

Appendix D. West Africa Definitions and Burden and Wage Estimates

West Africa Country Definition

The main goal of this information collection request (ICR) is to receive and maintain Paperwork Reduction Act (PRA) clearance in advance of any Ebola outbreak in West Africa, so that a CDC can respond without delay. Because it is impossible to predict when and where a new Ebola outbreak may occur, we make assumptions to estimate time and cost burdens based on West African country populations and official language. In order to generalize the utility of this ICR, we translated forms into four official languages (English, French, Portuguese, and Arabic).

We used the United States Agency for International Development (USAID) list of West African countries. West Africa is defined as the region including 21 countries.¹ Sorted by official language, they are:

- French - Benin, Burkina Faso, Cameroon, Côte D'Ivoire, Equatorial Africa, Gabon, Guinea, Mali, Niger, Senegal, and Togo.
- English – The Gambia, Ghana, Liberia, Nigeria, and Sierra Leone.
- Portuguese - Cape Verde, Guinea-Bissau, Sao Tome and Principe.
- Arabic – Chad and Mauritania.

Western Africa	Official Language ²	2015 Population Estimates (in millions) ³	
		Country	By Official Language (%)
Benin	French	10.88m	146.05m (37.49%)
Burkina Faso	French	17.91m	
Cameroon	French ⁴	23.39m	
Côte D'Ivoire	French	21.30m	
Equatorial Guinea	French ⁵	0.80m	
Gabon	French	1.75m	
Guinea	French	12.35m	
Mali	French	16.26m	
Niger	French	19.27m	
Senegal	French	14.97m	
Togo	French	7.17m	
The Gambia	English	1.97m	223.29m (57.32%)
Ghana	English	26.98m	
Liberia	English	4.50m	
Nigeria	English	183.52m	
Sierra Leone	English	6.32m	
Cape Verde	Portuguese	0.51m	2.50m (0.65%)
Guinea-Bissau	Portuguese	1.79m	
Sao Tome and Principe	Portuguese	0.20m	
Chad	Arabic ⁶	13.60m	17.68m 4.54%
Mauritania	Arabic	4.08m	
Total		389.52m	100%

¹ Source: USAID West Africa Regional at <http://www.usaid.gov/west-africa-regional>. List of countries provided by email communication with USAID contact listed on website on 06/18/2015.

² Source: The CIA World Factbook. Accessed 06/18/2015 at <https://www.cia.gov/library/publications/the-world-factbook/fields/2098.html>

³ Source: World Population Review. Accessed 06/18/2015 at <http://worldpopulationreview.com/countries/>

⁴ Cameroon official languages are English and French. French assumed for purposes of this estimation.

⁵ Equatorial Guinea official languages are French and Spanish. French assumed for purposes of this estimation.

⁶ Chad official languages are Arabic and French. Arabic assumed for purposes of this estimation.

West Africa Country Burden Estimates

• We assume 30,000 annual cases to ensure ample burden hours are requested for future outbreaks. The World Health Organization (WHO) case count for 11 months (March, 2014-Jan 2015) is rounded to 22,000.⁷ Assuming an average of 2,000 cases per month, an annual estimate is 24,000 which is adjusted to 30,000 cases. Based on the 2014 Ebola Virus Response, this estimate is not outside of the realm of possibility in an uncontrolled outbreak.

We make a simplifying assumption based on the population size in each country that 57.32% of the Ebola cases will arise from countries with English as the official language (n=17,196), 37.49% will be from French-speaking countries (n=11,247), 0.65% will be from Portuguese-speaking countries (n=195), and 4.54% will be from Arabic-speaking countries (n=1,362).⁸ We are aware that the affected countries will vary from outbreak to outbreak; therefore, the proportion of forms by language for each outbreak will also vary from our simplified estimation model. It is also possible that translations into native dialects will be necessary. However, we anticipate that the total burden for each type of form regardless of language will remain within the requested approval for 30,000 annual cases.

Case Investigation Forms: Short forms were originally developed as a resource- and time-saving aid if the number of cases is larger than MoH surveillance teams can handle using long forms. In the CDC experience of the first year of the 2014 Ebola Response, we noted that the majority of the Ministries of Health (MoH) preferred the short forms.

