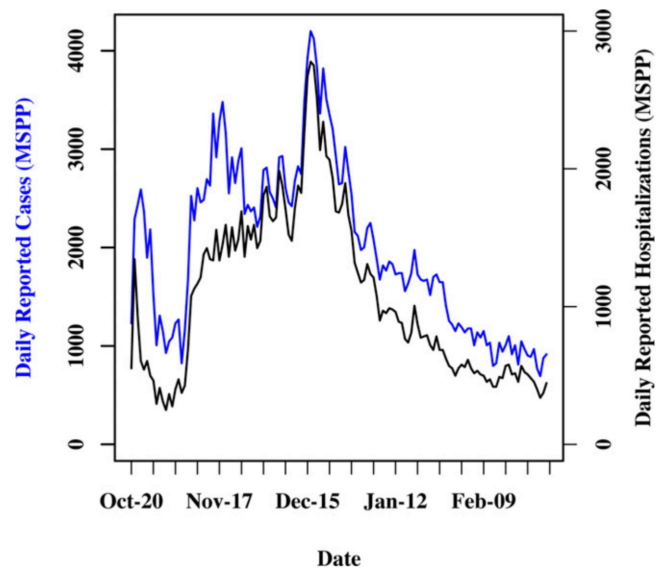
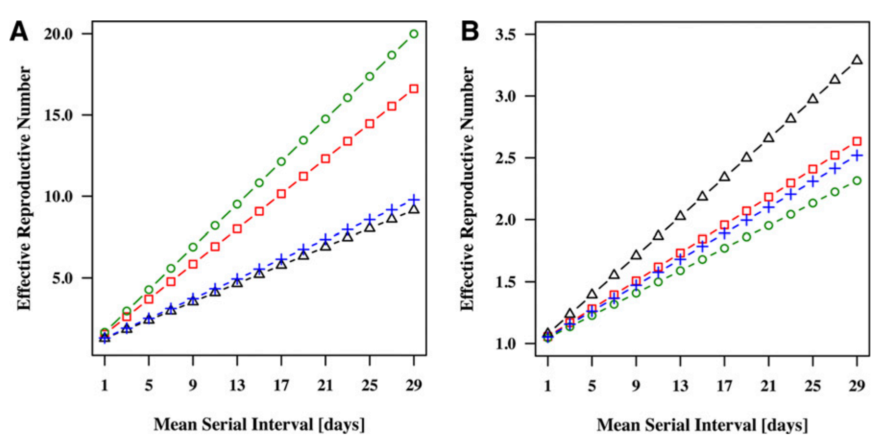



Supplemental Figure S1. Daily reported hospitalization and case volume by the Ministère de la santé publique et de la population (MSPP). Reported hospitalizations (black) and cases (blue) both peak at the beginning of the outbreak. There is a second peak of cases attributed to increased disease activity during flooding caused by Hurricane Tomas. This trend is not captured in the hospitalization data. Both the hospitalization and case data sets peak again in December, which has been attributed to local disease dynamics and geographic spread of the disease within Haiti. We chose to use the officially reported data set from the MSPP that would best capture the disease dynamics in Haiti over our study period.

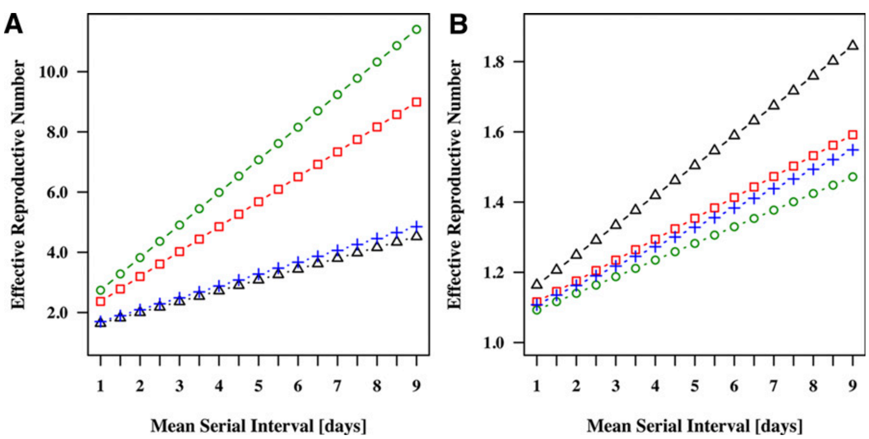
Supplemental Table 1
Serial interval data from household studies of cholera transmission

