

## Supplementary Appendix

This appendix has been provided by the authors to give readers additional information about their work.

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## Supplemental Material

### Clinical illness and Outcomes in Patients with Ebola in Sierra Leone

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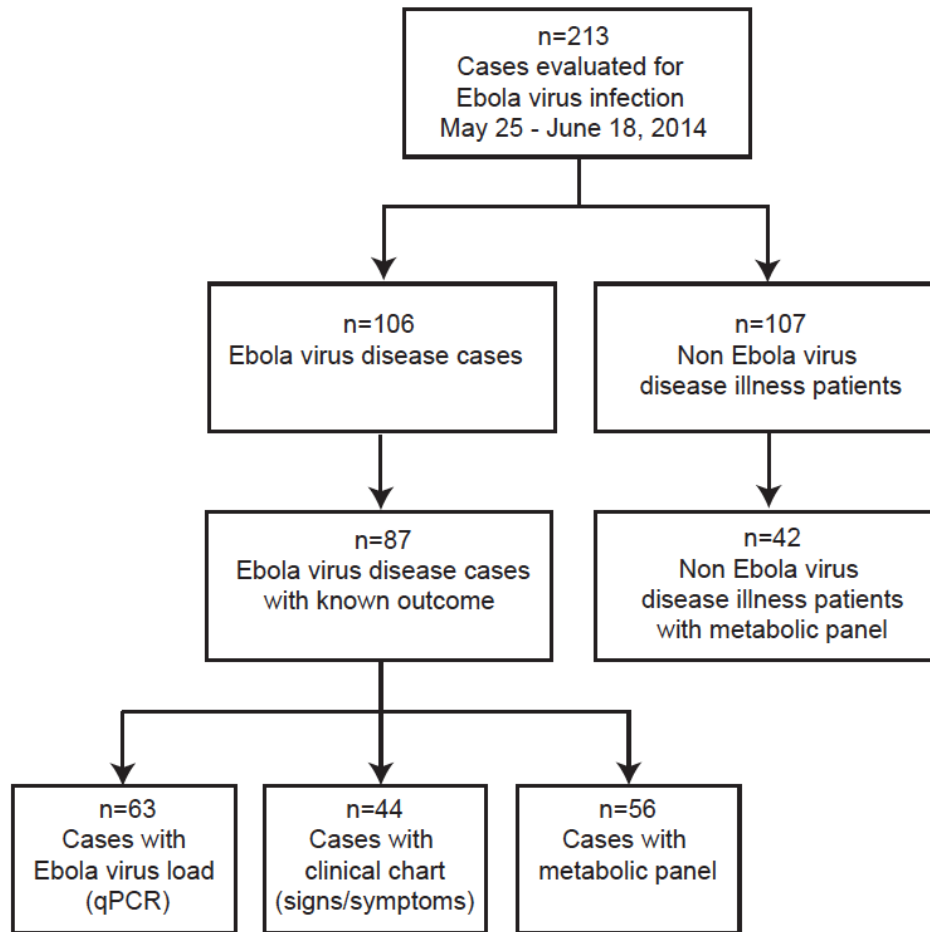
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Dr. Sabeti, Dr. Khan and Dr. Garry contributed equally to the supervision of this work.

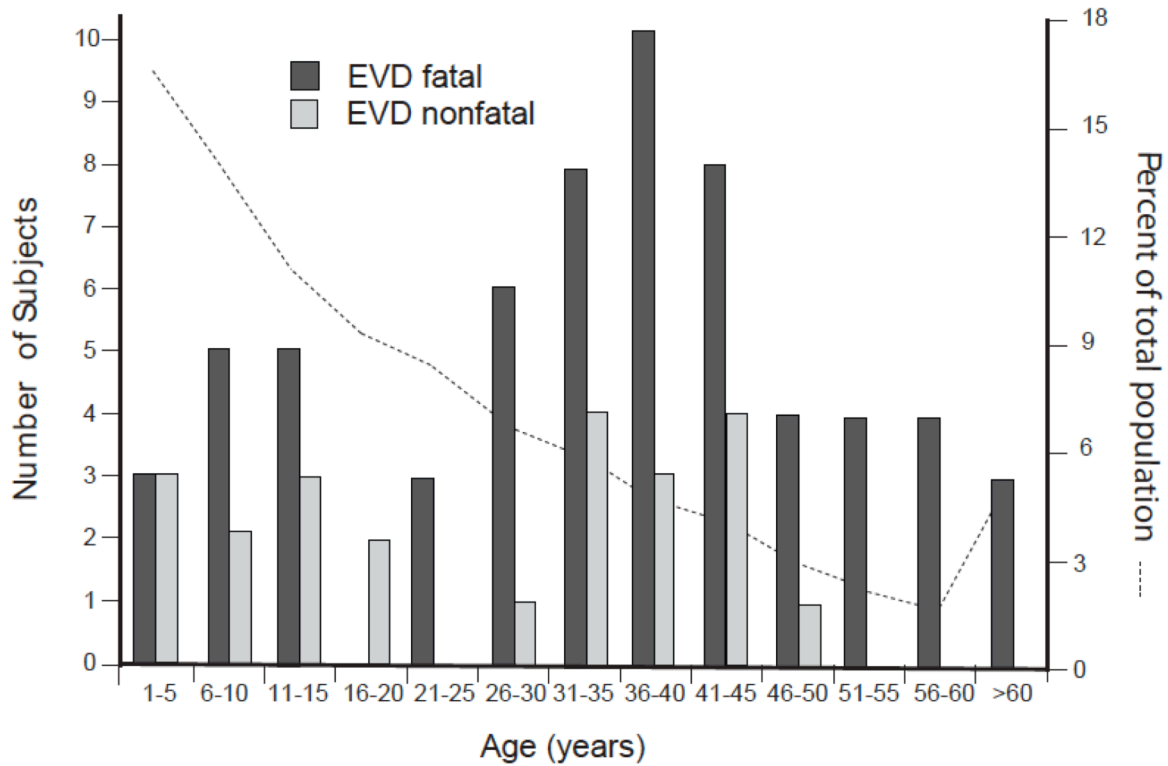
Mr. Moigboi, Mr. Fullah, Ms. Fonnies, Mr. Sinnah, Ms. Kovoma, Mr. Saffa and Dr. Khan are deceased.

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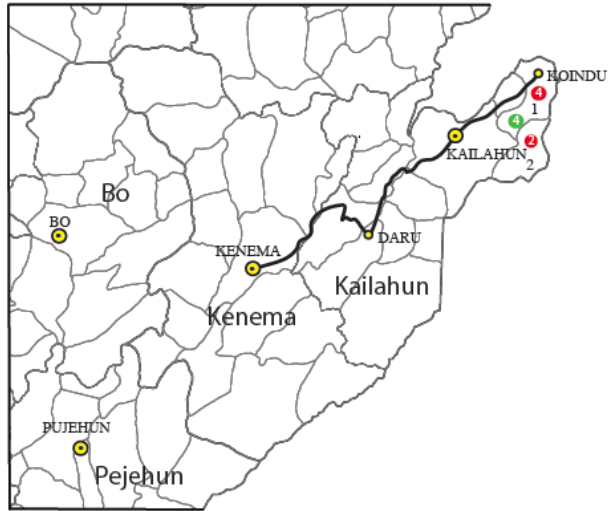


*Figure S1. Numbers of patients for each analysis.* The analyses described include all available data for each parameter. Outcome data was available for 87 of 106 EBOV positive cases. Outcome data was not available for 19 cases that either absconded from community health centers or Kenema Government Hospital or were unable to be re-contacted after providing a blood sample. Metabolic panels were performed on 98 Ebola virus disease and nonEbola virus disease illness patients with adequate samples volumes. Ebola virus load was determined in 63 cases with adequate samples volumes by quantitative polymerase chain reaction (qPCR) at Harvard University. Sign and symptom data was obtained on 44 on patients with a clinical chart that were admitted to Kenema Government Hospital.

