In this appendix, we produce PDF country profiles for these 43 sub-Saharan African countries: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, Cote d'Ivoire, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Tanzania, Togo, Uganda, Zambia, and Zimbabwe. For each country, there are four PDF files, described in depth below, with each named with the convention IHME_TRAVEL_VHF_2019_*COUNTRY*_***SUFFIX***.PDF, as delineated below:

_HEALTH_FACILITY_ACCESSIBILITY_MAPS_Y2019M09D27

This PDF provides several different maps per country highlighting each of our analyses. For those countries that have unpopulated regions defined as fewer than 10 persons per 5 X 5-km grid-cell (Somalia, Ethiopia, Mauritania, Mali, Niger, Chad, Sudan, Kenya, Namibia, Botswana, Angola, Djibouti and Eritrea), there is a version of each analysis with all data and one with only populated regions. Not every country will include every map, as certain countries do not have any spillover event potential for a given pathogen.

Maps 1 (and 2 where applicable): Travel Time to Most Accessible Health Facility, in Hours

This map portrays the travel times to the most accessible health facility in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Health facilities are presented as dark green points. If the country is one of the listed countries above, there are two of these maps – one with all possible locations and one with only populated locations, with those unpopulated locations colored in grey. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Maps 3 (and 4 where applicable): Travel Time to Most Accessible Health Facility, Percentile Ranked

This map portrays the travel times to the most accessible health facility in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are presented as ranked percentiles, where those with the smallest relative travel times are colored in yellow and those with the largest relative travel times are colored in dark blue. Health facilities are presented as red points. If the country is one of the listed countries above, there are two of these maps – one with all possible locations and one with only populated locations, with those unpopulated locations colored in grey. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Maps 5 and 6, where applicable: Travel Time to Most Accessible Health Facility from Locations with Ebola Risk, in Hours

This map portrays the travel times to the most accessible health facility in a given country from areas with spillover event potential for Ebola. Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Health facilities are presented as dark green points. If the country is one of the listed countries above, there are two of these maps – one with all possible locations and one with only populated locations, with those unpopulated locations colored in grey. All areas in-country that are white are regions without spillover event potential for Ebola.

Maps 7 and 8, where applicable: Travel Time to Most Accessible Health Facility from Locations with Marburg Risk, in Hours

This map portrays the travel times to the most accessible health facility in a given country from areas with spillover event potential for Marburg. Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Health facilities are presented as dark green points. If the country is one of the listed countries above, there are two of these maps – one with all possible locations and one with only populated locations, with those unpopulated locations colored in grey. All areas in-country that are white are regions without spillover event potential for Marburg.

Maps 9 and 10, where applicable: Travel Time to Most Accessible Health Facility from Locations with Lassa Risk, in Hours

This map portrays the travel times to the most accessible health facility in a given country from areas with spillover event potential for Lassa. Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Health facilities are presented as dark green points. If the country is one of the listed countries above, there are two of these maps – one with all possible locations and one with only populated locations, with those unpopulated locations colored in grey. All areas in-country that are white are regions without spillover event potential for Lassa.

Maps 11 and 12, where applicable: Travel Time to Most Accessible Health Facility from Locations with CCHF Risk, in Hours

This map portrays the travel times to the most accessible health facility in a given country from areas with spillover event potential for Crimean-Congo hemorrhagic fever (CCHF). Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Health facilities are presented as dark green points. If the country is one of the listed countries above, there are two of these maps – one with all possible locations and one with only populated locations, with those unpopulated locations colored in grey. All areas in-country that are white are regions without spillover event potential for CCHF.

Maps 13 (and 14 where applicable): Travel Time to Most Accessible At-Risk Grid-Cell, in Hours (in-country travel)

This map portrays the travel times to the most accessible grid-cell at risk for at least one VHF in a given country from locations not at-risk. Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Grid-cells at-risk for at least one VHF are colored light green. If the country is one of the listed countries above, there are two of these maps – one with all possible locations and one with only populated locations, with those unpopulated locations colored in grey.

Maps 15 (and 16 where applicable): Travel Time to Most Accessible At-Risk Grid-Cell within 500km, in Hours (cross-border travel)

This map portrays the travel times to the most accessible grid-cell at risk for at least one VHF within 500km of a given country from any location in-country (including those at-risk in that same country). Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Grid-cells at-risk for at least one VHF are colored light green. In this map, those

countries that have an unpopulated region within 500km of their borders have both a map of all possible locations as well as one with only populated locations with unpopulated locations colored in gray; this list encompasses a larger number of countries than the in-country unpopulated areas. Madagascar is not included in this analysis, nor are island regions of given countries.

Map 17: Change in Mean Travel Time from Most Accessible Health Facility, in Hours

This map portrays the reductions in mean travel time to the most accessible health facility given new infrastructure placed in any grid-cell in the country. This map portrays the travel time reductions observed by the placement in that grid-cell, from no reduction (in light yellow) to the largest mean reduction in dark purple; this scale is relative to each country. The dark green points represent the WHO facilities.

Map 18: Change in Mean Population-Weighted Travel Time from Most Accessible Health Facility, in Person-Weighted Hours

This map portrays the reductions in mean person-weighted travel time to the most accessible health facility given new infrastructure placed in any grid-cell in the country multiplied by the population in that grid-cell. This map portrays the travel time reductions observed by the placement in that grid-cell, from no reduction (in light yellow) to the largest mean person-weighted reduction in dark purple; this scale is relative to each country. The dark green points represent the WHO facilities.

