Online Appendix

Community-based Crisis Response: Evidence from Sierra Leone's Ebola Outbreak

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APPENDIX FIGURES

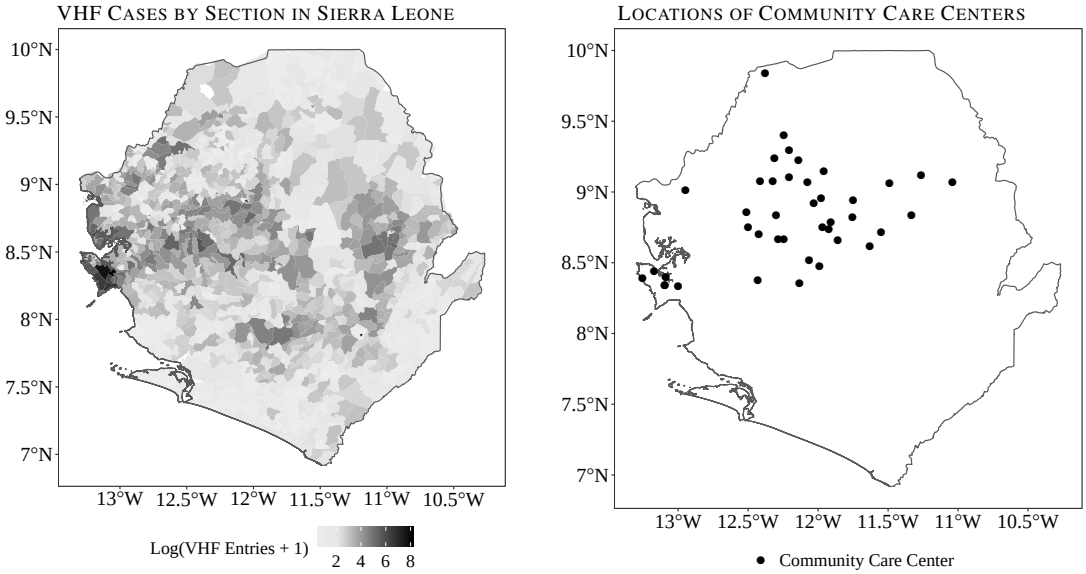

FIGURE A1. MAP OF REPORTED CASES AND COMMUNITY CARE CENTERS

Note: Left: the number of cases (logged) by section in the Viral Hemorrhagic Fever (VHF) database maintained by the CDC during the Ebola crisis. Right: the locations of Community Care Centers using data from UNMEER accessed through Humanitarian Data Exchange.

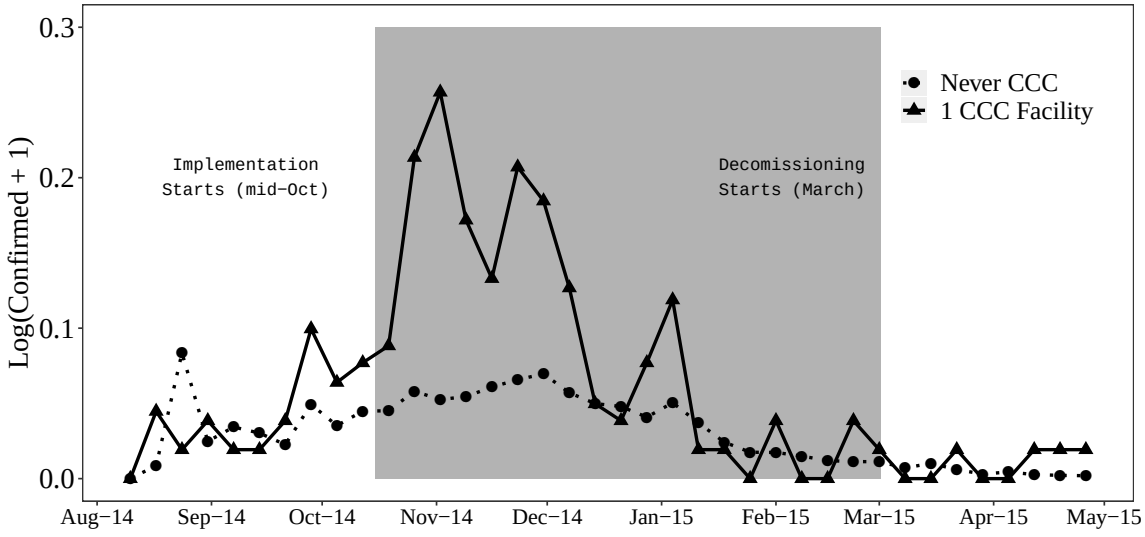

FIGURE A2. TRENDS IN CONFIRMED CASES BY CCC PRESENCE

Note: Using UNMEER data, we identify those sections that eventually contain one CCC. We then compute the average number of confirmed cases (logged) in sections that do and do not receive a CCC in each week from 10 August 2014 to 1 May 2015. The grey area starts with CCC implementation in mid-October 2014 and ends with their initial decommissioning in March 2015