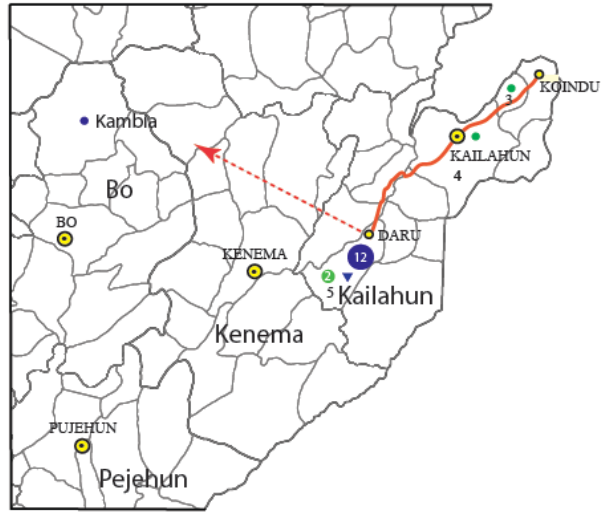


*Figure S2. Age distribution of Ebola virus disease cases with known outcomes.* Number of Ebola cases with fatal and nonfatal outcome is indicated by age group. The dotted line represents the age distribution of the population of Sierra Leone, which is significantly different from the age distributions of either the fatal or nonfatal Ebola cases ( $p < .001$  in both cases). Black bars: Ebola virus disease cases with a fatal outcome. Grey Bars: Ebola virus diseases cases with a nonfatal outcome.

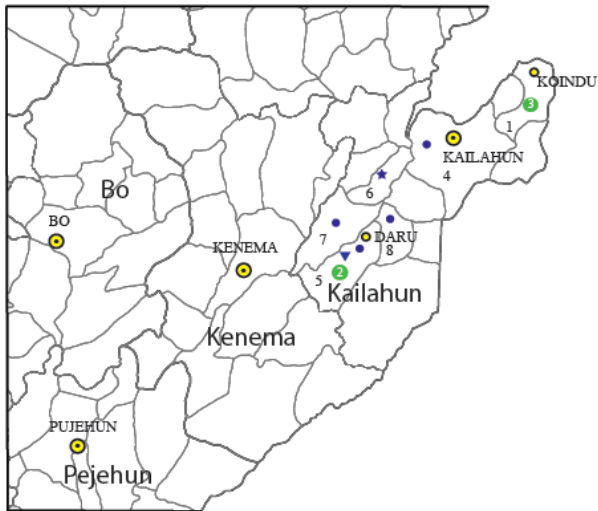
A May 25-28, 2014



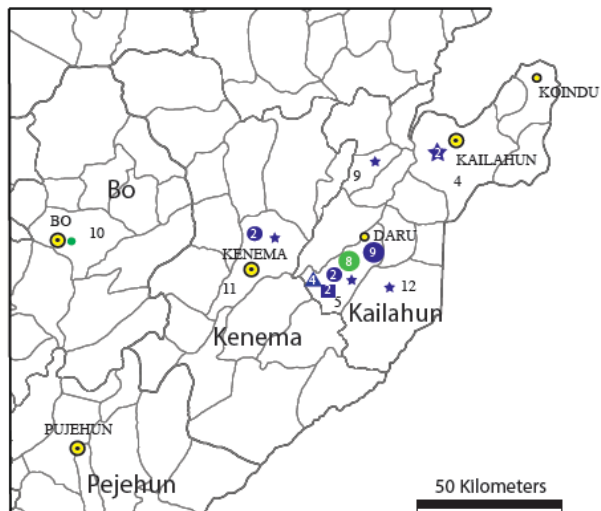
B May 31- June 7, 2014



C June 8-14, 2014



D June 15-18, 2014



- cluster 1
- cluster 2
- cluster 3

- Chiefdoms
1. Kissi Teng
  2. Kissi Tongi
  3. Kissi Kama
  4. Luawa
  5. Jawie
  6. Pehe Bongre
  7. Njaluahun
  8. Mandu
  9. Peje West
  10. Kakua
  11. Nongowa
  12. Malema



*Figure S3. Geographic distribution and spread of Ebola virus disease into Sierra Leone.*

Panel A. The initial EVD cases identified in Sierra Leone between May 25-29, 2014 all attended the funeral of a traditional healer. The black line represents the road from Koindu to Kenema taken by a resident of Koindu, who presented to the KGH maternity ward on May 23, 2014 and was among the first cases diagnosed at Kenema Government Hospital. Inset: red circles, number of cases infected with EBOV cluster 1; green circles, number of cases infected with EBOV cluster 2; blue circles, number of cases infected with EBOV cluster 3, subcluster 3a (blue square), subcluster 3b (blue triangle), subcluster 3c (blue star), subcluster 3d (blue inverted triangles).

Panel B. Ebola virus disease cases identified between May 31- June 5, 2014. The black line represents the travel of a health care worker (HCW-A) and a driver from Koindu to Daru. HCW-A is epidemiologically linked to the first patient identified with cluster 3 Ebola virus who was a healthcare worker at a clinic in Daru. The driver, a resident of Kambia, was also infected with a cluster 3 EBOV. The black arrow represents the travel of the driver to Kambia district, where a contact of the driver was infected with cluster three Ebola virus. Inset: area of Sierra Leone represented in each panel. The circle is highlighting Kambia district.

Panel C. Ebola virus disease cases identified between June 7-12, 2014. Cases infected with cluster 2 EBOV were identified in and around Koindu (Kissi chiefdoms) and additional cases infected with cluster 3 Ebola virus were identified in Daru and elsewhere in Kailahun district. One case with subcluster 3c Ebola virus was identified in the Pehe Bongre chiefdom. Two cases, both from the same household, of Ebola virus subcluster 3d were identified in Daru (Jawai chiefdom). Inset: Number code for chiefdoms with Ebola virus disease cases.

Panel D. Ebola virus disease cases identified between June 15-18, 2014. Additional cases were identified in Kailahun district as well as a single case infected with a cluster 2 EBOV in Bo district. Two cases infected with cluster 3 Ebola virus, one of which was subcluster 3c, were identified in Kenema district. Cases infected with subcluster 3c EBOV were also identified in villages of several chiefdoms during this time period. Four cases of EBOV of subcluster 3b were identified in Jawai chiefdom; three of the four individuals lived in the same household. Two cases living in Jawai chiefdom were infected with EBOV subcluster 3a. Inset: Map scale.