| Study | Location | Year | Reported serial interval parameters |
|---|---|---|---|
| Mosley and others[18] | Dhaka, East Pakistan | 1968 | Mode: 0–4 days; range: 0–7 days |
| Weil and others[19] | Dhaka, Bangladesh | 2009 | Mode: 2 days; range: 2–7 days |
| Rahman and others[20] | Matlab, Bangladesh | 2009 | Median: 3 days; range: 0–9 days |
| Kendall and others[17] | Dhaka, Bangladesh | 2010 | Mean: 3.2 (95% CI = 2.6–3.9) |

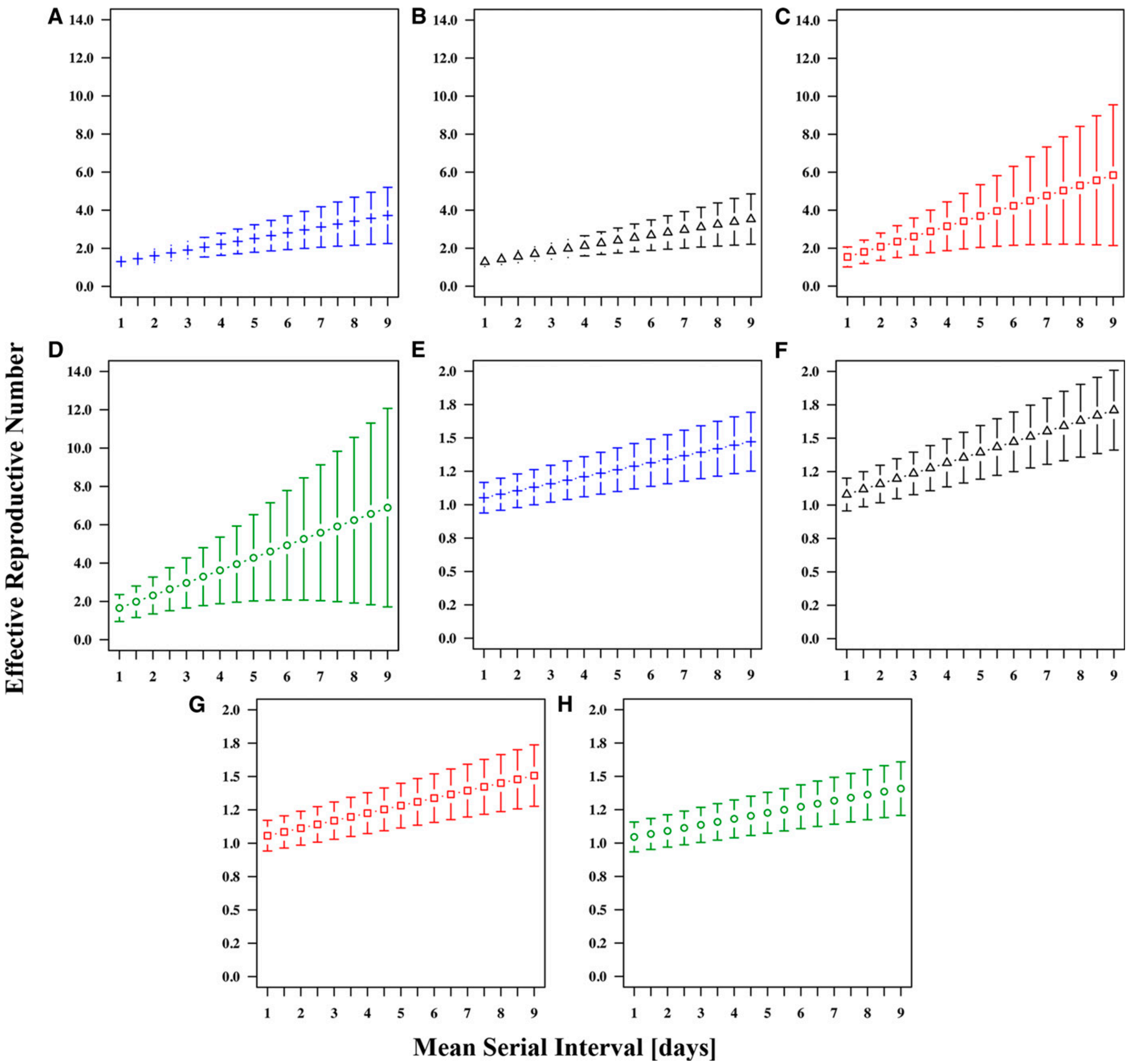
CI = confidence interval.