- For this information collection request (ICR), we assume that 90% of the 30,000 cases would be tracked with short forms (**Attachments 1-4**) and 10% would be tracked with long forms (**Attachments 5-8**).
 - For English-speaking cases (n=17,196), this amounts to 15,476 short forms and 1,720 long forms.
 - For French-speaking cases (n=11,247), this amounts to 10,122 short and 1,125 long forms.
 - For Portuguese-speaking cases (n=195), this amounts to 176 short and 19 long forms.
 - For Arabic-speaking cases (n=1,362), this amounts to 1,226 short and 136 long forms.

Based on our 12-month case estimate (n=30,000), our assumptions are anticipated to cover maximum annual requirements. In total, CDC is requesting burden hours for a total of 27,000 short forms (10 minutes each, or 4,500 hours total) and 3,000 long forms (20 minutes each, or 1,000 hours total) for four official languages spoken in West Africa.

Contact Investigation Forms: Based on response field experience in 2014, a conservative estimate of the number of household contacts per EVD case is 10. Therefore, we estimate 300,000 contacts to be listed (**Attachments 9-12**) and traced for follow-up (**Attachment 13-16**).

⁷ Source: CDC Ebola (Ebola Virus Disease). Accessed 02/02/2015 at <http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html>

⁸ Source: World Population Review. Accessed 06/18/2015 at <http://worldpopulationreview.com/countries/>

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For the Contact Tracing Follow-up Form, we assume the contacts will take 3 minutes each day to take their temperatures and record them; therefore, for 21 days of monitoring, it will take 63 minutes to complete the form. These contacts will be interviewed to assess their risk of exposure to the Ebola virus (**Attachment 17-20**). By language, the number of contacts for each type of contact investigation form is estimated as follows:

- For English-speaking contacts (n=171,960).
- For French-speaking contacts (n=112,470).
- For Portuguese-speaking contacts (n=1,950).
- For Arabic-speaking contacts (n=13,620).

Sex Transmission Case Investigations: To more fully understand sexual transmission factors, adult cases who are survivors will be administered additional questionnaires (**Attachment 21-24**). CDC anticipates that 20 percent of the respondents will be adults willing to take part in this interview (n=6,000). These are new forms, not previously reviewed and approved by OMB. By language, the number of adult cases for each sex transmission investigation form will be:

- For English-speaking adult survivors (n=3,439).
- For French-speaking adult survivors (n=2,249).
- For Portuguese-speaking adult survivors (n=39).
- For Arabic-speaking adult survivors (n=273).

Healthcare Worker Surveys: We assume that 15 percent of the 30,000 cases will be healthcare workers that may take part in additional exposure risk factor surveys (n=4,500) (**Attachments 25-26** and country-customized forms for Liberia and Sierra Leone as **Attachments 27-28**). By language, the number of adult cases for the healthcare worker survey form will be:

- For English-speaking healthcare workers not in Liberia and Sierra Leone (n=2,455).
- For English-speaking healthcare workers in Liberia (n=52).
- For English-speaking healthcare workers in Sierra Leone (n=73).
- For French-speaking healthcare workers (n=1,687).
- For Portuguese-speaking healthcare workers (n=29).
- For Arabic-speaking healthcare workers (n=204).

Health Facility Surveys: For the Health Facility Assessment and Case Finding Survey (**Attachments 29-32**), we assume that such an assessment may be reasonably be conducted for 20% of the facilities caring for the annual 30,000 cases by MoHs, as resources permit (n=6,000). By language, the number of adult cases for the healthcare worker survey form will be:

- For English-speaking healthcare facilities (n=3,439).
- For French-speaking healthcare facilities (n=2,249).
- For Portuguese-speaking healthcare facilities (n=39).
- For Arabic-speaking healthcare facilities (n=273).

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West Africa Country Wage Estimates

For purposes of estimating respondent hourly wages, we obtained minimum wages from the International Labour Organization (ILO) Working Conditions Law Database⁹) or internet news pages where published.