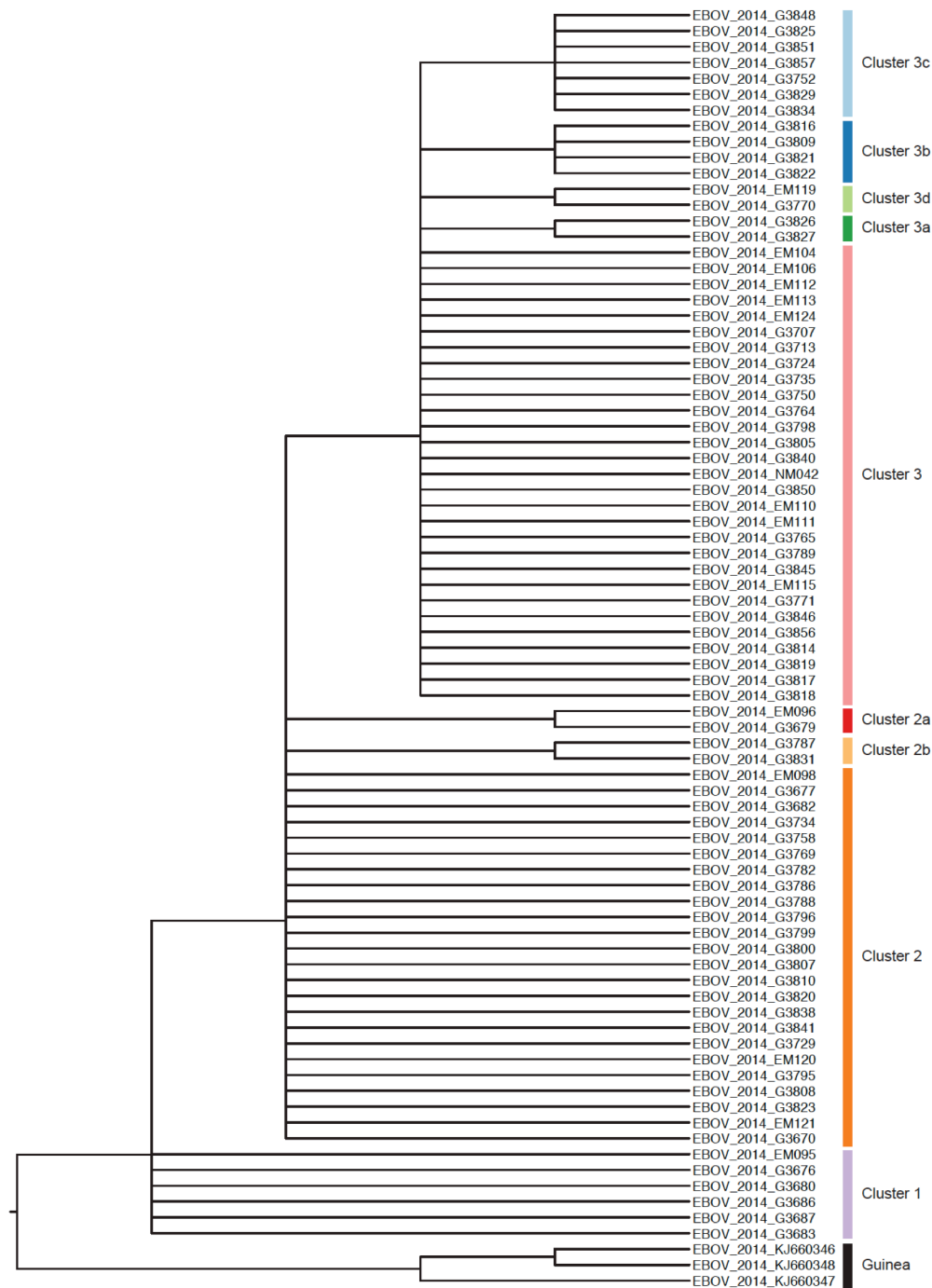
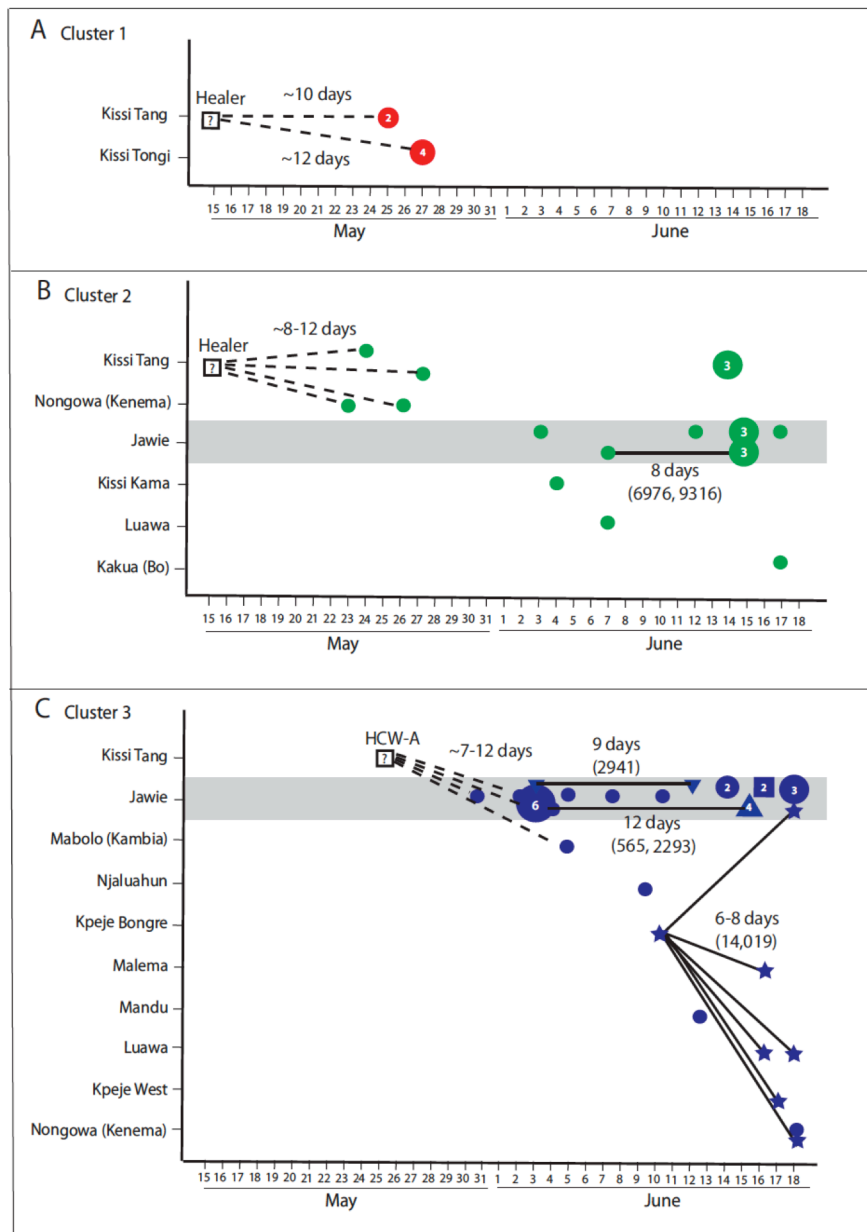
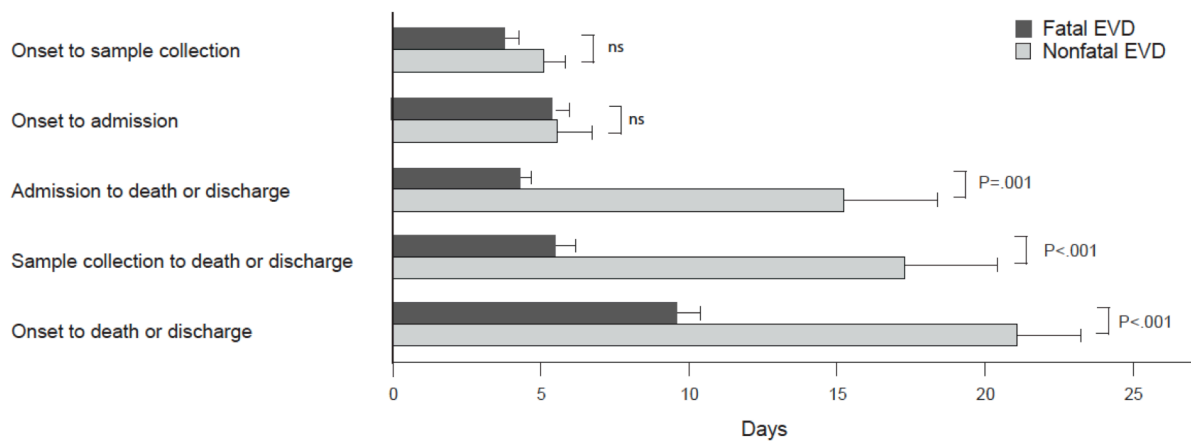


Figure S4. Phylogenetic tree of Ebola virus genetic variants used to establish transmission chains. A bayesian tree was created and rooted on the Ebola virus lineages from Guinea. The tree was transformed to display a cladogram so small genetic differences between sub clusters are visible. Each color corresponds to a distinct genetic EBOV cluster.



