

Supplementary webappendix

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Supplemental Table 1: Search terms used in literature search

Medline
(1) hepatitis C.ab,ti. (2) hcv.ab,ti. (3) exp Hepatitis C/ (4) 1 or 2 or 3 (5) "sub sahara? africa*".ab,ti.(6) exp "Africa South of the Sahara"/ (7) 5 or 6 (8) incidence.ab,ti. (9) incidence/ (10) prevalence.ab,ti. (11) prevalence/ (12) mortality.ab,ti. (13) mortality/ or "cause of death"/ or child mortality/ or fatal outcome/ or fetal mortality/ or hospital mortality/ or infant mortality/ or mortality, premature/ or perinatal mortality/ or survival rate/ (14) vir?emia.ab,ti. (15) Viremia/(16) genotype.ab,ti. (17) exp Genotype/ (18) diagnos?s.ab,ti. (19) exp Diagnosis/ (20) exp Therapeutics/ (21. "therap*".ab,ti. (22) "treat*".ab,ti. (23) sustained virological response.ab,ti. (24) svr.ab,ti. (25) 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 (26) 4 and 7 and 25 (27) limit 26 to yr="2002 -Current"
Embase (via Ovid)
(1) hepatitis c.ti,ab. (2) hcv.ti,ab. (3) hepatitis c/ or hepatitis c antibody/ or hepatitis c antigen/ or hepatitis c rapid test/ or hepatitis c vaccine/ or hepatitis c virus/ (4) 1 or 2 or 3 (5) "sub sahara? africa*".ti,ab. (6) exp "Africa south of the Sahara"/ (7) 5 or 6 (8) incidence.ti,ab. (9) exp incidence/ (10) prevalence.ti,ab. (11) exp prevalence/ (12) mortality.ti,ab. (13) exp mortality/ (14) vir?emia.ti,ab. (15) viremia/ (16) genotype.ti,ab. (17) exp genotype/ (18) diagnos?s.ti,ab. (19) exp diagnosis/ (20) exp therapy/ (21) "therap*".ti,ab. (22) "treat*".ti,ab. (23) sustained virological response.ti,ab. (24) svr.ti,ab. (25) 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 (26) 4 and 7 and 25 (27) limit 26 to yr="2002 - Current"

Supplemental Table 2: Estimated HCV mean seroprevalence in low risk populations for 30 African countries by region: divided by site of testing - ANC, Blood Donor or Other¹

Country	Population sampled ¹	Total number of samples	Number of cohorts	Range of HCV % prevalence estimates	Total number of HCV positive	Per country % HCV prevalence from samples included	References
Central Africa Region							
Angola	Other	40	1	5	2	5.0	[1]
Burundi	Other	5832	2	8.2-9.9	483	8.3	[2,3]
Cameroon	ANC	6502	2	1.8-1.9	117	1.8	[4,5]
Cameroon	Blood Donor	3872	8	0.8-4.8	77	2.0	[6-9]
Cameroon	Other	6832	11	0.6-55.9	1164	18.2	[10-16]
CAR	Other	905	1	10.5	95	10.5	[17]
Congo-Brazzaville	Blood Donor	25136	2	4.2-4.7	1087	4.3	[18,19]
Congo-Brazzaville	Other	1007	2	5.6 – 7.5	59	5.9	[20,21]
DRC	Blood Donor	211	1	3.8	8	3.8	[22]
Gabon	ANC	947	1	2.1	20	2.1	[23]
Gabon	Blood Donor	26619	5	0.3-6.0	769	2.7	[24,25]
Gabon	Other	4556	3	6.7-20.7	532	11.7	[26-28]
Rwanda	Other	373	1	2.7	10	2.7	[29]
Sudan	ANC	423	1	0.7	3	0.7	[30]
Sudan	Blood Donor	478	2	1.3 – 6.5	27	5.6	[31,32]
Sudan	Other	410	1	2.2	9	2.2	[33]
Uganda	Blood Donor	2952	1	0.5	15	0.5	[34]
Uganda	Other	1682	5	2.8 - 11.8	164	9.8	[29,35-37]
Total Central Africa region		88327	50				
South-East Africa region							
Djibouti	Blood Donor	8057	1	0.3	21	0.3	[38]
Eritrea	Blood Donor	29501	1	0.6	170	0.6	[39]
Ethiopia	ANC	556	1	0.2	1	0.2	[40]
Ethiopia	Blood Donor	6361	1	0.6	35	0.6	[41]
Ethiopia	Other	9414	7	0.3-9.7	180	1.9	[42-46]
Kenya	ANC	281	1	0.7	2	0.7	[47]
Kenya	Blood Donor	3035	1	3.4	103	3.4	[47]
Kenya	Other	1052	4	0-9.2	39	3.7	[29,48]
Madagascar	Blood Donor	47510	1	0.7	309	0.7	[49]
Madagascar	Other	2169	1	1.2	25	1.2	[49]
Malawi	Other	482	2	4.5-10	37	7.7	[50,51]
Mozambique	Blood Donor	2257	2	0-1.5	23	1.0	[52,53]
South Africa	Blood Donor	751959	2	0.005 - 0.01	41	0.01	[54,55]
South Africa	Other	1159	1	1.7	20	1.7	[56]

