0       |
| 3                        | -0.0008  | 0.0042   | -0.0001   | 0.0037  | -0.0108 |
| 4                        | 0.0069   | -0.0013  | -0.0057   | 0.0069  | -0.0096 |
| 5                        | 0.0143   | -0.0093  | -0.0076   | 0.0082  | -0.0143 |
| 6                        | 0.0194   | -0.0108  | -0.0075   | 0.007   | -0.0178 |
| 7                        | 0.0215   | -0.0083  | -0.0047   | 0.0059  | -0.0239 |
| 8                        | 0.0227   | -0.0067  | -0.0041   | 0.0061  | -0.0263 |
| 9                        | 0.0231   | -0.0038  | -0.004    | 0.0063  | -0.0267 |
| 10                       | 0.0212   | -0.0015  | -0.0049   | 0.0072  | -0.0262 |
| 11                       | 0.0196   | 0.0015   | -0.0059   | 0.0079  | -0.0269 |
| 12                       | 0.0187   | 0.0024   | -0.0065   | 0.0086  | -0.0295 |
| 13                       | 0.0173   | 0.0042   | -0.0072   | 0.0089  | -0.0306 |
| 14                       | 0.0161   | 0.0056   | -0.0078   | 0.009   | -0.032  |

| RD daily prevalence % BIAS |          |          |           |         |         |
|----------------------------|----------|----------|-----------|---------|---------|
|                            | India HP | India MP | Indonesia | Peru    | Senegal |
| 1                          | 92.7607  | 11.1558  | 70.6637   | 3.4433  | 12.9538 |
| 2                          | 0        | 0        | 0         | 0       | 0       |
| 3                          | 4.3825   | 151.3065 | 0.6369    | 22.7072 | 24.7977 |
| 4                          | 37.901   | 48.593   | 27.1231   | 42.7884 | 21.9629 |
| 5                          | 78.3396  | 338.2714 | 36.2208   | 50.5833 | 32.8077 |
| 6                          | 106.4828 | 392.8057 | 35.7396   | 43.119  | 40.6713 |
| 7                          | 117.562  | 299.1673 | 22.7176   | 36.6044 | 54.634  |

|    |        |        |        |         |        |
|----|--------|--------|--------|---------|--------|
| 14 | 6.2939 | 5.1108 | 4.5952 | 22.6244 | 2.5956 |
|----|--------|--------|--------|---------|--------|

| RD daily prevalence |          |          |           |        |         |
|---------------------|----------|----------|-----------|--------|---------|
|                     | India HP | India MP | Indonesia | Peru   | Senegal |
| 1                   | 0.0524   | 0.022    | 0.0323    | 0.0129 | -0.003  |
| 2                   | 0.0693   | 0.0253   | 0.038     | 0.0144 | 0.011   |
| 3                   | 0.0697   | 0.0297   | 0.0469    | 0.0144 | 0.0199  |
| 4                   | 0.0713   | 0.0295   | 0.0464    | 0.015  | 0.0272  |
| 5                   | 0.0687   | 0.0274   | 0.0439    | 0.0186 | 0.0292  |
| 6                   | 0.0651   | 0.024    | 0.0434    | 0.0214 | 0.0268  |
| 7                   | 0.0638   | 0.0223   | 0.042     | 0.023  | 0.0239  |
| 8                   | 0.0601   | 0.0209   | 0.0401    | 0.0219 | 0.0214  |
| 9                   | 0.0565   | 0.0209   | 0.0373    | 0.0199 | 0.0199  |
| 10                  | 0.0511   | 0.0207   | 0.0341    | 0.019  | 0.0189  |
| 11                  | 0.0473   | 0.0196   | 0.0314    | 0.0177 | 0.0181  |
| 12                  | 0.0449   | 0.0197   | 0.0283    | 0.017  | 0.0172  |
| 13                  | 0.0432   | 0.0189   | 0.0262    | 0.0161 | 0.0158  |
| 14                  | 0.0411   | 0.0179   | 0.0239    | 0.0156 | 0.014   |

| RD daily prevalence SE |          |          |           |        |         |
|------------------------|----------|----------|-----------|--------|---------|
|                        | India HP | India MP | Indonesia | Peru   | Senegal |
| 1                      | 0.0192   | 0.0146   | 0.0217    | 0.0098 | 0.0247  |
| 2                      | 0.0198   | 0.0136   | 0.02      | 0.0089 | 0.0243  |
| 3                      | 0.0186   | 0.0127   | 0.0187    | 0.0083 | 0.0242  |
| 4                      | 0.0172   | 0.0121   | 0.0169    | 0.0074 | 0.024   |
| 5                      | 0.0158   | 0.012    | 0.0153    | 0.007  | 0.0238  |
| 6                      | 0.0145   | 0.0115   | 0.0139    | 0.007  | 0.0223  |
| 7                      | 0.0131   | 0.0112   | 0.013     | 0.0071 | 0.021   |
| 8                      | 0.012    | 0.0107   | 0.0119    | 0.0064 | 0.0199  |
| 9                      | 0.0112   | 0.01     | 0.011     | 0.0058 | 0.019   |
| 10                     | 0.0103   | 0.0095   | 0.0102    | 0.0053 | 0.0177  |
| 11                     | 0.0095   | 0.009    | 0.0094    | 0.0049 | 0.0166  |
| 12                     | 0.009    | 0.0087   | 0.0086    | 0.0046 | 0.0157  |
| 13                     | 0.0084   | 0.0084   | 0.0081    | 0.0043 | 0.0149  |
| 14                     | 0.0081   | 0.0081   | 0.0076    | 0.0041 | 0.0143  |

| RD daily prevalence BIAS |          |          |           |         |         |
|--------------------------|----------|----------|-----------|---------|---------|
|                          | India HP | India MP | Indonesia | Peru    | Senegal |
| 1                        | -0.0169  | -0.0033  | -0.0058   | -0.0015 | -0.0139 |
| 2                        | 0        | 0        | 0         | 0       | 0       |
| 3                        | 0.0005   | 0.0044   | 0.0088    | 0       | 0.0089  |
| 4                        | 0.002    | 0.0042   | 0.0084    | 0.0006  | 0.0162  |
| 5                        | -0.0005  | 0.0021   | 0.0059    | 0.0042  | 0.0182  |
| 6                        | -0.0042  | -0.0013  | 0.0054    | 0.007   | 0.0159  |
| 7                        | -0.0054  | -0.003   | 0.004     | 0.0086  | 0.0129  |
| 8                        | -0.0092  | -0.0044  | 0.0021    | 0.0075  | 0.0104  |
| 9                        | -0.0128  | -0.0044  | -0.0008   | 0.0055  | 0.0089  |
| 10                       | -0.0181  | -0.0046  | -0.0039   | 0.0046  | 0.008   |
| 11                       | -0.022   | -0.0057  | -0.0066   | 0.0033  | 0.0071  |
| 12                       | -0.0243  | -0.0056  | -0.0098   | 0.0026  | 0.0062  |
| 13                       | -0.0261  | -0.0064  | -0.0119   | 0.0017  | 0.0048  |
| 14                       | -0.0282  | -0.0074  | -0.0141   | 0.0012  | 0.003   |