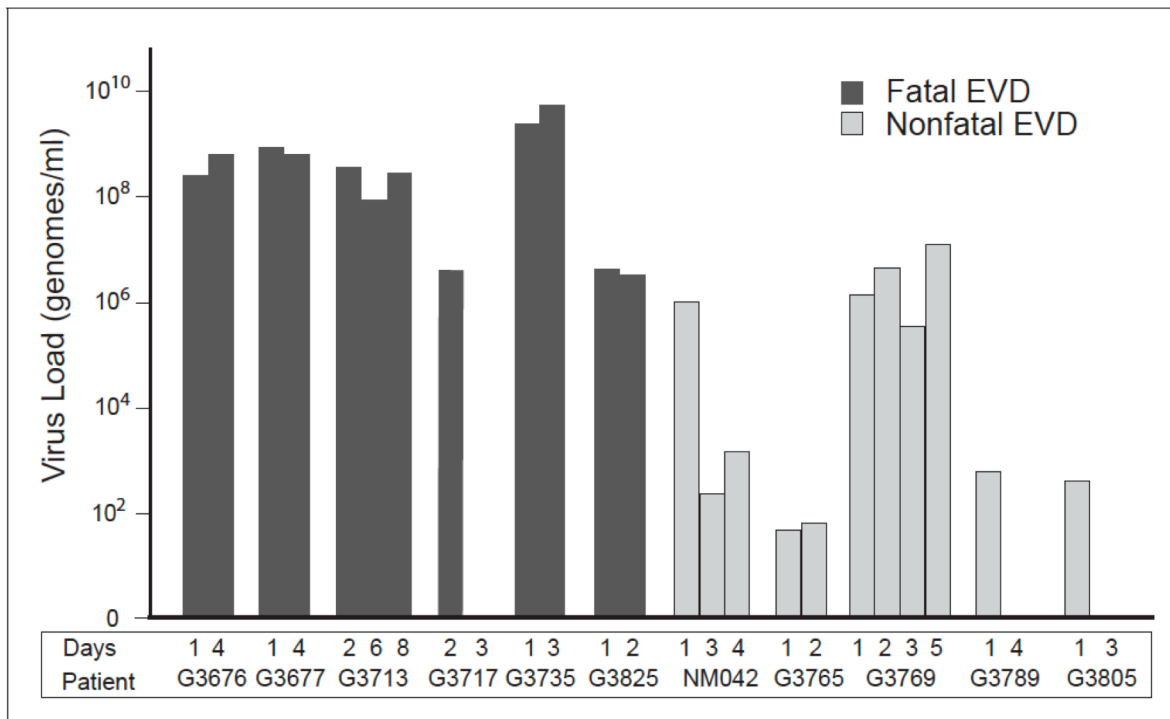


*Figure S5. Ebola virus genomic analysis and Ebola virus disease transmission.* Coupling genomic analyses, including determination of intra-host single nucleotide polymorphisms (iSNPs), with case investigation data allows the determination of EBOV transmission chains. Panel A. EBOV of cluster 1 was detected in cases who had attended the funeral of a healer (herbalist). Panel B. EBOV of cluster 2 was detected in additional cases who attended the funeral with other cases with this lineage diagnosed beginning in early June. Panel C. Cluster 3 EBOV was detected in a transmission chain involving a health care worker (HCW-A). Additional transmission chains involving EBOV cluster 3 were determined from iSNP analysis. Symbols: subcluster 3A: square, subcluster 3B: triangles, subcluster 3C: stars and subcluster 3D: inverted triangles. Nucleotide positions of iSNPs are indicated in parentheses.

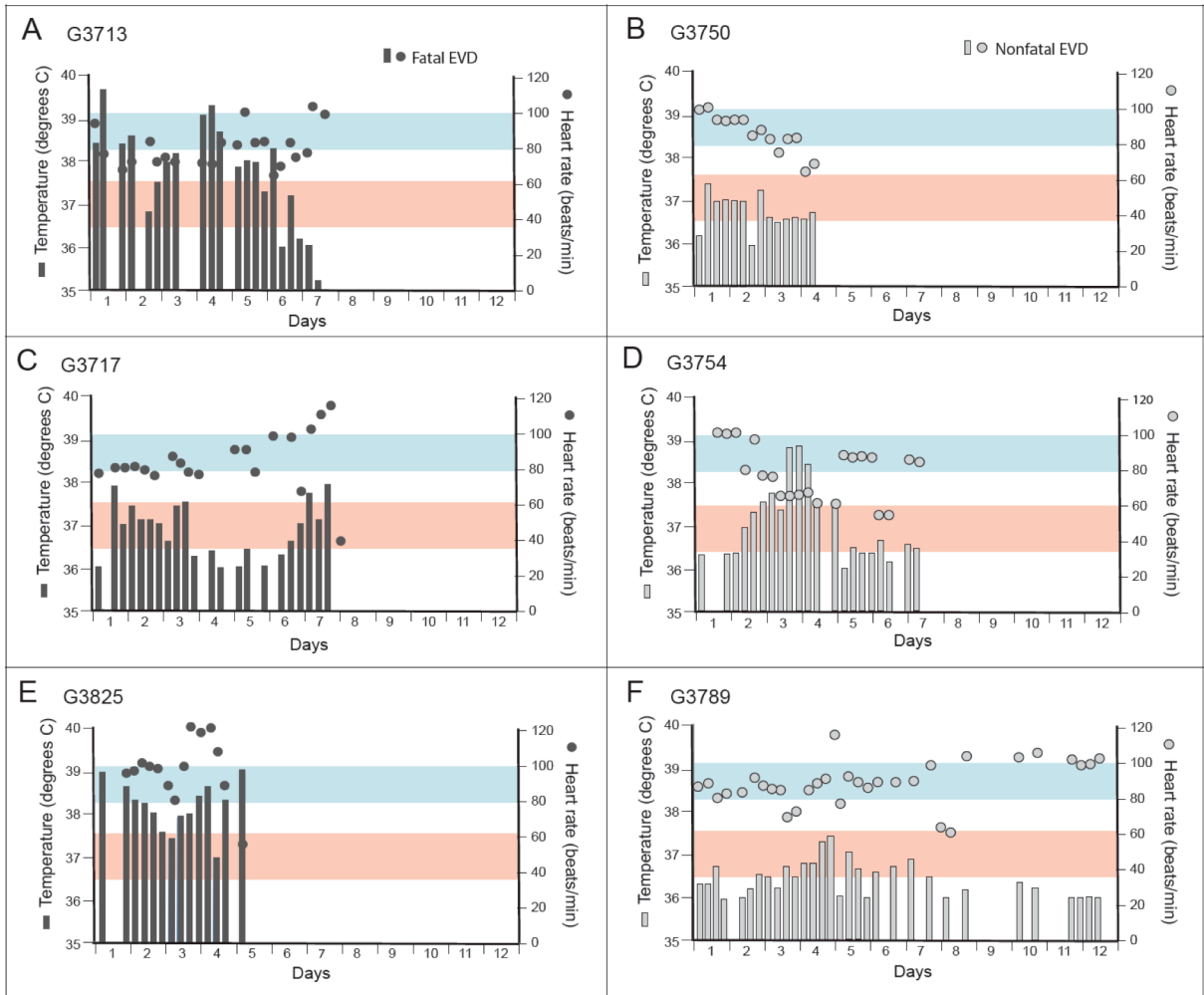


*Figure S6. Timing of Ebola virus disease onset, sample collection, admission in relationship to discharge or death in Sierra Leone Ebola virus disease patients.*