Tanzania	Blood Donor	1906	2	1.5 - 5.5	41	2.2	[57,58]
Tanzania	Other	1608	4	0-10.4	85	5.3	[59-62]
Zambia	Other	352	1	1.7	6	1.7	[29]
Zimbabwe	Blood Donor	30	1	0	0	0.0	[63]
Zimbabwe	Other	145	1	0	0	0.0	[64]
Total South East Africa region		867834	35				
West Africa region							
Benin	ANC	283	1	7.4	21	7.4	[65]
Burkina Faso	ANC	1697	4	1.7-23.1	139	8.2	[66-68]
Burkina Faso	Blood Donor	46808	11	0.5-9.3	2600	5.6	[67,69-73]
Burkina Faso	Other	995	1	1.0	10	1.0	[74]
Côte d'Ivoire	ANC	1109	2	0.8-3.0	22	2.0	[75,76]
Gambia	Other	3013	3	0.5-2.9	25	0.8	[77-79]
Ghana	ANC	638	1	2.5	16	2.5	[80]
Ghana	Blood Donor	80856	13	11.1 - 0.2	734	0.9	[81-87]
Ghana	Other	822	5	5.2-15.2	65	7.9	[88-91]
Guinea-Bissau	Other	1610	1	4.6	74	4.6	[92]
Mali	Blood Donor	25543	1	3.3	831	3.3	[93]
Nigeria	ANC	7402	6	0.4-9.2	260	3.5	[94-97] [98,99]
Nigeria	Blood Donor	11659	17	0-14.6	487	4.2	[100-111] [112-116]
Nigeria	Other	8484	31	0-37.8	791	9.3	[99,105,107,117-137]
Senegal	B	4257	3	1.7 - 0.5	34	0.8	[138-140]
Total West Africa region		195,176	100				

¹ Other: General population, inpatient and outpatient samples with no known history of risk factors for liver disease or HCV infection

Supplemental Table 3: Estimated HCV mean seroprevalence in high risk (HR) populations and populations with known Liver disease (LD) for 16 African countries by region

Author	Country	Region	Risk	Population notes	Sample size	HCV Seroprevalence (%)
Guimarães [141]	Angola	Central	HR	Anonymous HIV testing centre	431	8.1
Dokeksias [20]	Congo	Central	HR	Multiple transfused patients	132	19.7
Batina Agasa [142]	DRC	Central	HR	Multiple transfused patients	127	7.9
El-Amin [143]	Sudan	Central	HR	Haemodialysis patients	218	25.7
Gasim [144]	Sudan	Central	HR	Haemodialysis patients	353	8.5
Biggar [35]	Uganda	Central	HR	Sickle cell clinic - patients with history of blood transfusions	603	4.5
Muasya [48]	Kenya	SE	HR	Current and ex IVDUs	145	46.2
Otedo [145]	Kenya	SE	HR	Haemo and peritoneal dialysis patients	100	5.0
Vardas [146]	South Africa	SE	HR	Healthcare workers (HCWs) at increased risk of occupational acquisition of blood-borne viruses	399	1.8
de Waal [147]	South Africa	SE	HR	Population exposed to potentially contaminated medical waste e.g. used needles and syringes	44	0.0
Mosendane [148]	South Africa	SE	HR	Nurse/Healthcare workers (HCWs)	170	1.2
Bowring [59]	Tanzania	SE	HR	IVDUs	267	27.7
Adjei [149]	Ghana	West	HR	Prison inmates	1366	18.7
Adjei [150]	Ghana	West	HR	Prison officers	445	18.7
Adoga [151]	Nigeria	West	HR	Prison inmates	300	12.3
Ejiofor [134]	Nigeria	West	HR	Sickle cell clinic - patients with history of blood transfusions	136	6.6
Erhabor [152]	Nigeria	West	HR	HCWs with percutaneous exposure to patient's blood, 3 Drs, 2 lab scientists, 1 lab technician, 6 medical students, 1 trainee lab assistant	13	0.0
Ummate [153]	Nigeria	West	HR	Haemodialysis patients	100	15.0
Dahaba [154]	Senegal	West	HR	Haemodialysis patients	106	5.7
Ségbéna [155]	Togo	West	HR	Sickle cell clinic - patients with no documented history of blood transfusions	42	2.4
Ségbéna [155]	Togo	West	HR	Sickle cell clinic - patients with history of blood transfusions	49	10.2
Strand [1]	Angola	Central	LD	Jaundiced pregnant women	20	0.0
Bekondi [156]	CAR	Central	LD	Patients with clinical suspicion of Hepatocellular carcinoma	175	1.7
Mudawi [157]	Sudan	Central	LD	Hepatosplenic schistosomiasis patients	176	3.4