| RD daily prevalence % BIAS |          |          |           |         |          |
|----------------------------|----------|----------|-----------|---------|----------|
|                            | India HP | India MP | Indonesia | Peru    | Senegal  |
| 1                          | 24.3947  | 12.9451  | 15.1664   | 10.5955 | 126.9883 |
| 2                          | 0        | 0        | 0         | 0       | 0        |
| 3                          | 0.6564   | 17.5152  | 23.2515   | 0.1934  | 81.4194  |
| 4                          | 2.8878   | 16.7494  | 22.1156   | 4.3072  | 148.0288 |
| 5                          | 0.7852   | 8.3893   | 15.4703   | 28.945  | 165.8704 |
| 6                          | 6.0893   | 5.1172   | 14.1608   | 48.4041 | 144.5491 |
| 7                          | 7.8237   | 11.7364  | 10.424    | 59.6983 | 117.6018 |

|    |        |        |        |         |        |
|----|--------|--------|--------|---------|--------|
| 14 | 4.2268 | 8.6176 | 4.5237 | 33.2785 | 9.8576 |
|----|--------|--------|--------|---------|--------|

| RD daily prevalence |          |          |           |        |         |
|---------------------|----------|----------|-----------|--------|---------|
|                     | India HP | India MP | Indonesia | Peru   | Senegal |
| 1                   | 0.0892   | 0.0264   | 0.0422    | 0.0508 | 0.0269  |
| 2                   | 0.0984   | 0.0335   | 0.0342    | 0.0454 | 0.0382  |
| 3                   | 0.1004   | 0.0377   | 0.0422    | 0.0434 | 0.0418  |
| 4                   | 0.0993   | 0.038    | 0.0371    | 0.0384 | 0.0444  |
| 5                   | 0.0942   | 0.034    | 0.0334    | 0.0399 | 0.0521  |
| 6                   | 0.0848   | 0.0306   | 0.0331    | 0.0416 | 0.0508  |
| 7                   | 0.0761   | 0.0286   | 0.0311    | 0.0423 | 0.0524  |
| 8                   | 0.0673   | 0.027    | 0.0276    | 0.0385 | 0.0538  |
| 9                   | 0.0612   | 0.0262   | 0.0253    | 0.0353 | 0.0544  |
| 10                  | 0.0547   | 0.0252   | 0.0232    | 0.0337 | 0.0555  |
| 11                  | 0.0493   | 0.0245   | 0.0206    | 0.0315 | 0.0547  |
| 12                  | 0.045    | 0.0248   | 0.0174    | 0.0292 | 0.0525  |
| 13                  | 0.0415   | 0.0246   | 0.0159    | 0.0269 | 0.0495  |
| 14                  | 0.0387   | 0.0245   | 0.0145    | 0.0248 | 0.0464  |

| RD daily prevalence SE |          |          |           |        |         |
|------------------------|----------|----------|-----------|--------|---------|
|                        | India HP | India MP | Indonesia | Peru   | Senegal |
| 1                      | 0.0256   | 0.0122   | 0.0222    | 0.015  | 0.0297  |
| 2                      | 0.0237   | 0.0121   | 0.021     | 0.014  | 0.0279  |
| 3                      | 0.0212   | 0.0116   | 0.0191    | 0.0129 | 0.0255  |
| 4                      | 0.0189   | 0.011    | 0.018     | 0.0119 | 0.0236  |
| 5                      | 0.0176   | 0.0103   | 0.0169    | 0.0114 | 0.0236  |
| 6                      | 0.0161   | 0.0097   | 0.016     | 0.0111 | 0.0222  |
| 7                      | 0.0152   | 0.0095   | 0.015     | 0.0104 | 0.0215  |
| 8                      | 0.014    | 0.0091   | 0.0134    | 0.0092 | 0.0203  |
| 9                      | 0.0131   | 0.0085   | 0.0125    | 0.0083 | 0.0194  |
| 10                     | 0.0123   | 0.0078   | 0.0119    | 0.0076 | 0.0185  |
| 11                     | 0.0116   | 0.0072   | 0.0111    | 0.007  | 0.018   |
| 12                     | 0.011    | 0.0068   | 0.0104    | 0.0065 | 0.0174  |
| 13                     | 0.0105   | 0.0066   | 0.0098    | 0.0061 | 0.017   |
| 14                     | 0.0101   | 0.0064   | 0.0094    | 0.0058 | 0.0165  |

| RD daily prevalence BIAS |          |          |           |         |         |
|--------------------------|----------|----------|-----------|---------|---------|
|                          | India HP | India MP | Indonesia | Peru    | Senegal |
| 1                        | -0.0093  | -0.0071  | 0.008     | 0.0054  | -0.0113 |
| 2                        | 0        | 0        | 0         | 0       | 0       |
| 3                        | 0.002    | 0.0042   | 0.008     | -0.002  | 0.0036  |
| 4                        | 0.0008   | 0.0045   | 0.0029    | -0.007  | 0.0062  |
| 5                        | -0.0043  | 0.0004   | -0.0009   | -0.0055 | 0.0139  |
| 6                        | -0.0137  | -0.0029  | -0.0012   | -0.0038 | 0.0125  |
| 7                        | -0.0223  | -0.0049  | -0.0031   | -0.0031 | 0.0142  |
| 8                        | -0.0311  | -0.0065  | -0.0066   | -0.0068 | 0.0156  |
| 9                        | -0.0372  | -0.0073  | -0.009    | -0.0101 | 0.0162  |
| 10                       | -0.0437  | -0.0083  | -0.011    | -0.0117 | 0.0172  |
| 11                       | -0.0491  | -0.009   | -0.0136   | -0.0139 | 0.0164  |
| 12                       | -0.0534  | -0.0088  | -0.0168   | -0.0162 | 0.0143  |
| 13                       | -0.0569  | -0.009   | -0.0184   | -0.0185 | 0.0112  |
| 14                       | -0.0598  | -0.0091  | -0.0198   | -0.0206 | 0.0082  |

| RD daily prevalence % BIAS |          |          |           |         |         |
|----------------------------|----------|----------|-----------|---------|---------|
|                            | India HP | India MP | Indonesia | Peru    | Senegal |
| 1                          | 9.4122   | 21.2785  | 23.4205   | 11.8503 | 29.6883 |
| 2                          | 0        | 0        | 0         | 0       | 0       |
| 3                          | 1.9881   | 12.5177  | 23.2339   | 4.4139  | 9.45    |
| 4                          | 0.8386   | 13.4076  | 8.4303    | 15.3909 | 16.1825 |
| 5                          | 4.3237   | 1.2256   | 2.5418    | 12.1668 | 36.4452 |
| 6                          | 13.8683  | 8.6853   | 3.3791    | 8.4407  | 32.8002 |
| 7                          | 22.6695  | 14.7303  | 9.0536    | 6.8581  | 37.0794 |



|    |          |          |         |         |         |
|----|----------|----------|---------|---------|---------|
| 8  | 124.3345 | 242.2173 | 19.8248 | 37.8063 | 60.1625 |
| 9  | 126.6909 | 136.8509 | 19.0847 | 38.7313 | 61.0729 |
| 10 | 116.2386 | 53.5176  | 23.5456 | 44.1871 | 59.971  |
| 11 | 107.4465 | 55.3815  | 28.2571 | 48.9579 | 61.6922 |
| 12 | 102.1929 | 88.1826  | 30.9271 | 53.1261 | 67.5465 |
| 13 | 94.9042  | 153.7379 | 34.3132 | 55.1025 | 70.1206 |
| 14 | 88.4174  | 202.771  | 37.3825 | 55.3568 | 73.342  |