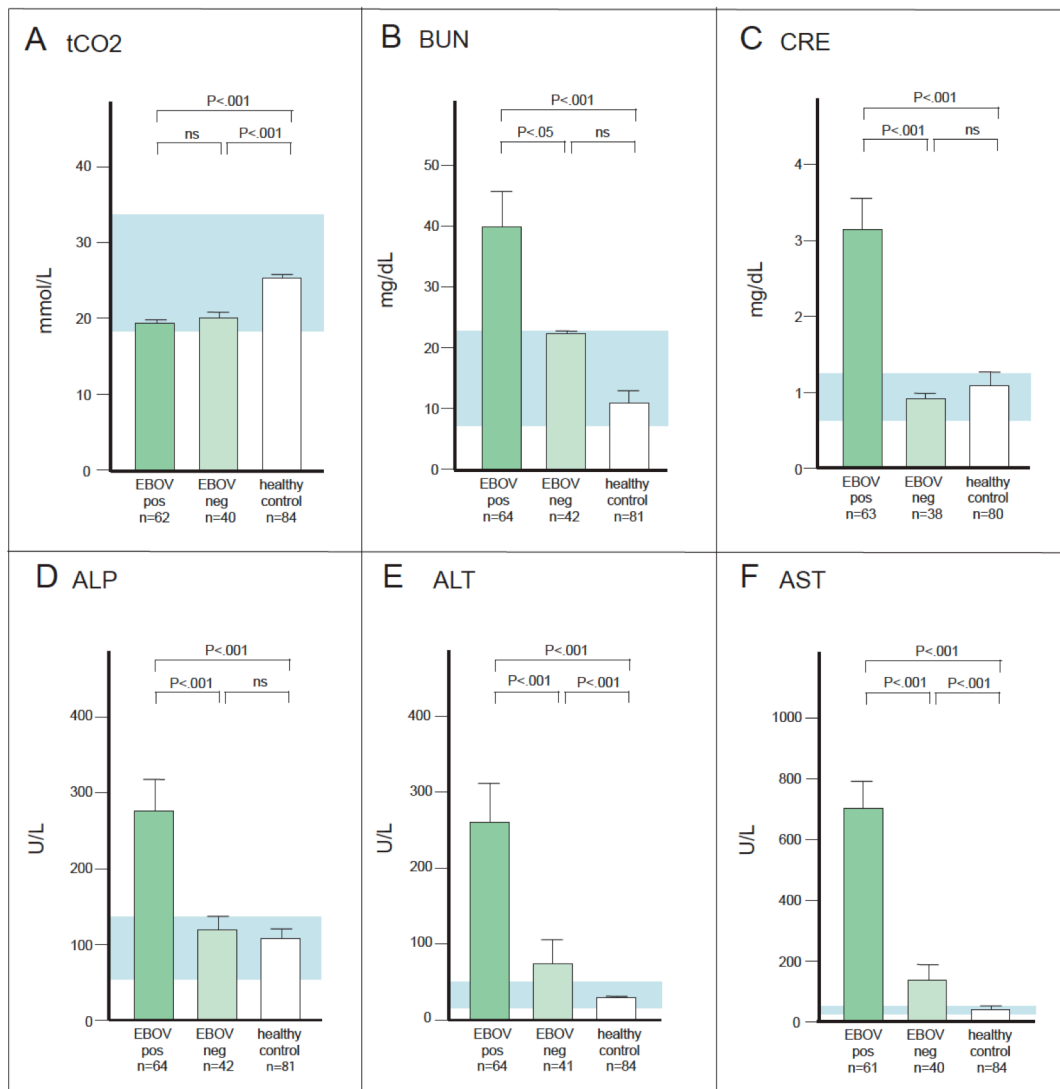
Data from case investigation, laboratory records and clinical charts were compiled to determine dates of Ebola virus disease onset, testing, admission and date of discharge or death. No significant difference in time from onset to first sample collection or from onset to admission was noted between fatal and nonfatal cases. Black bars: Ebola virus cases with a fatal outcome. Grey Bars: Ebola virus cases with a nonfatal outcome.



*Figure S7. Ebola virus load in Sierra Leonean patients over time.* Ebola virus load was determined by quantitative PCR in a subset of patients at indicated times after their admission to the Kenema Government Hospital VHF Ward. Area under the curve (AUC) analysis indicates that the distributions of virus loads in fatal and nonfatal cases over time are significantly different ( $P < .05$ ). Black bars: Ebola virus disease cases with a fatal outcome. Grey Bars: Ebola virus disease cases with a nonfatal outcome.



*Figure S8. Temperature and heart rate in Sierra Leonean Ebola virus disease patients over time. The vital signs temperature and heart rate for selected Ebola virus disease cases at indicated times after their admission to Kenema Government Hospital VHF ward are shown. The majority of patients had relative bradycardia at some point during their hospital course. Panels A and D represent patients with relative bradycardia. Panels B, C, E and F represent cases with a normal temperature-pulse association. Light red rectangle demarcates the normal temperature range. Light blue rectangle demarcates the normal heart rate range. Black bars and circles: Ebola virus disease cases with a fatal outcome. Grey bars and circles: Ebola virus disease cases with a nonfatal outcome.*



*Figure S9. Comparison of metabolic parameters in EVD patients with nonEbola illness patients and healthy controls. Healthy volunteers were identified in Kenema and Kailahun districts and metabolic panels were performed. The results in health Sierra Leoneans are generally consistent with reference values (blue rectangles). The EBOV negative group presented with an illness other than Ebola virus disease, which impacts lab values. Abbreviations: Total carbon dioxide (tCO<sub>2</sub>), blood urea nitrogen (BUN), creatinine (CRE), alkaline phosphatase (ALP), alanine aminotransferase (ALT), aspartate aminotransferase (AST). Results for sodium, potassium, chloride, glucose, calcium, albumin, and total protein and total bilirubin are described in Table S8. Dark green bars: Ebola virus disease cases, light green bars: nonEbola virus disease patients, white bars: healthy controls.*