Ahmed [158]	Sudan	Central	LD	Pregnant women presenting with features of acute viral hepatitis	16	6.3
Abdulkerim [159]	Ethiopia	SE	LD	Patients with chronic hepatitis Patients with history of jaundice not exceeding 6 months i.e. with acute icteric hepatitis but not chronic liver disease	220	3.6
Atina [160]	Kenya	SE	LD	Subjects examined for S.mansoni and found with grade C pathology or higher	84	7.1
Blanton [161]	Kenya	SE	LD	Histologically confirmed HCC patients	237	13.1
Jaka [162]	Tanzania	SE	LD	Patients with primary Hepatocellular carcinoma	142	16.9
Chin'ombe [63]	Zimbabwe	SE	LD	Patients with Hepatocellular carcinoma	60	20.0
Kirk [78]	Gambia	West	LD	Patients with Hepatocellular carcinoma	191	18.8
Mboto [77]	Gambia	West	LD	Patients with Hepatocellular carcinoma	13	38.5
Szymańska [163]	Gambia	West	LD	Patients with Hepatocellular carcinoma	19	0.0
Igetei [135]	Nigeria	West	LD	Patients with Hepatocellular carcinoma	50	6.0
Ndububa [164]	Nigeria	West	LD	Patients with features of early LD	17	5.9
Okonkwo [165]	Nigeria	West	LD	Patients with Hepatocellular carcinoma	60	8.3
Ola [120]	Nigeria	West	LD	Patients with acute icteric hepatitis - unknown cause	45	46.7
Ola [136]	Nigeria	West	LD	Patients with acute/chronic viral hepatitis - unknown cause	28	21.4
Olokoba [130]	Nigeria	West	LD	Patients with features of Chronic LD	90	14.4
Sunmonu [166]	Nigeria	West	LD	Patients with liver cirrhosis	34	5.9
Vray [139]	Senegal	West	LD	Patients with chronic Hepatitis B liver disease	29	0.0

Supplemental Table 4: Estimated mean seroprevalence of HCV co-infection in HIV infected cohorts for 27 African countries by region

Country	Number of cohorts	Total number of samples	Range of HCV % prevalence estimates	Total number of HCV positive	Per country % HCV prevalence from samples included	References
Central Africa region						
Angola	1	38	10.5	4	10.5	[141]
Burundi	1	1052	10.6	112	10.6	[167]
Cameroon	4	230	8.6-16.7	27	11.7	[6,8,12,168]
Congo	1	392	7.7	30	2.5	[18]
DRC	2	210	0-9.6	20	9.5	[22,142]
Rwanda	1	82	1.2	1	1.2	[169]
Sudan	1	358	1.7	6	1.7	[170]
Uganda	5	825	2.1-3.3	23	2.8	[36,169,171-173]
Total: Central region	16	3187				
South and East Africa region						
Botswana	2	302	0-0.8	2	0	[174,175]
Djibouti	1	175	1.1	2	1.1	[38]
Ethiopia	10	2899	0-6.8	105	3.6	[40-42,45,46,176,177]
Kenya	4	478	0-90.4	53	11.1	[48,160,178]
Lesotho	1	205	0.5	1	0.5	[179]
Malawi	5	3089	0.1-12.5	63	2.0	[50,51,180-182]
Mozambique	2	432	6.1-15.7	55	12.7	[183,184]
South Africa	6	2726	0-13.4	115	4.2	[56,185-188]
Tanzania	10	1086	0-48.4	149	13.7	[57-59,62,189-194]
Zambia	1	323	1.2	4	1.2	[193]
Zimbabwe	1	124	0.8	1	0.8	[64]
Total: SE region	43	11839				
West Africa region						
Benin	1	9	22.2	2	22.2	[65]
Burkina Faso	10	1172	0-75	149	12.7	[66-71,195]
Côte d'Ivoire	2	779	0-1.2	6	0.8	[75,196]
Gambia	2	572	1-1.4	7	1.2	[197]
Ghana	3	167	3.6-16.7	8	4.8	[80,91,198]
Guinea-Bissau	1	576	1.7	10	1.7	[199]
Nigeria	22	23985	0-33.3	2349	9.8	[98,104,106,111,117,122,133,151,200-213]
Senegal	1	362	1.7	6	1.7	[214]

Total: West
region

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Supplemental Table 5 HCV Genotype Distribution for 19 African countries by regions