RD daily prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0283   | 0.0176   | 0.0229    | 0.009  | 0.0326  |
| 2  | 0.0217   | 0.0172   | 0.0172    | 0.0084 | 0.0328  |
| 3  | 0.0202   | 0.0171   | 0.0159    | 0.009  | 0.0342  |
| 4  | 0.0197   | 0.0154   | 0.0161    | 0.0104 | 0.0328  |
| 5  | 0.022    | 0.0171   | 0.0162    | 0.0109 | 0.0322  |
| 6  | 0.0248   | 0.0177   | 0.0154    | 0.0099 | 0.032   |
| 7  | 0.0259   | 0.016    | 0.0137    | 0.0091 | 0.0346  |
| 8  | 0.0266   | 0.0147   | 0.0126    | 0.0087 | 0.0355  |
| 9  | 0.0267   | 0.0128   | 0.0118    | 0.0084 | 0.0347  |
| 10 | 0.0248   | 0.0118   | 0.0116    | 0.0089 | 0.0335  |
| 11 | 0.0231   | 0.0112   | 0.0115    | 0.0093 | 0.0332  |
| 12 | 0.022    | 0.011    | 0.0115    | 0.0097 | 0.0345  |
| 13 | 0.0205   | 0.011    | 0.0117    | 0.0099 | 0.035   |
| 14 | 0.0192   | 0.0113   | 0.0119    | 0.0098 | 0.0359  |

RD daily prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.694    | 1.0455   | 1.7627    | 1.1528 | 0.9868  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.8607   | 0.9822   | 0.8494    | 1.1491 | 1.0892  |
| 4  | 0.8192   | 0.798    | 0.8746    | 1.5264 | 1.0023  |
| 5  | 1.0252   | 0.9851   | 0.8861    | 1.6955 | 0.9676  |
| 6  | 1.301    | 1.0539   | 0.7974    | 1.3932 | 0.9506  |
| 7  | 1.4194   | 0.8628   | 0.632     | 1.1748 | 1.1152  |
| 8  | 1.4978   | 0.7272   | 0.5321    | 1.0853 | 1.1705  |
| 9  | 1.5106   | 0.5543   | 0.4698    | 1.0159 | 1.1195  |
| 10 | 1.3051   | 0.4668   | 0.4531    | 1.1185 | 1.0433  |
| 11 | 1.1295   | 0.4236   | 0.448     | 1.2284 | 1.0243  |
| 12 | 1.0216   | 0.404    | 0.4439    | 1.3438 | 1.109   |
| 13 | 0.8915   | 0.4071   | 0.4576    | 1.3893 | 1.1387  |
| 14 | 0.7848   | 0.4282   | 0.4781    | 1.373  | 1.1994  |

|    |         |         |         |         |         |
|----|---------|---------|---------|---------|---------|
| 8  | 13.2384 | 17.5243 | 5.434   | 52.1443 | 95.0402 |
| 9  | 18.4379 | 17.491  | 2.0264  | 38.3334 | 81.4782 |
| 10 | 26.1595 | 18.1839 | 10.2541 | 31.93   | 72.6606 |
| 11 | 31.7697 | 22.3509 | 17.4013 | 22.7803 | 64.5457 |
| 12 | 35.1117 | 22.1486 | 25.6854 | 17.9211 | 56.5918 |
| 13 | 37.6979 | 25.1544 | 31.1783 | 11.846  | 43.7738 |
| 14 | 40.7155 | 29.2381 | 37.0685 | 8.2752  | 27.4745 |

RD daily prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0256   | 0.0149   | 0.0225    | 0.0099 | 0.0284  |
| 2  | 0.0198   | 0.0136   | 0.02      | 0.0089 | 0.0243  |
| 3  | 0.0186   | 0.0134   | 0.0207    | 0.0083 | 0.0258  |
| 4  | 0.0173   | 0.0128   | 0.0189    | 0.0075 | 0.029   |
| 5  | 0.0158   | 0.0122   | 0.0164    | 0.0081 | 0.03    |
| 6  | 0.0151   | 0.0116   | 0.0149    | 0.0099 | 0.0274  |
| 7  | 0.0142   | 0.0116   | 0.0136    | 0.0111 | 0.0247  |
| 8  | 0.0151   | 0.0116   | 0.012     | 0.0099 | 0.0225  |
| 9  | 0.017    | 0.0109   | 0.0111    | 0.008  | 0.021   |
| 10 | 0.0209   | 0.0105   | 0.0109    | 0.007  | 0.0194  |
| 11 | 0.024    | 0.0107   | 0.0115    | 0.0059 | 0.018   |
| 12 | 0.0259   | 0.0103   | 0.013     | 0.0053 | 0.0169  |
| 13 | 0.0274   | 0.0105   | 0.0143    | 0.0046 | 0.0157  |
| 14 | 0.0293   | 0.011    | 0.016     | 0.0043 | 0.0147  |

RD daily prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.6635   | 1.2061   | 1.2675    | 1.2292 | 1.3574  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.8768   | 0.9761   | 1.07      | 0.8691 | 1.1261  |
| 4  | 0.7585   | 0.8874   | 0.8934    | 0.6985 | 1.4163  |
| 5  | 0.6373   | 0.7993   | 0.6702    | 0.8338 | 1.5194  |
| 6  | 0.5809   | 0.7294   | 0.5584    | 1.2292 | 1.2683  |
| 7  | 0.5139   | 0.7267   | 0.4605    | 1.5571 | 1.0277  |
| 8  | 0.5826   | 0.7239   | 0.3633    | 1.2327 | 0.8545  |
| 9  | 0.7346   | 0.6432   | 0.3062    | 0.8122 | 0.7436  |
| 10 | 1.1063   | 0.6013   | 0.2968    | 0.6252 | 0.6389  |
| 11 | 1.4627   | 0.615    | 0.3289    | 0.4428 | 0.5486  |
| 12 | 1.7086   | 0.5775   | 0.4249    | 0.3507 | 0.4801  |
| 13 | 1.9154   | 0.5963   | 0.5151    | 0.2714 | 0.4161  |
| 14 | 2.1898   | 0.653    | 0.644     | 0.2318 | 0.3626  |

|    |         |         |         |         |         |
|----|---------|---------|---------|---------|---------|
| 8  | 31.6239 | 19.4958 | 19.408  | 15.0851 | 40.754  |
| 9  | 37.7913 | 21.8704 | 26.2162 | 22.3218 | 42.3209 |
| 10 | 44.4212 | 24.8438 | 32.0715 | 25.6816 | 45.1085 |
| 11 | 49.8881 | 26.8396 | 39.6791 | 30.6208 | 43.0301 |
| 12 | 54.2731 | 26.1426 | 49.1229 | 35.6197 | 37.4381 |
| 13 | 57.8402 | 26.73   | 53.6196 | 40.8068 | 29.397  |
| 14 | 60.7114 | 27.053  | 57.7659 | 45.3474 | 21.4461 |