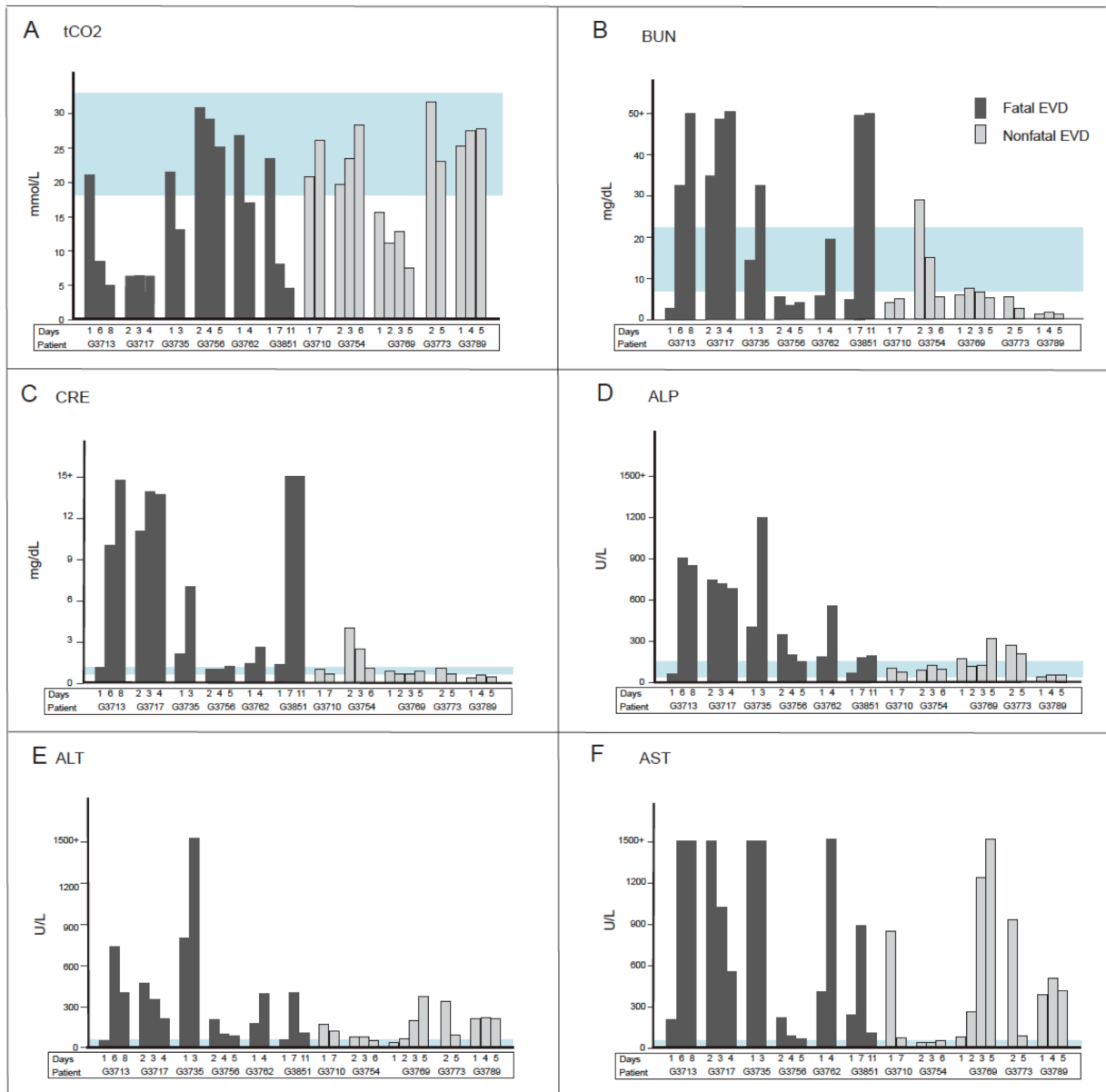


Figure S10. Metabolic parameters in Sierra Leonean Ebola virus disease patients over time.

Metabolic parameters for selected Ebola virus disease cases at indicated times after their admission to Kenema Government Hospital VHF ward are shown. Blue rectangles demarcate the normal ranges for metabolic parameters. Area under the curve (AUC) analysis indicates that the distributions of alkaline phosphatase in fatal and nonfatal cases over time was significantly different ( $P < .01$ ). Abbreviations: Total carbon dioxide (tCO<sub>2</sub>), blood urea nitrogen (BUN), creatinine (CRE), alkaline phosphatase (ALP), alanine aminotransferase (ALT), aspartate aminotransferase (AST). Black bars: Ebola virus cases with a fatal outcome. Grey Bars: Ebola virus cases with a nonfatal outcome.

**Table S1. Characteristics of patients at presentation.**

<b>Characteristic</b>	<b>Ebola+ (n = 106)</b>	<b>Ebola-<sup>a</sup> (n = 107)</b>	<b>Normal (n = 84)</b>
<b>Gender<sup>b</sup></b>			
Female	59 (60)	22 (45)	48 (58)
Male	40 (40)	27 (55)	35 (42)
<b>Age (years)<sup>c, *</sup></b>			
< 21	25 (26)	18 (38)	12 (14)
21-45	53 (54)	21 (45)	48 (58)
> 45	20 (20)	8 (17)	23 (28)
<b>District of residence<sup>d, ***</sup></b>			
Kailahun	91 (92)	19 (39)	31 (37)
Kenema	4 (4)	6 (12)	33 (39)
Other in Sierra Leone	4 (4)	24 (49)	20 (24)
<b>Survival outcome<sup>f</sup></b>			
Died	64 (74)	---	---
Survived	23 (26)	---	---

*Note.* All results based expressed as frequency (%). Characteristics without asterisks were not statistically different between fatal and nonfatal groups at the 5% significance level using Fisher's Exact procedure. --- = Not tested or observed.

<sup>a</sup>Missing demographic for the Ebola- group was a result of these subjects not physically presenting to the hospital.

<sup>b</sup>Gender was missing for 7, 78, and 1 subjects in the Ebola+, Ebola-, and Normal groups, respectively.

<sup>c</sup>Age values were missing for 8, 60, and 1 subjects in the Ebola+, Ebola-, and Normal groups, respectively.

<sup>d</sup>District of residence was missing for 8 and 58 subjects in the Ebola+, Ebola- groups, respectively.

<sup>e</sup>Survival outcome was observed for n = 87 Ebola-positive subjects.

\* p <.05. \*\* p <.01. \*\*\* p <.001.

**Table S2. Characteristics among Ebola-positive patients with observed survival outcomes at presentation.**

Characteristic	Fatal cases (n = 64)	Nonfatal cases (n = 23)
<b>Gender</b>		
Female	37 (58)	13 (57)
Male	27 (42)	10 (43)
<b>Age (years)<sup>a</sup></b>		
< 21	13 (20)	10 (43)
21-45	35 (55)	12 (52)
> 45	15 (23)	1 (4)
<b>District of residence</b>		
Kailahun	59 (92)	21 (91)
Kenema	4 (6)	0 (0)
Other in Sierra Leone	1 (2)	2 (9)
<b>Ebola viral load (copies/ml)<sup>b, ***</sup></b>		
<10 <sup>5</sup>	5 (11)	10 (56)
10 <sup>5</sup> -10 <sup>7</sup>	23 (51)	7 (39)
>10 <sup>7</sup>	17 (38)	1 (5)

*Note.* All results based expressed as frequency (%). Characteristics without asterisks were not statistically different between fatal and nonfatal groups at the 5% significance level using Fisher's Exact procedure.

a. One fatal subject's age value was not recorded.

b. Viral load data was unobserved for n = 27 and n = 7 subjects, respectively as qRT-PCR testing was used for only a subset of the study specimens.

\* p < .05. \*\* p < .01. \*\*\* p < .001.



**Table S3. Average number of days between selected endpoints for Ebola-positive patients.**

Interval <sup>a</sup>	Fatal cases			Nonfatal cases		
	<i>n</i>	mean ( <i>SE</i> )	median (range)	<i>n</i>	mean ( <i>SE</i> )	median (range)
Onset to sample collection	32	3.81 (0.55)	3.00 (0.00, 14.00)	11	4.82 (1.08)	4.00 (1.00, 13.00)
Onset to admission	30	5.73 (0.48)	5.00 (2.00, 16.00)	9	6.00 (1.36)	5.00 (3.00, 14.00)
Onset to discharge***	38	9.79 (0.70)	8.50 (3.00, 23.00)	11	21.27 (2.55)	23.00 (6.00, 30.00)
Admission to discharge**	48	4.58 (0.46)	4.00 (0.00, 17.00)	15	15.33 (3.08)	13.00 (1.00, 43.00)
Sample collection to discharge***	45	5.36 (0.58)	5.00 (1.00, 18.00)	14	17.64 (3.02)	16.50 (4.00, 44.00)

*Note.* The variation in intra-group sample sizes is due to missing or inapplicable date values.