Country	Number of cohorts	Genotype Distribution (%)				
		G1	G2	G3	G4	G5
Central Africa						
Cameroon	6	28.3	25.6	0	45.9	0
CAR	1	9	7.7	0	83.3	0
Congo	2	35	4	0	63	0
Gabon	4	4.8	2	0	93.1	0
Sudan	2	0	0	0	100	0
Uganda	2	0	0	0	100	0
South and East Africa						
Ethiopia	1	5.6	33.3	0	50	11.1
Kenya	2	73.1	0	0	26.9	0
Madagascar	1	52.9	47.1	0		0
Mozambique	2	Y	Y	Y	Y	Y
South Africa	1	0	0	0		100
Tanzania	1	100	0	0		0
West Africa						
Benin	1	16.7	83.3			
Burkina Faso	1	12.5	56.3	15.6	3.1	0
Côte d'Ivoire	3	66.6	33.3		0	0
Gambia	2	0	100	0	0	0
Ghana	1	13	87	0	0	0
Guinea-Bissau	2	1.5	98.5	0	0	0
Nigeria	2	83.3	16.7	0	0	0
Senegal	2	100	Y	0	0	0

Burkina Faso	Nagalo	2012	2009 March	ELISA	B	1068	2.1							
Burkina Faso	Ouedraoga	2012	2007	ELISA	B	115	2.6							
Burkina Faso	Simpore	2006	2001-2003	EIA, Ib, V	A	547	4.6	0.9		10.8				
Burkina Faso	Simpore	2006	2003-2005	O	A	429	23.1			75.0				
Burkina Faso	Tao	2014	NA	O	GP	995	1.0							
Burkina Faso	Zeba	2011	2009	EIA, V	HIV	378	2.4	2.4		2.4				
Burkina Faso	Zeba	2011	2009	EIA	A	229	1.7	1.8						
Burkina Faso	Zeba	2014	2011	ELISA, V	B	2200	4.4	1.5		32	12.5	56.3	15.6	3.1
Burundi	Ntagirabiri	2012	2009	ELISA	HIV	1053	10.6			10.6				
Burundi	Ntagirabiri	2014	2002		GP	5569	8.2							
Burundi	Ntagirabiri	2014	2013		IP	263	9.9							
Cameroon	Foupouapouognigni	2011	2005-2008	EIA, V	GP	346	0.6	0.0						
Cameroon	Kurbanov	2005	1994	EIA	GP	370	20.3							
Cameroon	Kurbanov	2005	1994	EIA	GP	174	2.3							
Cameroon	Laurent	2007	2001	EIA, Ib	GP	476	21.0			8.6				
Cameroon	Laurent	2010	2001-2003	EIA, Ib, V	HIV	169	12.4	12.4		12.4				
Cameroon	Mbanya	2003	2001	Ib	B	252	4.8			10.0				
Cameroon	Mbanya	2005	2004	O	B	204	3.9			16.7				
Cameroon	Mogtomo	2009	1999	ELISA	B	208	1.9							
Cameroon	Mogtomo	2009	2000	ELISA	B	344	0.9							
Cameroon	Mogtomo	2009	1995 -	ELISA	B	304	2.3							

Cameroon	Mogtomo	2009	2004	2001	ELISA	B	381	0.8						
Cameroon	Mogtomo	2009	2003	2003	ELISA	B	181	1.7						
Cameroon	Nerrienet	2005	1993	1993	ELISA	GP	644	29.7						
Cameroon	Nerrienet	2005	1994	1994	ELISA	GP	646	4.0						
Cameroon	Nerrienet	2005	1994	1994	ELISA	GP	367	3.3						
Cameroon	Nerrienet	2005	2003	2003	ELISA	OP	1434	15.6						
Cameroon	Njouom	2003	1998	1998	V	GP	409	17.1	11.7		37	8	16	76
Cameroon	Njouom	2003	2000-	2001	ELISA,	A	1494	1.9	1.4		21	24	38	38
Cameroon	Njouom	2005	2001-	2003	ELISA,	A	5008	1.8	1.4		64	28.1	26.6	45.3
Cameroon	Pasquier	2005	2002-	2003	ELISA,	OP	1065	19.5	14.6		156	45	24	31
Cameroon	Pépin	2010	2009	2009	V	GP	451	55.9	39.7		171	18.1	27.5	54.4
Cameroon	Tagny	2014	2011-	2012	O, EIA,	B	1998	1.9	0.7		3	Y	Y	
CAR	Bekondi	2010	2006-	2008	Ib, V	LD	175	1.7						
CAR	Pépin	2010	2006	2006	O,	GP	905	10.5	8.6		78	9	7.7	83.3
Congo	Alidjinou	2014	NA	NA	Ib, V	B	7785	4.7		7.7				
Congo	Canataloube	2010	2005	2005	EIA, V	GP	887	5.6	3.5		31		3.2	96.8
Congo	Doeksias	2003	May-Sept	2001	ELISA,	GP	120	7.5						
Congo	Doeksias	2003	May-Sept	2001	ELISA	HR	132	19.7						