RD daily prevalence root MSE

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 0.0272   | 0.0141   | 0.0236    | 0.016  | 0.0318  |
| 2  | 0.0237   | 0.0121   | 0.021     | 0.014  | 0.0279  |
| 3  | 0.0213   | 0.0123   | 0.0207    | 0.0131 | 0.0257  |
| 4  | 0.0189   | 0.0119   | 0.0182    | 0.0138 | 0.0243  |
| 5  | 0.0181   | 0.0103   | 0.017     | 0.0126 | 0.0274  |
| 6  | 0.0211   | 0.0101   | 0.016     | 0.0118 | 0.0255  |
| 7  | 0.027    | 0.0107   | 0.0153    | 0.0108 | 0.0257  |
| 8  | 0.0341   | 0.0112   | 0.015     | 0.0115 | 0.0256  |
| 9  | 0.0395   | 0.0112   | 0.0154    | 0.0131 | 0.0252  |
| 10 | 0.0454   | 0.0114   | 0.0162    | 0.0139 | 0.0253  |
| 11 | 0.0505   | 0.0115   | 0.0175    | 0.0156 | 0.0244  |
| 12 | 0.0545   | 0.0111   | 0.0198    | 0.0174 | 0.0226  |
| 13 | 0.0579   | 0.0111   | 0.0208    | 0.0195 | 0.0204  |
| 14 | 0.0606   | 0.0111   | 0.0219    | 0.0214 | 0.0184  |

RD daily prevalence relative MSE (day 2 ref)

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.3125   | 1.3565   | 1.2736    | 1.3041 | 1.2956  |
| 2  | 1        | 1        | 1         | 1      | 1       |
| 3  | 0.8055   | 1.0366   | 0.9742    | 0.878  | 0.8501  |
| 4  | 0.6344   | 0.9597   | 0.7553    | 0.9781 | 0.7615  |
| 5  | 0.58     | 0.7271   | 0.6555    | 0.8176 | 0.9659  |
| 6  | 0.7916   | 0.6971   | 0.5864    | 0.7077 | 0.8355  |
| 7  | 1.2928   | 0.7752   | 0.5331    | 0.5987 | 0.8511  |
| 8  | 2.0686   | 0.8554   | 0.5118    | 0.6733 | 0.8402  |
| 9  | 2.7631   | 0.8527   | 0.5404    | 0.8746 | 0.8183  |
| 10 | 3.6631   | 0.8841   | 0.5942    | 0.991  | 0.8213  |
| 11 | 4.5208   | 0.9068   | 0.6989    | 1.24   | 0.7622  |
| 12 | 5.282    | 0.8426   | 0.8894    | 1.5559 | 0.6533  |
| 13 | 5.9493   | 0.846    | 0.9865    | 1.9458 | 0.5341  |
| 14 | 6.5195   | 0.8409   | 1.0901    | 2.3382 | 0.4349  |

Sheet 4. Cough, Sample Size

Sample Size Required (RR=0.8), period prevalence (File created by recall-empirical-p

|     | India HP | India MP | Indonesia | Peru | Senegal |
|-----|----------|----------|-----------|------|---------|
| d1  | 2033     | 4154     | 1641      | 1185 | 2976    |
| d2  | 1758     | 3285     | 1458      | 1077 | 2535    |
| d3  | 1463     | 2772     | 1350      | 970  | 2311    |
| d4  | 1333     | 2594     | 1251      | 879  | 2150    |
| d5  | 1251     | 2303     | 1128      | 812  | 1966    |
| d6  | 1180     | 2174     | 1082      | 780  | 1862    |
| d7  | 1126     | 2043     | 988       | 718  | 1723    |
| d8  | 1098     | 1985     | 956       | 694  | 1650    |
| d9  | 1073     | 1937     | 941       | 686  | 1625    |
| d10 | 1047     | 1892     | 918       | 677  | 1582    |
| d11 | 1022     | 1829     | 912       | 670  | 1558    |
| d12 | 1003     | 1753     | 902       | 662  | 1540    |
| d13 | 991      | 1725     | 898       | 660  | 1540    |
| d14 | 991      | 1725     | 898       | 659  | 1540    |

Relative Sample Size, period prevalence

|     | India HP | India MP | Indonesia | Peru   | Senegal |
|-----|----------|----------|-----------|--------|---------|
| d1  | 1.8057   | 2.0338   | 1.6615    | 1.6501 | 1.7274  |
| d2  | 1.561    | 1.6082   | 1.4759    | 1.5005 | 1.4714  |
| d3  | 1.2988   | 1.3572   | 1.3665    | 1.3512 | 1.3409  |
| d4  | 1.1838   | 1.2702   | 1.2663    | 1.2247 | 1.2477  |
| d5  | 1.1109   | 1.1276   | 1.1421    | 1.131  | 1.1411  |
| d6  | 1.0476   | 1.0644   | 1.095     | 1.086  | 1.0808  |
| d7  | 1        | 1        | 1         | 1      | 1       |
| d8  | 0.975    | 0.972    | 0.9681    | 0.9665 | 0.9575  |
| d9  | 0.9533   | 0.9485   | 0.9528    | 0.9557 | 0.943   |
| d10 | 0.93     | 0.9261   | 0.9293    | 0.9429 | 0.9179  |
| d11 | 0.9077   | 0.8955   | 0.9231    | 0.9335 | 0.9044  |
| d12 | 0.8903   | 0.8582   | 0.9128    | 0.9221 | 0.8938  |
| d13 | 0.8798   | 0.8446   | 0.9088    | 0.919  | 0.8938  |
| d14 | 0.8798   | 0.8446   | 0.9088    | 0.918  | 0.8938  |