_FACILITY_TYPE_STRATIFICATION_Y2019M09D27

This PDF provides several different maps per country highlighting the travel time to the most accessible health facility in country, stratified by facility type. For those countries that have unpopulated regions defined as fewer than 10 persons per 5 X 5-km grid-cell (Somalia, Ethiopia, Mauritania, Mali, Niger, Chad, Sudan, Kenya, Namibia, Botswana, Angola, Djibouti and Eritrea), there presented maps mask out the unpopulated regions (colored in grey). For each facility type, a list of all possible terms included for that type is available in Supplemental Information 1, Table 3. As above, not every country will have each map, as not every country has facilities of each type.

Map 1: Travel Time to Most Accessible Hospital, in Hours

This map portrays the travel times to the most accessible hospital in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Hospitals are presented as dark green points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 2: Travel Time to Most Accessible Hospital, Percentile Ranked

This map portrays the travel times to the most accessible hospital in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are presented as ranked percentiles, where those with the smallest relative travel times are colored in yellow and those with the largest relative travel times are colored in dark blue. Hospitals are presented as red points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 3: Travel Time to Most Accessible Health Clinic, in Hours

This map portrays the travel times to the most accessible health clinic in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Health clinics are presented as dark green points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 4: Travel Time to Most Accessible Health Clinic, Percentile Ranked

This map portrays the travel times to the most accessible health clinic in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are presented as ranked percentiles, where those with the smallest relative travel times are colored in yellow and those with the largest relative travel times are colored in dark blue. Health clinics are presented as red points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 5: Travel Time to Most Accessible Dispensary, in Hours

This map portrays the travel times to the most accessible dispensary in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Dispensaries are presented as dark green points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 6: Travel Time to Most Accessible Dispensary, Percentile Ranked

This map portrays the travel times to the most accessible dispensary in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are presented as ranked percentiles, where those with the smallest relative travel times are colored in yellow and those with the largest relative travel times are colored in dark blue. Dispensaries are presented as red points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 7: Travel Time to Most Accessible Community Health Unit, in Hours

This map portrays the travel times to the most accessible community health unit in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Community health units are presented as dark green points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 8: Travel Time to Most Accessible Community Health Unit, Percentile Ranked

This map portrays the travel times to the most accessible community health unit in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are presented as ranked percentiles, where those with the smallest relative travel times are colored in yellow and those with the largest relative travel times are colored in dark blue. Community health units are presented as red points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 9: Travel Time to Most Accessible Health Post, in Hours

This map portrays the travel times to the most accessible health post in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Health posts are presented as dark green points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 10: Travel Time to Most Accessible Health Post, Percentile Ranked

This map portrays the travel times to the most accessible health post in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are presented as ranked percentiles, where those with the smallest relative travel times are colored in yellow and those with the largest relative travel times are colored in dark blue. Health posts are presented as red points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 11: Travel Time to Most Accessible Health Centre, in Hours

This map portrays the travel times to the most accessible health center in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Health centers are presented as dark green points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 12: Travel Time to Most Accessible Health Centre, Percentile Ranked

This map portrays the travel times to the most accessible health center in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are presented as ranked percentiles, where those with the smallest relative travel times are colored in yellow and those with the largest relative travel times are colored in dark blue. Health centers are presented as red points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 13: Travel Time to Most Accessible Maternity, in Hours

This map portrays the travel times to the most accessible maternity in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Maternities are presented as dark green points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 14: Travel Time to Most Accessible Maternity Center, Percentile Ranked

This map portrays the travel times to the most accessible maternity center in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are presented as ranked percentiles, where those with the smallest relative travel times are colored in yellow and those with the largest relative travel times are colored in dark blue. Maternity centers are presented as red points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 15: Travel Time to Most Accessible Medical Center, in Hours

This map portrays the travel times to the most accessible medical center in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Medical centers are presented as dark green points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 16: Travel Time to Most Accessible Medical Center, Percentile Ranked

This map portrays the travel times to the most accessible medical center in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are presented as ranked percentiles, where those with the smallest relative travel times are colored in yellow and those with the largest relative travel times are colored in dark blue. Medical centers are presented as red points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 17: Travel Time to Most Accessible Polyclinic, in Hours

This map portrays the travel times to the most accessible polyclinic in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are capped at 24+ hours, and the color palette is scaled from 0 hours in light yellow to 24+ hours in dark purple. Polyclinics are presented as dark green points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

Map 18: Travel Time to Most Accessible Polyclinic, Percentile Ranked

This map portrays the travel times to the most accessible polyclinic in a given country from areas with spillover event potential for at least one viral hemorrhagic fever (VHF). Travel times are presented as ranked percentiles, where those with the smallest relative travel times are colored in yellow and those with the largest relative travel times are colored in dark blue. Polyclinics are presented as red points. All areas in-country that are white are regions without spillover event potential for at least one VHF.

_UNCERTAINTY_PLOTS_Y2019M09D27

This PDF provides visual figures of the uncertainty around the VHF environmental suitability estimates. Each figure has three panels: the panel on the left presents the most conservative estimate using the 95th percentile of all values as a threshold for classifying whether a grid-cell has spillover event potential, the middle panel presents the median value used as a threshold, and the right hand panel presents the least conservative estimate using the 5th percentile as the threshold. Each country will have between 1 to 4 three-panel plots depending on how many of the four VHFs are present in that country. The median, 5th percentile and 95th percentile thresholds for the four VHFs are presented in the table below:

	Median	**5th Percentile**	**9th Percentile**
Marburg	0.399	0.300	0.608
CCHF	0.019	0.014	0.025
Ebola	0.349	0.210	0.468
Lassa	0.396	0.339	0.443

_HOSPITAL_RANK_Y2019M09D27

This PDF provides a ranked table of the hospitals closest to at-risk locations for VHF spillover. The tiles are color coded based on the hours of travel to the most accessible at-risk area, and names of each hospital are listed as well as the first administrative unit. All hospitals are presented based on the facility stratification.