Congo-Brazzaville	Atipolar	2014			B	17351	4.2			17	94.1	5.88		
Côte d'Ivoire	Campo	2014	1995-1998, 1999,	V	A	608	3.0	3.0		18	66.7	33.3		
Côte d'Ivoire	Rouet	2004	1995-1998, 1999,	EIA, Ib, V	HIV	501	1.2	1.0	1.2		Y	Y		
Côte d'Ivoire	Rouet	2004	1999, 2000-	EIA, Ib, V	A	501	0.8	0.6			Y	Y		
Côte d'Ivoire	Rouet	2008	2000-1998-	EIA	HIV	278	0.0		0.0					
Djibouti	Dray Batina	2005	2000	ELISA O,	B	8057	0.3		1.1					
DRC	Agasa	2010	2008	ELISA	HR	127	7.9		0.0					
DRC	Kabinda	2010	2008	ELISA	HIV	209	9.6		9.6					
DRC	Kabinda	2010	2008	ELISA	B	211	3.8							
Eritrea	Fessehaye Abdulkerim	2011	2006-2012-	O	B	29501	0.6							
Ethiopia	m	2014	2013	O ELISA,	LD	220	3.6					33.3		11.1
Ethiopia	Abreha	2011	2006	V	OP	1954	3.6	0.9	6.8	18	5.56	3	50	1
Ethiopia	Ali	2012	2010	Ib	OP	304	9.9							
Ethiopia	Ali	2012	2010	Ib ELISA,	OP	300	3.3							
Ethiopia	Ayele	2002	1994 Feb-	Ib	GP	4591	0.9		4.8					
Ethiopia	Balew	2014	April	O	HIV	395	1.3		1.3					

Country	Region	Year	Period	Method	Category	Count	Prevalence (%)	Prevalence (%)	Prevalence (%)	Prevalence (%)	Prevalence (%)	Prevalence (%)	
Ethiopia	Berhe	2007	2000-2012	EIA, O	GP	349	0.3						
Ethiopia	Berhe	2007	2000-2012	EIA, O	GP	1707	1.3						
Ethiopia	Manyazewal	2014	NA	O, ELISA	HIV	250	4.0				4.0		
Ethiopia	Manyazewal	2014	NA	O, ELISA	HIV	250	3.2				3.2		
Ethiopia	Ramos	2012	2010-2012	O	A	556	0.2				0.0		
Ethiopia	Tessema	2009	2003-2007	ELISA	B	6361	0.6				1.7		
Ethiopia	Yimer	2014	2007-2011	O	HIV	273	2.2				2.2		
Ethiopia	Yimer	2014	2007-2011	O	HIV	495	1.8				1.8		
Ethiopia	Yimer	2014	2007-2011	O	HIV	83	6.0				6.0		
Ethiopia	Yimer	2014	2007-2011	O	OP	209	1.9						
Gabon	Kouegnigan	2014	NA	EIA	B	414	1.4						
Gabon	Kouegnigan	2014	NA	EIA	B	361	1.1						
Gabon	Ndong-Atome	2008	2003	ELISA, Ib, V	GP	319	20.7	18.8		22		100	
Gabon	Ndong-Atome	2008		ELISA, V	A	947	2.1	1.4		11		100	
Gabon	Ndong-Atome	2009	NA	ELISA, V	GP	195	6.7	2.6		5		100	
Gabon	Njouom	2012	2005-2008	ELISA, V	GP	4042	11.2	5.2		211	5.7	2.2	91.9
Gabon	Rerambia	2014	2009	EIA	B	7570	1.2						

Gabon	h Rerambia h	2014	2010	EIA	B	8282	0.3				
Gabon	h Rerambia h	2014	2011	EIA	B	9992	6.0				
Gambia	Jobarteh	2010	2008	1988- 1988- ELISA, Ib, V	HIV	190	1.1	0.5	1.1	1	100
Gambia	Jobarteh	2010	2008	1988- 1997- ELISA, Ib, V	HIV	382	1.3	0.8	1.3	3	100
Gambia	Kirk	2004	2001	1997- ELISA, Ib	LD	191	18.8				
Gambia	Kirk	2004	2001	ELISA, Ib	OP	382	2.9				
Gambia	Mboto	2005	2002	ELISA	GP	39	2.6				
Gambia	Mboto	2005	2002	ELISA	LD	13	38.5				
Gambia	Peto	2014	2008	2007- EIA	GP	2592	0.5				
Gambia	Szymański a	2004	1998	1997- Ib	LD	19	0.0				
Ghana	Adjei	2007	2005	2004- ELISA, O	HR	1366	18.7				
Ghana	Adjei	2008	2005	ELISA, O	HR	445	18.7				
Ghana	Allain	2009	2004	EIA, O	B	12745	0.5				
Ghana	Allain	2009	2005	EIA, O	B	12559	0.7				
Ghana	Allain	2009	2006	EIA, O	B	10799	0.4				
Ghana	Allain	2009	2007	EIA, O	B	14997	0.2				
Ghana	Allain	2010	2008	EIA, O	B	6640	0.2				
Ghana	Allain	2010	2008	EIA, O	B	4360	0.4				
Ghana	Ampofo	2002	1999	PA, ELISA, Ib, V	B	808	8.4	0.3			
Ghana	Apea-Kubi	2006	2000-	PA	OP	517	5.2		16.7		