West Africa	Official Language	2015 Population Estimate	Minimum Wage Estimates				Source	
			Country Wage Rate	US Dollar ¹⁰				
				Monthly	Daily	Hourly		
Benin	French	10.88m	31,625 CFA francs/month	60.45		0.38	International Labour Organization	
Burkina Faso	French	17.91m	30,684 CFA francs/month	58.65		0.37	International Labour Organization	
Cameroon	French	23.39m	36,270 CFA francs/month	62.56		0.39	Internet News 2014	
Côte D'Ivoire	French	21.30m	60,000 CFA francs/month	114.69		0.72	Internet News 2013	
Equatorial Guinea	French	0.80m	95,400 CFA francs/month	165.75		1.04	International Labour Organization	
Gabon	French	1.75m	80,000 CFA francs/month	138.99		0.87	International Labour Organization	
Guinea	French	12.35m	440,000 G francs/month	60.17		0.38	Internet 2013	
Mail	French	16.26m	28,460 CFA francs/month	54.40		0.34	International Labour Organization	
Niger	French	19.27m	28,347 CFA francs/month	54.19		0.34	International Labour Organization	
Senegal	French	14.97m	209.10 CFA francs/hour			0.40	International Labour Organization	
Togo	French	7.17m	28,000 CFA francs/month	53.52		0.33	International Labour Organization	
French West Africa		146.05m	Minimum Wage Weighted for Country Population			0.43		
Gambia, The	English	1.97m	19.55 G dalasi/day		5.84	0.73	International Labour Organization	
Ghana	English	26.98m	7 G cedi/day		2.09	0.26	Internet News 2015	
Liberia	English	4.50m	6 USD/day or 75 cents/hour		6.00	0.75	Internet News 2013	
Nigeria	English	183.52m	18,000 N naira/month	95.10		0.59	International Labour Organization	
Sierra Leone	English	6.32m	500,000 SL leone/month	112.65		0.70	Internet News 2015	
English West Africa		223.29m	Minimum Wage Weighted for Country Population			0.55		
Cape Verde	Portuguese	0.51m	11,000 CV escudos/month	123.40		0.77	Internet News 2013	
Guinea-Bissau	Portuguese	1.79m	19,030 CFA francs/month plus a bag of rice	36.38		0.23	International Labour Organization	
Sao Tome and Principe	Portuguese	0.2m	750,000 dobras/month ¹¹	34.32		0.21	Internet News 2014	
Portuguese West Africa		2.50m	Minimum Wage Weighted for Country Population			0.34		
Chad	Arabic	13.6m	147.00 CFA/hour			0.26	International Labour Organization	
Mauritania	Arabic	4.08m	21,150 ouguiya/month	70.20		0.44	International Labour Organization	
Arabic West Africa		17.68m	Minimum Wage Weighted for Country Population			0.30		
Total Population		389.52m				0.50		

⁹ Source ILO database: ILO Working Conditions Laws Database. ILO, Geneva. Available at: <http://www.ilo.org/dyn/travail>

¹⁰ USD conversion performed 06/20/2015 at eXchangeRate.com at http://www.exchangerate.com/currency-converter/XOF/USD/60.000%20/?XR-200Plus_Converter=convert&calc_short_from_iso=59&calc_short_to_iso=239

¹¹ Sao Tome and Principe has no national minimum wage but has this minimum wage for civil servants. Available at <http://www.refworld.org/docid/53284a7914.html>.

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West Africa Country Cost Estimates

The method for calculating a weighted hourly cost estimate for respondents from USAID West Africa Regional (all countries and official languages) and for the countries grouped by official languages is displayed below.¹²

$$\text{Hourly minimum wage rate} = \frac{\text{USD}}{1 \text{ month}} * 1 \text{ month} \quad \text{or} \quad \frac{\text{USD}}{1 \text{ day}} * 1 \text{ day}$$

$$\frac{160 \text{ hours}}{160 \text{ hours}} \quad \frac{8 \text{ hours}}{8 \text{ hours}}$$