<sup>a</sup>Intervals without asterisks were not statistically different between fatal and nonfatal groups at the 5% significance level using the Kruskal Wallis procedure.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table S4. Characteristics for Ebola-positive patients with complete medical charts and observed survival outcomes at presentation.**

<b>Characteristic</b>	<b>Fatal cases (<i>n</i> = 36)</b>	<b>Nonfatal cases (<i>n</i> = 8)</b>
<b>Gender</b>		
Female	16 (52)	4 (57)
Male	15 (48)	3 (43)
<b>Age (years)<sup>a</sup></b>		
< 21 yrs.	6 (18)	2 (25)
21-45 yrs.	20 (61)	5 (63)
> 45 yrs.	7 (21)	1 (12)
<b>District</b>		
Kailahun	26 (90)	6 (100)
Kenema	3 (10)	0 (0)

*Note.* All results based expressed as frequency (%). Characteristics without asterisks were not statistically different between fatal and nonfatal groups at the 5% significance level using Fisher's Exact procedure.

a. Age values were missing for three fatal subjects.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table S5. Signs and symptoms on presentation among Ebola-positive patients with complete medical charts and observed outcomes.**

<b>Symptom</b>	<b>Fatal subjects (<i>n</i> = 36)</b>	<b>Nonfatal subjects (<i>n</i> = 8)</b>
Fever	25 (89)	6 (86)
Conjunctival injection	10 (36)	1 (14)
Facial/neck edema	9 (32)	0 (0)
Petechial or hemorrhagic rash	1 (4)	0 (0)
Headache	23 (82)	5 (71)
Sore throat	11 (39)	1 (14)
Vomiting	12 (43)	0 (0)
Cough	6 (21)	1 (14)
Diarrhea*	17 (61)	1 (14)
Weakness**	22 (79)	1 (14)
Dizziness**	20 (71)	1 (14)
Recent hearing loss	1 (7)	0 (0)
Convulsions	1 (4)	0 (0)
Confusion	7 (25)	0 (0)
Abdominal pain	13 (46)	1 (14)

Note. All results based expressed as frequency (%). Eight fatal subjects and one nonfatal subject showed no reported symptoms on the case notification form and were excluded from these results. Symptoms without asterisks were not statistically different between fatal and nonfatal groups at the 5% significance level using Fisher's Exact procedure. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table S6. Vital signs on presentation for Ebola-positive patients with complete medical charts and observed survival outcomes.**

Vital sign	Fatal subjects			Nonfatal subjects		
	<i>n</i>	mean ( <i>SE</i> )	median (range)	<i>n</i>	mean ( <i>SE</i> )	median (range)
Temperature**	36	37.51 (0.16)	37.40 (36.00, 39.90)	8	35.88 (0.56)	36.25 (32.20, 37.60)
Systolic BP <sup>a</sup>	25	111.04 (1.92)	110.00 (100.00, 130.00)	6	110.00 (3.65)	110.00 (100.00, 120.00)
Diastolic BP <sup>a</sup>	25	68.40 (2.14)	70.00 (50.00, 90.00)	6	68.33 (1.67)	70.00 (60.00, 70.00)
Heart rate <sup>a</sup>	29	98.07 (4.41)	92.00 (60.00, 160.00)	6	88.00 (6.54)	91.50 (68.00, 105.00)
Respiratory rate <sup>a</sup>	29	25.86 (1.85)	24.00 (20.00, 74.00)	6	22.33 (1.31)	21.00 (20.00, 28.00)
Oxygen saturation <sup>a</sup>	29	96.34 (0.48)	96.00 (90.00, 102.00)	6	96.33 (1.41)	97.50 (90.00, 99.00)

*Note.* Intervals without asterisks were not statistically different between fatal and nonfatal groups at the 5% significance level using the Kruskal Wallis procedure.

a. Calculated only for subjects over 10 years of age. The variation sample sizes for the fatal subjects group is due to missing vital sign data values.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table S7. Medications received by Ebola-positive patients.**

<b>Medication</b>	<b>Fatal subjects (<i>n</i> = 36)</b>	<b>Nonfatal subjects (<i>n</i> = 8)</b>
<b>Antimalarials</b>	17 (49)	7 (88)
<b>Ceftriaxone</b>	29 (83)	6 (75)
<b>Ampicillin</b>	6 (17)	1 (12)
<b>Metronidazole</b>	5 (14)	1 (12)
<b>Ciprofloxacin</b>	1 (3)	1 (12)
<b>Paracetamol</b>	11 (31)	1 (12)

Note. All results based expressed as frequency (%). One showed no reported medications on the case notification form and was excluded from these results. Medications without asterisks were not statistically different between fatal and nonfatal groups at the 5% significance level using Fisher's Exact procedure.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Medications without asterisks were not statistically different between fatal and nonfatal groups at the 5% significance level using Fisher's Exact procedure.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table S8. Metabolic characteristics at presentation.**

Analyte	EVD+			EVD-			Healthy Donors		
	<i>n</i>	mean ( <i>SE</i> )	median (range)	<i>n</i>	mean ( <i>SE</i> )	median (range)	<i>n</i>	mean ( <i>SE</i> )	median (range)
Sodium (Na)***	60	127.32 (0.84)	125.50 (120.00, 154.00)	34	131.50 (1.72)	129.00 (119.00, 158.00)	80	133.11 (0.59)	132.00 (121.00, 150.00)
Potassium (K)***	48	3.67 (0.11)	3.70 (2.40, 5.00)	29	3.80 (0.13)	3.90 (2.50, 5.00)	83	4.52 (0.10)	4.60 (1.60, 6.70)
Total CO <sub>2</sub> (TCO <sub>2</sub> )***	62	19.42 (0.89)	20.50 (5.00, 34.00)	40	20.40 (1.08)	23.00 (4.99, 30.00)	84	25.07 (0.46)	25.00 (7.00, 34.00)
Chloride (Cl)**	61	99.31 (0.97)	99.00 (79.99, 128.00)	42	100.05 (1.41)	101.00 (81.00, 127.00)	82	102.68 (0.76)	102.00 (84.00, 131.00)
Glucose (Gluc)	64	87.27 (4.44)	88.29 (10.63, 154.96)	42	87.43 (16.49)	75.68 (10.63, 682.89)	84	152.02 (64.24)	78.38 (18.02, 5459.51)
Calcium (Ca)***	64	7.84 (0.15)	7.92 (3.96, 12.20)	42	8.06 (0.27)	8.24 (3.96, 13.48)	84	9.12 (0.13)	9.00 (6.40, 14.00)
Blood urea nitrogen (BUN)***	64	38.85 (6.19)	16.39 (4.76, 181.54)	42	22.22 (4.98)	9.80 (4.20, 180.14)	81	10.46 (1.80)	7.56 (4.20, 139.22)
Creatinine (Cr)***	63	3.06 (0.54)	1.10 (0.20, 17.98)	38	0.80 (0.08)	0.75 (0.20, 2.60)	80	1.06 (0.16)	0.83 (0.43, 11.74)
Alkaline phosphatase (ALP)***	64	272.99 (40.38)	153.00 (0.49, 1545.00)	42	117.09 (19.16)	75.00 (0.49, 657.00)	81	104.99 (7.84)	79.00 (43.00, 356.00)
Alanine aminotransferase (ALT)***	64	263.42 (47.90)	130.00 (11.00, 2000.01)	41	76.34 (26.14)	27.00 (14.00, 1005.00)	84	24.13 (2.28)	21.00 (8.00, 190.00)
Aspartate aminotransferase (AST)***	61	702.07 (96.87)	283.00 (28.00, 2000.01)	40	151.78 (58.25)	40.00 (16.00, 2000.01)	84	33.19 (2.06)	29.50 (15.00, 158.00)
Total bilirubin (TBil)***	62	0.94 (0.08)	0.76 (0.41, 4.39)	41	1.82 (0.66)	0.82 (0.41, 25.56)	84	1.05 (0.05)	0.94 (0.53, 3.98)
Albumin (Alb)***	64	3.34 (0.10)	3.35 (1.30, 6.50)	42	3.24 (0.16)	3.20 (1.60, 6.50)	84	4.00 (0.08)	4.00 (1.50, 6.40)
Total protein (TP)***	64	7.52 (0.15)	7.35 (4.20, 13.20)	42	6.73 (0.34)	7.00 (0.00, 10.80)	84	8.33 (0.13)	8.20 (6.10, 13.30)

*Note.* The variation in intra-group sample sizes is due to suppressed Piccolo results or hemolyzed specimens. Analytes without asterisks were not statistically different among the comparison groups at the 5% significance level using the Kruskal Wallis procedure.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table S9. Characteristics for Ebola-positive patients with observed survival outcomes and metabolic panels at presentation.**

<b>Characteristic</b>	<b>Fatal cases (n = 39)</b>	<b>Nonfatal cases (n = 17)</b>
<b>Gender</b>		
Female	19 (49)	11 (65)
Male	20 (51)	6 (35)
<b>Age (years)<sup>a</sup></b>		
< 21	9 (24)	6 (35)
21-45	22 (58)	10 (59)
> 45	7 (18)	1 (6)
<b>District</b>		
Kailahun	34 (87)	16 (94)
Kenema	4 (10)	0 (0)
Other in Sierra Leone	1 (3)	1 (6)

*Note.* All results based expressed as frequency (%). Characteristics without asterisks were not statistically different between fatal and nonfatal groups at the 5% significance level using Fisher's Exact procedure.

a. Age value was missing for one fatal subject.