			2001	EIA, Ib,								
Ghana	Candotti	2003	NA	V	B	4984	1.3	0.6		23	13	87
Ghana	Dash	2007	2001	EIA	GP	57	8.8					
Ghana	Dash	2007	2002	EIA	GP	47	10.6					
Ghana	Jiang	2007		EIA	GP	56	10.7					
Ghana	Kubio	2012	2009	O	B	819	6.1					
Ghana	Lassey	2004		ELISA	A	638	2.5		5.9			
Ghana	Nkrumah	2011	2006	O	B	770	9.4					
Ghana	Nkrumah	2011	2007	O	B	977	11.1					
Ghana	Nkrumah	2011	2008	O	B	1026	7.0					
Ghana	Obuseh	2010	NA	EIA	GP	145	15.2					
	Owusu-Ofori (RNA?)		2002-2003	O, ELISA	B							
Ghana	Sagoe	2012	2007	EIA	HIV	9372	0.5					
			April-Sept									
Guinea-Bissau	Honge	2014	2011	O, Ib, V	HIV	576	1.7	1.4	1.7	8		100
				O,								
Guinea-Bissau	Plamondon	2007	2005	ELISA, Ib, V	GP	1610	4.6	4.0		57	1.8	98.2
Kenya	Atina	2004	2000	ELISA	LD	84	7.1		0.0			
			1999-	ELISA,								
Kenya	Blanton	2002	2000	Ib	LD	237	13.1					
Kenya	Harania	2008		ELISA	HIV	378	1.1		1.1			
Kenya	Hassall	2012	2005	EIA	B	3035	3.4					
			2006-									
Kenya	Hassall	2012	2007	EIA	A	281	0.7					
				EIA,Ib,								
Kenya	Muasya	2008	2000	V	HR	145	46.2	22.8	90.4	23	78.3	21.7
				EIA,Ib,								
Kenya	Muasya	2008	2000	V	GP	188	3.7	2.7	9.1	3	33.3	66.7

Kenya	Otedo	2003	1998	EIA	HR	100	5.0							
Kenya	Stevens	2008	2004-2006	EIA	GP	362	1.1							
Kenya	Stevens	2008	2004-2006		GP	305	9.2							
Kenya	Stevens	2008	2006		GP	197	0.0							
Lesotho	Rabenau	2010	2007	ELISA, V	HIV	205	0.5	0.5		0.5				
Madagascar	Ramaroko	2008	2004	ELISA, Ib, V	GP	2169	1.2	0.8		17	52.9	47.1		
Madagascar	Randriamantany	2012	2003-2009	O	B	47510	0.7							
Malawi	Andreotti	2014	2008-2009	EIA, ELISA, V	HIV	309	0.3	0.3		0.4				
Malawi	Chasela	2012		Ib, V	HIV	2040	0.1	0.0		0.1				
Malawi	Moore	2010	2005-2006	ELISA, Ib, O,	HIV	300	5.7			5.7				
Malawi	Nyirenda	2008	2004	Ib	OP	202	4.5			5.0				
Malawi	Sutcliffe	2002	1998	ELISA	GP	280	10.0							
Malawi	Sutcliffe	2002	1998	ELISA	HIV	279	12.5			12.5				
Mali	Diarra	2009	2007	EIA	B	25543	3.3							
Mozambique	Cunha	2007	2004	ELISA	B	1578	1.5				Y		Y	
Mozambique	Naniche	2011	2006-2008	ELISA	HIV	132	6.1			6.1				
Mozambique	Rodrigues	2008	2006-2007	ELISA, V	HIV	300	15.7	15.7		15.7		Y	Y	
Mozambique	Stokx	2011	2009	O, EIA, Ib, V	B	679	0.0						Y	Y