Supplemental Figure S2. Effective reproductive number estimates, evaluating a mean serial interval range of 1–30 days. Accounting for environmental spread mechanisms, in which there could be a longer interval between primary and secondary cases, we extend our estimates of the effective reproductive number for each data set to serial intervals up to 30 days (**A**, phase 1, October 20–30; **B**, phase 2, November 7–19). Calculations assume an exponential distribution of the mean serial intervals and negligible latency period for each of the data sources (blue crosses: Ministère de la Santé Publique et de la Population [MSPP] cases, black triangles: MSPP hospitalizations, red squares: HealthMap primary alerts, green circles: "cholera" Tweets). Exponential distribution of the mean serial interval results in a linear relationship between mean serial interval and effective reproductive number. Consequently, the maximum estimates for effective reproductive number here are larger by approximately the ratio between the two maximum serial intervals used.




Supplemental Figure S3. Estimates of the effective reproductive number accounting for both the incubation and latency periods. The latency period of cholera is relatively short compared with other infectious diseases. We evaluated how relaxing the assumption about the negligible latent period might change our estimates of the reproductive number (**A**, phase 1, October 20–30; **B**, phase 2, November 7–19). To do so, we used the adjusted equation for the effective reproductive number to $R_e = (1 + rT_c)(1 + rT_l)$ where $r$ = growth rate of the chosen data source, $T_c = 1/b$ and $T_l = 1/d$ where $b$ is the rate of leaving the infectious stage in a susceptible-infectious-recovered model and $d$ is the rate of leaving the exposed stage in a susceptible-exposed-infectious-recovered class of epidemic models. We used $T_l = 1$ day and other parameters as outlined in the main text for each data source (blue: Ministère de la Santé Publique et de la Population [MSPP] cases, black: MSPP hospitalizations, red: HealthMap primary alerts, green: "cholera" Tweets). Because $1 < 1 + rT_l < 2$ for each of the data sources, these estimates are between one to two times the estimates in Figure 4.




SUPPLEMENTAL FIGURE S4. Error of the effective reproductive number estimates. Error was estimated for the effective reproductive numbers, assuming latency period much shorter than the serial interval and the same distribution and range of mean serial interval parameters used in Figure 4, through error propagation from error of contributing parameters (blue crosses: Ministère de la Santé Publique et de la Population [MSPP] cases, black triangles: MSPP hospitalizations, red squares: HealthMap primary alerts, green circles: "cholera" Tweets; **A–D**, phase 1, October 20–30; **E–H**, phase 2, November 7–19). Standard error of the fitted growth rate parameter and standard deviation of an exponentially distributed serial interval equal to one were used.