Percentage Change in Sample Size (%), period prevalence

|     | India HP | India MP | Indonesia | Peru  | Senegal |
|-----|----------|----------|-----------|-------|---------|
| d1  | 80.57    | 103.38   | 66.15     | 65.01 | 72.74   |
| d2  | 56.1     | 60.82    | 47.59     | 50.05 | 47.14   |
| d3  | 29.88    | 35.72    | 36.65     | 35.12 | 34.09   |
| d4  | 18.38    | 27.02    | 26.63     | 22.47 | 24.77   |
| d5  | 11.09    | 12.76    | 14.21     | 13.1  | 14.11   |
| d6  | 4.76     | 6.44     | 9.5       | 8.6   | 8.08    |
| d7  | 0        | 0        | 0         | 0     | 0       |
| d8  | -2.5     | -2.8     | -3.19     | -3.35 | -4.25   |
| d9  | -4.67    | -5.15    | -4.72     | -4.43 | -5.7    |
| d10 | -7       | -7.39    | -7.07     | -5.71 | -8.21   |
| d11 | -9.23    | -10.45   | -7.69     | -6.65 | -9.56   |
| d12 | -10.97   | -14.18   | -8.72     | -7.79 | -10.62  |
| d13 | -12.02   | -15.54   | -9.12     | -8.1  | -10.62  |
| d14 | -12.02   | -15.54   | -9.12     | -8.2  | -10.62  |

Sample Size Required (RR=0.8), daily prevalence

|   | India HP | India MP | Indonesia | Peru | Senegal |
|---|----------|----------|-----------|------|---------|
| 1 | 2033     | 4154     | 1641      | 1185 | 2976    |

|    |      |      |      |      |      |
|----|------|------|------|------|------|
| 2  | 1877 | 3528 | 1541 | 1139 | 2676 |
| 3  | 1696 | 3149 | 1503 | 1097 | 2535 |
| 4  | 1589 | 3029 | 1479 | 1056 | 2449 |
| 5  | 1543 | 2892 | 1438 | 1024 | 2359 |
| 6  | 1527 | 2828 | 1428 | 1013 | 2289 |
| 7  | 1511 | 2765 | 1399 | 992  | 2226 |
| 8  | 1501 | 2743 | 1352 | 960  | 2192 |
| 9  | 1509 | 2726 | 1350 | 953  | 2200 |
| 10 | 1515 | 2731 | 1368 | 963  | 2218 |
| 11 | 1512 | 2722 | 1393 | 985  | 2244 |
| 12 | 1531 | 2701 | 1436 | 1019 | 2293 |
| 13 | 1562 | 2713 | 1495 | 1063 | 2367 |
| 14 | 1622 | 2773 | 1568 | 1114 | 2464 |

Relative Sample Size, daily prevalence

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.3453   | 1.5023   | 1.1729    | 1.1943 | 1.3371  |
| 2  | 1.2421   | 1.2758   | 1.1012    | 1.1486 | 1.2021  |
| 3  | 1.1224   | 1.1387   | 1.074     | 1.1061 | 1.1388  |
| 4  | 1.0513   | 1.0956   | 1.0569    | 1.0645 | 1.1002  |
| 5  | 1.0212   | 1.0458   | 1.0273    | 1.0324 | 1.0596  |
| 6  | 1.01     | 1.0229   | 1.0202    | 1.0209 | 1.0282  |
| 7  | 1        | 1        | 1         | 1      | 1       |
| 8  | 0.9934   | 0.9919   | 0.9659    | 0.9681 | 0.9846  |
| 9  | 0.9983   | 0.9858   | 0.9644    | 0.9606 | 0.9885  |
| 10 | 1.0025   | 0.9876   | 0.9778    | 0.9705 | 0.9966  |
| 11 | 1.0007   | 0.9843   | 0.9957    | 0.9935 | 1.008   |
| 12 | 1.0131   | 0.9768   | 1.0259    | 1.0269 | 1.0302  |
| 13 | 1.0338   | 0.981    | 1.0686    | 1.0714 | 1.0632  |
| 14 | 1.0731   | 1.0029   | 1.1208    | 1.1236 | 1.1069  |

Percentage Change in Sample Size (%), daily prevalence

|    | India HP | India MP | Indonesia | Peru  | Senegal |
|----|----------|----------|-----------|-------|---------|
| 1  | 34.53    | 50.23    | 17.29     | 19.43 | 33.71   |
| 2  | 24.21    | 27.58    | 10.12     | 14.86 | 20.21   |
| 3  | 12.24    | 13.87    | 7.4       | 10.61 | 13.88   |
| 4  | 5.13     | 9.56     | 5.69      | 6.45  | 10.02   |
| 5  | 2.12     | 4.58     | 2.73      | 3.24  | 5.96    |
| 6  | 1        | 2.29     | 2.02      | 2.09  | 2.82    |
| 7  | 0        | 0        | 0         | 0     | 0       |
| 8  | -0.66    | -0.81    | -3.41     | -3.19 | -1.54   |
| 9  | -0.17    | -1.42    | -3.56     | -3.94 | -1.15   |
| 10 | 0.25     | -1.24    | -2.22     | -2.95 | -0.34   |
| 11 | 0.07     | -1.57    | -0.43     | -0.65 | 0.8     |
| 12 | 1.31     | -2.32    | 2.59      | 2.69  | 3.02    |
| 13 | 3.38     | -1.9     | 6.86      | 7.14  | 6.32    |
| 14 | 7.31     | 0.29     | 12.08     | 12.36 | 10.69   |

Relative Sample Size Daily Point vs. Period Prev

|   | India HP | India MP | Indonesia | Peru | Senegal |
|---|----------|----------|-----------|------|---------|
| 1 | 1        | 1        | 1         | 1    | 1       |
| 2 | 1.07     | 1.07     | 1.06      | 1.06 | 1.06    |
| 3 | 1.16     | 1.14     | 1.11      | 1.13 | 1.1     |
| 4 | 1.19     | 1.17     | 1.18      | 1.2  | 1.14    |
| 5 | 1.23     | 1.26     | 1.27      | 1.26 | 1.2     |
| 6 | 1.29     | 1.3      | 1.32      | 1.3  | 1.23    |

|    |      |      |      |      |      |
|----|------|------|------|------|------|
| 7  | 1.34 | 1.35 | 1.42 | 1.38 | 1.29 |
| 8  | 1.37 | 1.38 | 1.41 | 1.38 | 1.33 |
| 9  | 1.41 | 1.41 | 1.43 | 1.39 | 1.35 |
| 10 | 1.45 | 1.44 | 1.49 | 1.42 | 1.4  |
| 11 | 1.48 | 1.49 | 1.53 | 1.47 | 1.44 |
| 12 | 1.53 | 1.54 | 1.59 | 1.54 | 1.49 |
| 13 | 1.58 | 1.57 | 1.67 | 1.61 | 1.54 |
| 14 | 1.64 | 1.61 | 1.75 | 1.69 | 1.6  |