Nigeria	Adegoke	2008	NA	ELISA	B	2013	2.2						
Nigeria	Adegoke	2008	NA	ELISA	OP	115	0.9						
Nigeria	Adekunle	2011	2009-2010	O	HIV	273	0.7			0.7			
Nigeria	Adewole	2009	NA	ELISA	HIV	260	2.3			2.3			
Nigeria	Adoga	2009	2007-2004	EIA	HR	300	12.3			0.0			
Nigeria	Agbaji	2013	2006	EIA, V	HIV	1431	5.5	6.0		5.5			
Nigeria	Agwale	2004	NA	V	HIV	146	8.2	8.2		8.2	12	75	25
Nigeria	Alao	2010	2008	ELISA	B	1400	5.4						
Nigeria	Alii	2010	2010	PA	B	200	0.0						
Nigeria	Amadi	2009	2008	O	OP	100	1.0						
Nigeria	Ayolabi	2006	2004	ELISA	B	167	8.4						
Nigeria	Balogun	2006	NA	ELISA, Ib	OP	90	0.0						
Nigeria	Balogun	2006	NA	Ib	OP	90	1.1						
Nigeria	Balogun	2012	2006	ELISA	HIV	102	14.7			14.7			
Nigeria	Balogun	2012	2006	ELISA	B	362	0.8						
Nigeria	Buseri	2009	2007-2008	O, ELISA	B	1410	6.0			9.1			
Nigeria	Chukwurah	2005	2002-2003	O	B	1280	7.6						
Nigeria	Daramola	2002	1999-2000	ELISA	OP	57	15.8			1.4			
Nigeria	Daramola	2002	1999	ELISA	OP	24	25.0						
Nigeria	Daramola	2002	1999	ELISA	OP	24	0.0						
Nigeria	Durojaiye	2014	2012	O	B	210	0.0						
Nigeria	Durotoye	2014	NA	O	B	350	1.1						
Nigeria	Durotoye	2014	NA	O	OP	350	12.6						
Nigeria	Duru	2009	2003-Feb-May	O	A	200	5.0			33.3			

Nigeria	Egah	2007	2004 NA	ELISA	B	258	4.3		0.0			
Nigeria	Ejiofor	2009	2005	EIA	HR	136	6.6					
Nigeria	Ejiofor	2009	2005	EIA	OP	133	5.3					
Nigeria	Erhabor	2006	2003	O, ELISA	B	1500	0.5					
Nigeria	Erhabor	2007	2002- 2005	O	HR	13	0.0					
Nigeria	Eze	2014	2009	EIA	HIV	118	6.8			6.8		
Nigeria	Forbi	2007	2005	ELISA	HIV	180	18.3			18.3		
Nigeria	Forbi	2012	NA	O, V	GP	519	15.0	11.6		60	85	15
Nigeria	Igetei	2010	NA	EIA	LD	50	6.0					
Nigeria	Igetei	2010	NA	EIA	OP	52	11.5					
Nigeria	Imarengia ye	2006	2002- NA	ELISA	B	192	3.1					
Nigeria	Inyama	2005	2003	ELISA	HIV	490	5.7			5.7		
Nigeria	Jeremiah	2008	2007- NA	O, EIA	B	300	5.0					
Nigeria	Jeremiah	2009	2008	ELISA	GP	1500	0.1			0.0		
Nigeria	Koate	2005	NA	O	B	1000	2.9					
Nigeria	Konidena	2011	2008	V	OP	25	12.0	12.0				
Nigeria	Konidena	2011	2008	V	OP	25	0.0	0.0				
Nigeria	Ladep	2013	2004- 2010	O, EIA	HIV	17882	11.3			11.3		
Nigeria	Mboto Miri-	2010	2005	ELISA	A	506	0.4					
Nigeria	Dashe	2014	NA	EIA	GP	428	4.4					
Nigeria	Ndako	2009	NA	O	OP	300	11.0					
Nigeria	Ndububa	2005	1987-	ELISA	LD	17	5.9					

Nigeria	Nna	2014	2002	NA	ELISA	B	113	0.0	
Nigeria	Nwankiti	2009	NA	ELISA	GP		188	14.4	
Nigeria	Nwankwo	2012	2008	O	B		280	1.8	25.0
Nigeria	Nwokedi	2006	2002-2003	ELISA	OP		1007	6.2	
Nigeria	Nwokediu ko	2008	2004-2005	ELISA	OP		191	14.1	
Nigeria	Nwokediu ko	2008	2004-2005	ELISA	OP		134	3.7	
Nigeria	Nwokediu ko	2011	NA	ELISA	OP		360	4.7	
Nigeria	Ogunro	2007	2005-2006	ELISA	A		272	9.2	
Nigeria	Ogunro	2007	2005-2006	ELISA	GP		272	1.1	
Nigeria	Oje	2012	2009	O	GP		2000	20.2	
Nigeria	Okonkwo	2011	2007-2008	PA	LD		60	8.3	
Nigeria	Ola	2002	NA	ELISA	GP		45	37.8	
Nigeria	Ola	2002	NA	ELISA	LD		45	46.7	
Nigeria	Ola	2009	NA	ELISA	LD		28	21.4	
Nigeria	Ola	2009	NA	ELISA	OP		28	10.7	
Nigeria	Olokoba	2011	2006-2007	ELISA	LD		90	14.4	
Nigeria	Olokoba	2011	2006-2007	ELISA	OP		85	2.4	
Nigeria	Omosigho	2011	2009-2010	EIA	HIV		250	7.6	7.6
Nigeria	Onakewho r	2009	2005	ELISA	A		269	1.9	0.0
Nigeria	Onyekwere	2011	2009	EIA	GP		44	0.0	