Wage Weighted for Country Population (English, French, Portuguese, and Arabic)				Wage Weighted for Country Population (French)				Wage Weighted for Country Population (English)			
(Country Popn/Total Popn)*(Hourly Wage) = Country Weight				(Country Popn/Total Popn)*(Hourly Wage) = Country Weight				(Country Popn/Total Popn)*(Hourly Wage) = Country Weight			
10.88	389.52	0.38	0.010614	10.88	113.4	0.38	0.028308	1.97	223.29	0.73	0.006441
17.91	389.52	0.37	0.017012	17.91	113.4	0.37	0.045373	26.98	223.29	0.26	0.031416
23.39	389.52	0.39	0.023419	23.39	113.4	0.39	0.062459	4.50	223.29	0.75	0.015115
21.3	389.52	0.72	0.039372	21.3	113.4	0.72	0.105005	183.52	223.29	0.59	0.484916
0.8	389.52	1.04	0.002136	0.8	113.4	1.04	0.005697	6.32	223.29	0.70	0.019813
1.75	389.52	0.87	0.003909	1.75	113.4	0.87	0.010425	223.29	< SUM >	0.551259	
12.35	389.52	0.38	0.012048	12.35	113.4	0.38	0.032133	Unskilled Workers			
16.26	389.52	0.34	0.014193	16.26	113.4	0.34	0.037853	Skilled Workers			
19.27	389.52	0.34	0.016820	19.27	113.4	0.34	0.044860	Highly Skilled Workers			
14.97	389.52	0.40	0.015373	14.97	113.4	0.40	0.041000	\$0.55			
7.17	389.52	0.33	0.006074	7.17	113.4	0.33	0.016201	\$5.51			
1.97	389.52	0.73	0.003692	113.4	< SUM >	0.429312	\$11.02				
26.98	389.52	0.26	0.018009	Unskilled Workers							
4.50	389.52	0.75	0.008665	Skilled Workers							
183.52	389.52	0.59	0.277975	Highly Skilled Workers							
6.32	389.52	0.70	0.011358	\$0.43							
0.51	389.52	0.77	0.001008								
1.79	389.52	0.23	0.001057								
0.20	389.52	0.21	0.000108								
13.6	389.52	0.44	0.009078								
4.08	389.52	0.38	0.004609								
389.52	< SUM >	0.496527									
Unskilled Workers				0.51	2.50	0.77	0.157080	13.6	17.68	0.44	0.200000
Skilled Workers				1.79	2.50	0.23	0.164680	4.08	17.68	0.38	0.101538
Highly Skilled Workers				0.20	2.50	0.21	0.016800	17.68	< SUM >	0.301538	
				2.50	< SUM >	0.338560		Unskilled Workers			
				Unskilled Workers				\$0.30			
				Skilled Workers				\$3.02			
				Highly Skilled Workers				\$6.03			
				\$0.34							
				\$3.38							
				\$6.77							

¹² Assume 8 hours/day; 40 hours/week; 4 weeks/month; 160 hours/month. Assume minimum wage applies to unskilled workers. Assume due to lack of documented information from existing sources, wages for skilled workers (e.g., healthcare workers, laboratory, and environmental services personnel) are 10 times minimum wage. Assume due to lack of documented information from existing sources, wages for highly skilled workers and executives (e.g., clinicians and health directors) are 20 times minimum wage.

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Healthcare Worker Surveys: The CDC and WHO worked collaboratively to develop the “Healthcare Worker Ebola Virus Disease Exposure Report (**Attachments 25-26**). Two English-speaking countries, Liberia and Sierra Leone, chose to customize this form (**Attachments 27-28**). To estimate burden and cost estimates, we calculated average wages for English-speaking countries, excluding Liberia and Sierra Leone, For Liberia and Sierra Leone, we used their published hourly minimum wages.

West Africa	Official Language	2013 Population Estimate	Minimum Wage Estimates				Source	
			Country Wage	US Dollar ¹³				
				Monthly	Daily	Hourly		
Gambia, The	English	1.97m	19.55 G dalasi/day		5.84	0.73	International Labour Organization	
Ghana	English	26.98m	7 G cedi/day		2.09	0.26	Internet News 2015	
Nigeria	English	183.52m	18,000 N naira/month	95.10		0.59	International Labour Organization	
<i>English West Africa, excluding Liberia and Sierra Leone</i>		212.47m	<i>Minimum Wage Weighted for Country Population</i>			0.52		

Wage Weighted for Country Population (English without Sierra Leone or Guinea)			
(Country Popn/Total Popn)*(Hourly Wage) = Country Weight			
1.97	212.47	0.73	0.006441
26.98	212.47	0.26	0.031416
183.52	212.47	0.59	0.484916
212.47	< SUM >		0.522772
Unskilled Workers		\$0.52	
Skilled Workers		\$5.23	
Highly Skilled Workers		\$10.46	

¹³ USD conversion performed 06/20/2015 at eXchangeRate.com at http://www.exchangerate.com/currency-converter/XOF/USD/60,000%20/?XR-200Plus_Converter=convert&calc_short_from_iso=59&calc_short_to_iso=239