## Sheet 5. Diarrhea, Sample Size

Sample Size Required (RR=0.8), period prevalence (File created by recall-empiri

|     | <b>India HP</b> | <b>India MP</b> | <b>Indonesia</b> | <b>Peru</b> | <b>Senegal</b> |
|-----|-----------------|-----------------|------------------|-------------|----------------|
| d1  | 13660           | 5074            | 8399             | 3933        | 4145           |
| d2  | 10065           | 3683            | 7091             | 3092        | 3236           |
| d3  | 8133            | 3201            | 5705             | 2491        | 2854           |
| d4  | 7332            | 2823            | 5338             | 2147        | 2601           |
| d5  | 6538            | 2487            | 4936             | 1931        | 2404           |
| d6  | 5789            | 2321            | 4588             | 1753        | 2258           |
| d7  | 5316            | 2134            | 4014             | 1607        | 2126           |
| d8  | 5272            | 1999            | 3867             | 1565        | 2080           |
| d9  | 5026            | 1937            | 3775             | 1541        | 2029           |
| d10 | 4873            | 1898            | 3644             | 1515        | 2001           |
| d11 | 4873            | 1841            | 3561             | 1502        | 1973           |
| d12 | 4873            | 1764            | 3501             | 1470        | 1939           |
| d13 | 4764            | 1725            | 3481             | 1453        | 1920           |
| d14 | 4764            | 1725            | 3442             | 1439        | 1907           |

Relative Sample Size, period prevalence

|     | <b>India HP</b> | <b>India MP</b> | <b>Indonesia</b> | <b>Peru</b> | <b>Senegal</b> |
|-----|-----------------|-----------------|------------------|-------------|----------------|
| d1  | 2.5697          | 2.3778          | 2.0922           | 2.4476      | 1.9495         |
| d2  | 1.8934          | 1.726           | 1.7664           | 1.9239      | 1.5218         |
| d3  | 1.53            | 1.5003          | 1.4213           | 1.5504      | 1.3422         |
| d4  | 1.3794          | 1.323           | 1.3296           | 1.3363      | 1.223          |
| d5  | 1.23            | 1.1654          | 1.2297           | 1.2018      | 1.1305         |
| d6  | 1.0891          | 1.0878          | 1.143            | 1.091       | 1.0617         |
| d7  | 1               | 1               | 1                | 1           | 1              |
| d8  | 0.9918          | 0.9369          | 0.9634           | 0.9741      | 0.9784         |
| d9  | 0.9454          | 0.9079          | 0.9404           | 0.9591      | 0.9543         |
| d10 | 0.9167          | 0.8894          | 0.9076           | 0.9429      | 0.9409         |
| d11 | 0.9167          | 0.8628          | 0.887            | 0.935       | 0.9279         |
| d12 | 0.9167          | 0.8268          | 0.872            | 0.9149      | 0.9121         |
| d13 | 0.8962          | 0.8084          | 0.8671           | 0.9043      | 0.9028         |
| d14 | 0.8962          | 0.8084          | 0.8575           | 0.8954      | 0.8967         |

Percentage Change in Sample Size (%), period prevalence

|     | <b>India HP</b> | <b>India MP</b> | <b>Indonesia</b> | <b>Peru</b> | <b>Senegal</b> |
|-----|-----------------|-----------------|------------------|-------------|----------------|
| d1  | 156.97          | 137.78          | 109.22           | 144.76      | 94.95          |
| d2  | 89.34           | 72.6            | 76.64            | 92.39       | 52.18          |
| d3  | 53              | 50.03           | 42.13            | 55.04       | 34.22          |
| d4  | 37.94           | 32.3            | 32.96            | 33.63       | 22.3           |
| d5  | 23              | 16.54           | 22.97            | 20.18       | 13.05          |
| d6  | 8.91            | 8.78            | 14.3             | 9.1         | 6.17           |
| d7  | 0               | 0               | 0                | 0           | 0              |
| d8  | -0.82           | -6.31           | -3.66            | -2.59       | -2.16          |
| d9  | -5.46           | -9.21           | -5.96            | -4.09       | -4.57          |
| d10 | -8.33           | -11.06          | -9.24            | -5.71       | -5.91          |
| d11 | -8.33           | -13.72          | -11.3            | -6.5        | -7.21          |
| d12 | -8.33           | -17.32          | -12.8            | -8.51       | -8.79          |
| d13 | -10.38          | -19.16          | -13.29           | -9.57       | -9.72          |
| d14 | -10.38          | -19.16          | -14.25           | -10.46      | -10.33         |

Sample Size Required (RR=0.8), daily prevalence

|  | <b>India HP</b> | <b>India MP</b> | <b>Indonesia</b> | <b>Peru</b> | <b>Senegal</b> |
|--|-----------------|-----------------|------------------|-------------|----------------|
|--|-----------------|-----------------|------------------|-------------|----------------|

|    |       |      |      |      |      |
|----|-------|------|------|------|------|
| 1  | 13660 | 5074 | 8399 | 3933 | 4145 |
| 2  | 10968 | 4026 | 7757 | 3388 | 3492 |
| 3  | 9313  | 3624 | 6906 | 2962 | 3221 |
| 4  | 8645  | 3386 | 6794 | 2665 | 3098 |
| 5  | 8187  | 3153 | 6714 | 2468 | 3016 |
| 6  | 7704  | 3009 | 6578 | 2333 | 2955 |
| 7  | 7284  | 2873 | 6176 | 2229 | 2912 |
| 8  | 7249  | 2753 | 5831 | 2166 | 2923 |
| 9  | 7254  | 2655 | 5685 | 2155 | 2948 |
| 10 | 7339  | 2608 | 5616 | 2185 | 3010 |
| 11 | 7587  | 2551 | 5471 | 2259 | 3069 |
| 12 | 8047  | 2507 | 5470 | 2345 | 3145 |
| 13 | 8309  | 2507 | 5564 | 2438 | 3233 |
| 14 | 8730  | 2551 | 5710 | 2531 | 3342 |

Relative Sample Size, daily prevalence

|    | India HP | India MP | Indonesia | Peru   | Senegal |
|----|----------|----------|-----------|--------|---------|
| 1  | 1.8752   | 1.7664   | 1.36      | 1.7642 | 1.4234  |
| 2  | 1.5057   | 1.4017   | 1.256     | 1.5199 | 1.1991  |
| 3  | 1.2785   | 1.2617   | 1.1182    | 1.3284 | 1.1061  |
| 4  | 1.1868   | 1.1789   | 1.1002    | 1.1955 | 1.0637  |
| 5  | 1.124    | 1.0976   | 1.0872    | 1.1072 | 1.0356  |
| 6  | 1.0576   | 1.0473   | 1.0652    | 1.0465 | 1.0149  |
| 7  | 1        | 1        | 1         | 1      | 1       |
| 8  | 0.9952   | 0.9584   | 0.9441    | 0.9715 | 1.0038  |
| 9  | 0.9958   | 0.9243   | 0.9206    | 0.9664 | 1.0125  |
| 10 | 1.0075   | 0.908    | 0.9093    | 0.9802 | 1.0336  |
| 11 | 1.0415   | 0.8882   | 0.8859    | 1.0133 | 1.054   |
| 12 | 1.1047   | 0.8729   | 0.8857    | 1.0517 | 1.0798  |
| 13 | 1.1406   | 0.8728   | 0.9009    | 1.0934 | 1.1103  |
| 14 | 1.1985   | 0.888    | 0.9245    | 1.1355 | 1.1476  |