APPNEDIX TABLES

	Total Cases		Confirmed Cases	
	(1)	(2)	(3)	(4)
Inverse-hyperbolic Sine(Cases)				
CCC × Post (D_{st})	0.307	0.307	0.053	0.053
	(0.072)***	(0.074)***	(0.026)**	(0.026)**
$\mathbb{1}$(Cases $>$ 0)				
CCC × Post (D_{st})	0.201	0.201	0.038	0.038
	(0.041)***	(0.041)***	(0.017)**	(0.018)**
Section FEs		1,316		1,316
Week FEs		30		30
Observations	39,480	39,480	39,480	39,480

TABLE B1—~~EFFECT OF CCC ON TOTAL CASES: ALTERNATIVE SPECIFICATIONS~~

Note: Standard errors clustered on section shown in parentheses. Models 1 and 3 estimate Equation (1) using OLS; models 2 and 4 estimate Equation (2), which includes section and week fixed effects. Each row corresponds to a different transformation of the dependent variable: inverse-hyperbolic sine and a linear probability model. Significance: * p $<$ 0.10, ** p $<$ 0.05, and *** p $<$ 0.01.

	Log(Total Cases + 1)								
Placebo Start Dates:	Aug-17	Aug-24	Aug-31	Sep-07	Sep-14	Sep-21	Sep-28	Oct-05	Actual Oct-15
CCC ×	0.007	−0.006	0.048	0.031	0.038	0.060	0.060	0.048	0.237
Placebo Start Date	(0.029)	(0.022)	(0.026)*	(0.029)	(0.033)	(0.041)	(0.050)	(0.050)	(0.057)***
Section FEs	1,316	1,316	1,316	1,316	1,316	1,316	1,316	1,316	1,316
Week FEs	10	10	10	10	10	10	10	10	30
Observations	13,160	13,160	13,160	13,160	13,160	13,160	13,160	13,160	39,480

TABLE B2—PLACEBO TESTS FOR CCC ANALYSIS

Note: Standard errors clustered on section shown in parentheses. Significance: * p $<$ 0.1, ** p $<$ 0.05, *** p $<$ 0.01. Table displays estimates of Equation (2) using OLS, where the placebo CCC starting date is indicated in each column.

GEO-CODING PROCEDURE

The VHF data includes information on individuals' residences, including their district, chiefdom, and village or parish. We use this information to place observations within sections. Our geo-location protocol involves several steps. First, a human coder inspected and cleaned all district and chiefdom names that did not exactly match the conventional spelling. Of 85,410 entries in the case data, we can code the chiefdom of residence for 97% of observations.

Second, we employ fuzzy string matching to match the available village or parish names to gazetteer files of placenames from Sierra Leone. Fortunately, in the chiefdoms that include our sample, only 14 confirmed, suspected, or probable Ebola cases do not include village or parish information.[1] We employ the gazetteer file from Open Street Map (`www.openstreetmap.org/`), which includes 9,975 entries, ranging from hamlets to cities. We prefer this list to the 2004 census data from Sierra Leone, which only provides names for around 5,000 localities. Moreover, during the Ebola epidemic, Open Street Map mounted a humanitarian effort aimed at updating and verifying information on the locations of villages and roads in Sierra Leone.[2]

Ten sample entries from OSM gazetteer file:

```
      osm_id        name          coordinates
 1 27565056  Freetown    (-13.26802 8.479002)
 2 314001434 Bo          (-11.73665 7.962065)
 3 314005602 Kenema      (-11.18639 7.885936)
 4 314007819 Koidu       (-10.97163 8.642281)
 5 320058940 Kambia      (-12.91934 9.125073)
 6 320060481 Kamakwie    (-12.24125 9.496301)
 7 320060535 Pujehun     (-11.72124 7.356632)
 8 320060540 Zimmi       (-11.31032 7.312338)
 9 370327499 Goderich    (-13.28887 8.432966)
10 370495828 Murray Town (-13.26534 8.491613)
```

Fuzzy string matching calculates the string distance between each village or parish name in the VHF data and each placename in the gazetteer file that falls within the exact same district and chiefdom.[3] An exact match returns a distance of zero; "FREE TOWN" and "FREETOWN," for example, would return a distance of 1. We do not match any entries with a string distance that exceeds 2.

[1] Of all entries in the case data that fall within the chiefdoms the include our sample, only 0.07 percent are missing an entry for village or parish of residence.

[2] `http://wiki.openstreetmap.org/wiki/2014_West_Africa_Ebola_Response`

[3] We use optimal string alignment distance, a variant of the Levenshtein distance, which is commonly employed in geo-coding algorithms.