\* p < .05. \*\* p < .01. \*\*\* p < .001.

**Table S10. Metabolic characteristics among Ebola-positive subjects at presentation.**

Analyte	Fatal cases			Nonfatal cases		
	<i>n</i>	mean ( <i>SE</i> )	median (range)	<i>n</i>	mean ( <i>SE</i> )	median (range)
Sodium (Na)	36	126.64 (0.98)	125.00 (120.00, 143.00)	16	126.81 (0.94)	127.00 (121.00, 134.00)
Potassium (K)	29	3.66 (0.14)	3.70 (2.40, 5.00)	14	3.49 (0.14)	3.40 (2.70, 4.30)
Total CO <sub>2</sub> (TCO <sub>2</sub> )	39	18.82 (1.23)	20.00 (5.00, 34.00)	17	22.76 (0.99)	22.00 (15.00, 32.00)
Chloride (Cl)	37	99.03 (1.30)	99.00 (79.99, 128.00)	17	101.00 (1.29)	100.00 (94.00, 114.00)
Glucose (GLU)	39	88.93 (5.41)	90.09 (10.63, 147.75)	17	100.58 (6.24)	93.69 (61.26, 154.96)
Calcium (Ca)	39	7.86 (0.23)	7.84 (3.96, 12.20)	17	8.08 (0.11)	8.00 (7.12, 8.80)
Blood urea nitrogen (BUN)*	39	36.13 (7.29)	17.37 (6.16, 181.54)	17	16.87 (4.33)	11.20 (4.76, 73.11)
Creatinine (Cr)*	39	3.22 (0.75)	1.22 (0.32, 17.98)	17	1.49 (0.43)	0.85 (0.20, 6.80)
Alkaline phosphatase (ALP)	39	265.55 (49.73)	160.00 (0.49, 1545.00)	17	124.06 (15.34)	125.00 (56.00, 259.00)
Alanine aminotransferase (ALT)	39	257.56 (62.24)	149.00 (11.00, 2000.01)	17	92.88 (20.01)	51.00 (18.00, 309.00)
Aspartate aminotransferase (AST)**	39	793.05 (121.22)	599.00 (30.00, 2000.01)	16	229.00 (71.41)	118.00 (31.00, 928.00)
Total bilirubin (TBil)	39	0.91 (0.09)	0.70 (0.47, 3.04)	16	0.78 (0.06)	0.76 (0.41, 1.35)
Albumin (Alb)	39	3.47 (0.14)	3.50 (1.30, 6.50)	17	3.24 (0.10)	3.30 (2.50, 3.90)
Total protein (TP)	39	7.69 (0.22)	7.50 (5.80, 13.20)	17	7.32 (0.12)	7.20 (6.40, 8.50)

*Note.* The variation in intra-group sample sizes is due to suppressed Piccolo results or hemolyzed specimens. Analytes without asterisks were not statistically different between fatal and nonfatal groups at the 5% significance level using the Kruskal Wallis procedure.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .



Table S11. Ebola Prognostic Score Tabulation for Sierra Leonean patients.

ID	Outcome	Virus											EPS10 <sup>‡</sup>	EPS7 <sup>†</sup>
		Age	load	Temp	Diarrhea	Weakness	Dizziness	Ab pain	BUN	CRE	AST			
G-3808	fatal	0	1	1	0	1	1	1	1	1	1	1	8	5
G-3717	fatal	0	1	0	1	1	1	1	1	1	1	1	8	5
G-3822	fatal	0	1	1	1	1	1	1	1	0	1	1	8	6
G-3807	fatal	0	1	0	0	0	0	0	0	0	0	0	1	1
G-3825	fatal	0	1	1	0	1	1	1	1	1	1	1	8	5
G-3724	fatal	0	1	1	0	1	0	0	0	0	1	4	3	3
G-3798	fatal	0	1	0	1	1	1	1	0	0	0	5	5	5
G-3795	fatal	1	1	0	1	1	1	0	0	0	0	5	5	5
G-3735	fatal	1	1	0	0	1	1	1	1	0	1	7	5	5
G-3827	fatal	1	1	0	1	1	1	0	0	0	0	5	5	5
G-3713	fatal	0	1	1	0	1	1	0	0	0	0	4	4	4
G-3851	fatal	1	1	1	0	0	1	1	0	0	0	5	5	5
G-3845	fatal	0	1	1	1	1	1	1	0	0	1	7	6	6
G-3709	fatal	0	1	1	1	1	1	1	0	0	0	6	6	6
G-3720	fatal	0	1	0	1	1	0	0	-	-	-	-	3	3
G-3814	fatal	0	1	0	0	0	0	0	-	-	-	-	1	1
G-3840	fatal	1	1	0	1	1	1	1	-	-	-	-	6	6
G-3829	fatal	0	1	0	0	1	1	0	-	-	-	-	3	3
G-3818	fatal	0	1	0	0	0	0	0	-	-	-	-	1	1
G-3782	fatal	0	1	1	1	1	0	0	-	-	-	-	4	4
G-3721	fatal	1	1	1	0	1	0	0	-	-	-	-	4	4
G-3838	fatal	0	1	1	1	1	1	0	-	-	-	-	5	5
G-3750	nonfatal	1	0	0	1	0	0	0	0	0	0	2	2	2
G-3850	nonfatal	0	0	0	0	1	1	0	0	0	0	2	2	2
G-3789	nonfatal	0	0	0	0	0	0	0	0	0	0	0	0	0
G-3765	nonfatal	0	0	0	0	0	0	0	0	0	0	0	0	0
G-3809	nonfatal	0	0	0	0	0	0	1	-	-	-	-	1	1

\*To pilot whether a prognostic score tabulation may be useful in Ebola virus disease a score of 1 was assigned to age >45 years old, virus load >10<sup>3</sup>, temperature (temp) >38, presence of diarrhea, weakness, dizziness or abdominal pain (Ab pain) at admission, blood urea nitrogen (BUN) >30 mg/dL, creatinine (CRE) > 3 mg/dL, and aspartate aminotransferase (AST) >500 U/L.

<sup>‡</sup>Ebola Prognostic Score (EPS) based on 10 parameters: age, virus load, temperature, diarrhea, weakness, dizziness, abdominal pain, BUN, CRE, AST. Mean of fatal cases is 5.78 ± 0.54 (standard error) and nonfatal cases is 1 ± 0.57, which is significantly different at p < 0.001.

<sup>†</sup> Ebola Prognostic Score based on 7 parameters: age, virus load, temperature, diarrhea, weakness, dizziness, and abdominal pain. Mean of fatal cases is 4.23 ± 0.34 and nonfatal cases is 1 ± 0.45, which is significantly different at p < 0.001.

## Appendix

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Data aggregation/availability: We aggregated the demographic, clinical and metabolic panel information for all the patients considered in this study into a anonymized dataset that will be made publicly accessible, and can be loaded into Mirador, a freely available tool for visual exploration of health data developed at the Sabeti Lab.