Percentage Change in Sample Size (%), daily prevalence

|    | India HP | India MP | Indonesia | Peru  | Senegal |
|----|----------|----------|-----------|-------|---------|
| 1  | 87.52    | 76.64    | 36        | 76.42 | 42.34   |
| 2  | 50.57    | 40.17    | 25.6      | 51.99 | 19.91   |
| 3  | 27.85    | 26.17    | 11.82     | 32.84 | 10.61   |
| 4  | 18.68    | 17.89    | 10.02     | 19.55 | 6.37    |
| 5  | 12.4     | 9.76     | 8.72      | 10.72 | 3.56    |
| 6  | 5.76     | 4.73     | 6.52      | 4.65  | 1.49    |
| 7  | 0        | 0        | 0         | 0     | 0       |
| 8  | -0.48    | -4.16    | -5.59     | -2.85 | 0.38    |
| 9  | -0.42    | -7.57    | -7.94     | -3.36 | 1.25    |
| 10 | 0.75     | -9.2     | -9.07     | -1.98 | 3.36    |
| 11 | 4.15     | -11.18   | -11.41    | 1.33  | 5.4     |
| 12 | 10.47    | -12.71   | -11.43    | 5.17  | 7.98    |
| 13 | 14.06    | -12.72   | -9.91     | 9.34  | 11.03   |
| 14 | 19.85    | -11.2    | -7.55     | 13.55 | 14.76   |

Relative Sample Size Daily Point vs. Period Prev

|   | India HP | India MP | Indonesia | Peru | Senegal |
|---|----------|----------|-----------|------|---------|
| 1 | 1        | 1        | 1         | 1    | 1       |
| 2 | 1.09     | 1.09     | 1.09      | 1.1  | 1.08    |
| 3 | 1.15     | 1.13     | 1.21      | 1.19 | 1.13    |
| 4 | 1.18     | 1.2      | 1.27      | 1.24 | 1.19    |
| 5 | 1.25     | 1.27     | 1.36      | 1.28 | 1.25    |

|    |      |      |      |      |      |
|----|------|------|------|------|------|
| 6  | 1.33 | 1.3  | 1.43 | 1.33 | 1.31 |
| 7  | 1.37 | 1.35 | 1.54 | 1.39 | 1.37 |
| 8  | 1.37 | 1.38 | 1.51 | 1.38 | 1.41 |
| 9  | 1.44 | 1.37 | 1.51 | 1.4  | 1.45 |
| 10 | 1.51 | 1.37 | 1.54 | 1.44 | 1.5  |
| 11 | 1.56 | 1.39 | 1.54 | 1.5  | 1.56 |
| 12 | 1.65 | 1.42 | 1.56 | 1.59 | 1.62 |
| 13 | 1.74 | 1.45 | 1.6  | 1.68 | 1.68 |
| 14 | 1.83 | 1.48 | 1.66 | 1.76 | 1.75 |

## Sheet 6. Fever, Sample Size

Sample Size Required (RR=0.8), period prevalence (File created by recall-empiric)

|     | <b>India HP</b> | <b>India MP</b> | <b>Indonesia</b> | <b>Peru</b> | <b>Senegal</b> |
|-----|-----------------|-----------------|------------------|-------------|----------------|
| d1  | 2445            | 3882            | 2425             | 5450        | 1640           |
| d2  | 1857            | 2628            | 1762             | 3626        | 1189           |
| d3  | 1476            | 2065            | 1471             | 2637        | 963            |
| d4  | 1248            | 1854            | 1258             | 2180        | 794            |
| d5  | 1087            | 1577            | 1053             | 1760        | 699            |
| d6  | 958             | 1437            | 931              | 1439        | 621            |
| d7  | 892             | 1299            | 804              | 1186        | 568            |
| d8  | 873             | 1236            | 777              | 1123        | 524            |
| d9  | 838             | 1163            | 755              | 1092        | 506            |
| d10 | 813             | 1129            | 729              | 1064        | 481            |
| d11 | 786             | 1069            | 713              | 1042        | 468            |
| d12 | 759             | 1003            | 689              | 1004        | 449            |
| d13 | 742             | 965             | 676              | 982         | 433            |
| d14 | 741             | 957             | 669              | 969         | 430            |

Relative Sample Size, period prevalence

|     | <b>India HP</b> | <b>India MP</b> | <b>Indonesia</b> | <b>Peru</b> | <b>Senegal</b> |
|-----|-----------------|-----------------|------------------|-------------|----------------|
| d1  | 2.7395          | 2.9889          | 3.0179           | 4.5944      | 2.8889         |
| d2  | 2.0811          | 2.0235          | 2.1929           | 3.0563      | 2.0956         |
| d3  | 1.6536          | 1.5896          | 1.8301           | 2.2231      | 1.6963         |
| d4  | 1.3979          | 1.4271          | 1.5647           | 1.8379      | 1.3985         |
| d5  | 1.2179          | 1.2143          | 1.3104           | 1.4834      | 1.232          |
| d6  | 1.074           | 1.1064          | 1.1578           | 1.2129      | 1.0937         |
| d7  | 1               | 1               | 1                | 1           | 1              |
| d8  | 0.9777          | 0.9516          | 0.9669           | 0.9469      | 0.9228         |
| d9  | 0.9395          | 0.8956          | 0.9393           | 0.9207      | 0.8909         |
| d10 | 0.9112          | 0.8695          | 0.9071           | 0.8968      | 0.847          |
| d11 | 0.8803          | 0.8227          | 0.8872           | 0.8786      | 0.8239         |
| d12 | 0.851           | 0.7725          | 0.8574           | 0.8462      | 0.7907         |
| d13 | 0.8315          | 0.7433          | 0.8406           | 0.8274      | 0.7629         |
| d14 | 0.8298          | 0.7367          | 0.8324           | 0.8166      | 0.7577         |

Percentage Change in Sample Size (%), period prevalence

|     | <b>India HP</b> | <b>India MP</b> | <b>Indonesia</b> | <b>Peru</b> | <b>Senegal</b> |
|-----|-----------------|-----------------|------------------|-------------|----------------|
| d1  | 173.95          | 198.89          | 201.79           | 359.44      | 188.89         |
| d2  | 108.11          | 102.35          | 119.29           | 205.63      | 109.56         |
| d3  | 65.36           | 58.96           | 83.01            | 122.31      | 69.63          |
| d4  | 39.79           | 42.71           | 56.47            | 83.79       | 39.85          |
| d5  | 21.79           | 21.43           | 31.04            | 48.34       | 23.2           |
| d6  | 7.4             | 10.64           | 15.78            | 21.29       | 9.37           |
| d7  | 0               | 0               | 0                | 0           | 0              |
| d8  | -2.23           | -4.84           | -3.31            | -5.31       | -7.72          |
| d9  | -6.05           | -10.44          | -6.07            | -7.93       | -10.91         |
| d10 | -8.88           | -13.05          | -9.29            | -10.32      | -15.3          |
| d11 | -11.97          | -17.73          | -11.28           | -12.14      | -17.61         |
| d12 | -14.9           | -22.75          | -14.26           | -15.38      | -20.93         |
| d13 | -16.85          | -25.67          | -15.94           | -17.26      | -23.71         |
| d14 | -17.02          | -26.33          | -16.76           | -18.34      | -24.23         |

Sample Size Required (RR=0.8), daily prevalence

|  | <b>India HP</b> | <b>India MP</b> | <b>Indonesia</b> | <b>Peru</b> | <b>Senegal</b> |
|--|-----------------|-----------------|------------------|-------------|----------------|
|--|-----------------|-----------------|------------------|-------------|----------------|



|    |      |      |      |      |      |
|----|------|------|------|------|------|
| 1  | 2445 | 3882 | 2425 | 5450 | 1640 |
| 2  | 2024 | 2927 | 1955 | 4096 | 1309 |
| 3  | 1733 | 2447 | 1737 | 3240 | 1136 |
| 4  | 1525 | 2237 | 1573 | 2774 | 1003 |
| 5  | 1388 | 2037 | 1408 | 2375 | 917  |
| 6  | 1276 | 1901 | 1296 | 2037 | 849  |
| 7  | 1210 | 1791 | 1184 | 1749 | 805  |
| 8  | 1186 | 1734 | 1128 | 1589 | 762  |
| 9  | 1185 | 1677 | 1110 | 1537 | 743  |
| 10 | 1193 | 1656 | 1114 | 1540 | 737  |
| 11 | 1198 | 1630 | 1128 | 1555 | 739  |
| 12 | 1213 | 1587 | 1142 | 1384 | 745  |
| 13 | 1227 | 1540 | 1177 | 1459 | 752  |
| 14 | 1271 | 1525 | 1234 | 1547 | 775  |

Relative Sample Size, daily prevalence

|    | <b>India HP</b> | <b>India MP</b> | <b>Indonesia</b> | <b>Peru</b> | <b>Senegal</b> |
|----|-----------------|-----------------|------------------|-------------|----------------|
| 1  | 2.0198          | 2.168           | 2.0485           | 3.1168      | 2.0376         |
| 2  | 1.6721          | 1.6345          | 1.6511           | 2.3426      | 1.6271         |
| 3  | 1.4321          | 1.3665          | 1.4674           | 1.8528      | 1.4121         |
| 4  | 1.2597          | 1.2494          | 1.3286           | 1.5863      | 1.2468         |
| 5  | 1.1465          | 1.1375          | 1.1894           | 1.3582      | 1.1389         |
| 6  | 1.054           | 1.0614          | 1.0944           | 1.1648      | 1.0553         |
| 7  | 1               | 1               | 1                | 1           | 1              |
| 8  | 0.9803          | 0.9684          | 0.9531           | 0.9087      | 0.9463         |
| 9  | 0.9791          | 0.9365          | 0.9371           | 0.8791      | 0.9229         |
| 10 | 0.9854          | 0.925           | 0.9408           | 0.8806      | 0.9155         |
| 11 | 0.9896          | 0.9101          | 0.9528           | 0.889       | 0.9186         |
| 12 | 1.002           | 0.8862          | 0.9647           | 0.7915      | 0.9252         |
| 13 | 1.014           | 0.8601          | 0.994            | 0.8346      | 0.9345         |
| 14 | 1.05            | 0.8513          | 1.042            | 0.8846      | 0.9624         |

Percentage Change in Sample Size (%), daily prevalence

|    | <b>India HP</b> | <b>India MP</b> | <b>Indonesia</b> | <b>Peru</b> | <b>Senegal</b> |
|----|-----------------|-----------------|------------------|-------------|----------------|
| 1  | 101.98          | 116.8           | 104.85           | 211.68      | 103.76         |
| 2  | 67.21           | 63.45           | 65.11            | 134.26      | 62.71          |
| 3  | 43.21           | 36.65           | 46.74            | 85.28       | 41.21          |
| 4  | 25.97           | 24.94           | 32.86            | 58.63       | 24.68          |
| 5  | 14.65           | 13.75           | 18.94            | 35.82       | 13.89          |
| 6  | 5.4             | 6.14            | 9.44             | 16.48       | 5.53           |
| 7  | 0               | 0               | 0                | 0           | 0              |
| 8  | -1.97           | -3.16           | -4.69            | -9.13       | -5.37          |
| 9  | -2.09           | -6.35           | -6.29            | -12.09      | -7.71          |
| 10 | -1.46           | -7.5            | -5.92            | -11.94      | -8.45          |
| 11 | -1.04           | -8.99           | -4.72            | -11.1       | -8.14          |
| 12 | 0.2             | -11.38          | -3.53            | -20.85      | -7.48          |
| 13 | 1.4             | -13.99          | -0.6             | -16.54      | -6.55          |
| 14 | 5               | -14.87          | 4.2              | -11.54      | -3.76          |

Relative Sample Size Daily Point vs. Period Prev

|   | <b>India HP</b> | <b>India MP</b> | <b>Indonesia</b> | <b>Peru</b> | <b>Senegal</b> |
|---|-----------------|-----------------|------------------|-------------|----------------|
| 1 | 1               | 1               | 1                | 1           | 1              |
| 2 | 1.09            | 1.11            | 1.11             | 1.13        | 1.1            |
| 3 | 1.17            | 1.19            | 1.18             | 1.23        | 1.18           |
| 4 | 1.22            | 1.21            | 1.25             | 1.27        | 1.26           |
| 5 | 1.28            | 1.29            | 1.34             | 1.35        | 1.31           |

|    |      |      |      |      |      |
|----|------|------|------|------|------|
| 6  | 1.33 | 1.32 | 1.39 | 1.42 | 1.37 |
| 7  | 1.36 | 1.38 | 1.47 | 1.47 | 1.42 |
| 8  | 1.36 | 1.4  | 1.45 | 1.41 | 1.45 |
| 9  | 1.41 | 1.44 | 1.47 | 1.41 | 1.47 |
| 10 | 1.47 | 1.47 | 1.53 | 1.45 | 1.53 |
| 11 | 1.52 | 1.53 | 1.58 | 1.49 | 1.58 |
| 12 | 1.6  | 1.58 | 1.66 | 1.38 | 1.66 |
| 13 | 1.65 | 1.6  | 1.74 | 1.49 | 1.74 |
| 14 | 1.72 | 1.59 | 1.84 | 1.6  | 1.8  |