Nigeria	Onyekwere	2011	2009	EIA	OP	106	0.0		
Nigeria	Opaleye	2010	NA	ELISA	B	624	14.6		
Nigeria	Opaleye	2011	NA	ELISA	OP	120	4.2		
Nigeria	Opaleye	2014	2012-2013	ELISA	HIV	96	2.1	2.1	
Nigeria	Osazuwa	2012	2010-2011	ELISA	A	395	3.0		
Nigeria	Otegbayo	2008	2007	ELISA	HIV	1779	5.8	5.8	
Nigeria	Sadoh	2011	2008-2009	ELISA	HIV	155	5.2	5.2	
Nigeria	Sunmonu	2012	2010	ELISA	LD	34	5.9		
Nigeria	Tremeau-Bravard	2012	2010-2011	EIA	HIV	443	2.3	2.3	
Nigeria	Ugbebor	2011	2009-2010	ELISA	A	5760	3.6		
Nigeria	Ukonu	2012	2010-2011	ELISA	OP	42	21.4		
Nigeria	Ukonu	2012	2011	ELISA	OP	30	3.3		
Nigeria	Ummate	2014	NA	ELISA	HR	100	15.0		
Rwanda	Pirillo	2007	2001-2002	ELISA	HIV	82	4.9	1.2	
Rwanda	Stevens	2008	2004-2006	EIA, ELISA,	GP	373	2.7		
Senegal	Dahaba	2014	2011	V	HR	106	5.7	3	100
Senegal	Diop	2009	2003	EIA	B	3001	0.5		
Senegal	Diop-Ndiaye	2008	1998-2002	ELISA, Ib	HIV	362	1.7	1.7	
Senegal	Etard	2003	2001	EIA, Ib, V	B	1081	1.7		Y

Senegal	Vray	2006	2003	ELISA	B	175	0.6		
Senegal	Vray	2006	2003	ELISA	LD	29	0.0		
South Africa	Barth	2011	2008	Ib, O	HIV	242	0.8		0.8
South Africa	de Waal	2006	1999	EIA	HR	44	0.0		
South Africa	Fang	2003	1999	O, Ib, V	B	19709	0.0	0.0	
South Africa	Gededzha	2010	2006	ELISA, V	HIV	653	1.2	0.2	1.2
South Africa	Hoffman	2007		EIA	HIV	53	0.0		0.0
South Africa	Hoffman	2012	2002	O	HIV	981	0.1		0.1
South Africa	Mayaphi	2012	2009	EIA	HIV	19	0.0		0.0
South Africa	Mosendan	2012	2008	O, V	HR	170	1.2		
South Africa	Parboosin	2008	2004-	ELISA	HIV	778	13.4		13.4
South Africa	Parboosin	2008	2004-	ELISA	OP	1159	1.7		
South Africa	Reddy	2009	2005-	O, ELISA, V	B	732250	0.0	0.0	
South Africa	Vardas	2002	NA	V ELISA, ELISA,	HR	399	1.8	0.5	2
Sudan	Abou	2009	2007	O	B	400	6.5		
Sudan	Ahmed	2008	2007	ELISA	LD	16	6.3		
Sudan	El-Amin	2007	2005	ELISA	HR	218	25.7		
Sudan	Elsheikh	2007	2006	ELISA	A	423	0.7		
Sudan	Gasim	2012	2010	ELISA	HR	353	8.5		
Sudan	Mudawi	2007	2000	ELISA, V	GP	410	2.2	0.0	
Sudan	Mudawi	2007	2001	V	LD	176	3.4	2.3	3
Sudan	Mudawi	2014	2010-	EIA	HIV	358	1.7	0.6	1.7

			2012								
Sudan	Nagi	2007	2005	O	B	78	1.3				
Tanzania	Bowring	2013	2011	O	HR	267	27.7			48.4	
Tanzania	Bowring	2013	2011	O	GP	163	1.8			10.5	
Tanzania	Croce	2007	2002	EIA	B	309	5.5			0.0	
Tanzania	Dahoma	2009	2007	O	HIV	509	14.5			38.5	
Tanzania	Franzeck	2013	2011-	EIA	HIV	272	3.7			3.7	
Tanzania	Jaka	2014	2008-	EIA	LD	142	16.9				
Tanzania	Matee	2006	2004-	ELISA	B	1597	1.5			0.0	
Tanzania	Meschi	2010	2007	EIA, Ib	OP	313	0.0				
Tanzania	Msuya	2006	1999	EIA, O	OP	382	1.0			2.3	
Tanzania	Nagu	2008	2006	ELISA	HIV	260	18.1			18.1	
Tanzania	Puato	2007	1995	ELISA, Ib, V	GP	750	10.4	0.3		2	100
Tanzania	Telatela	2007	2005	ELISA	HIV	167	11.4			11.3	
Tanzania	Waddell	2006	NA	V	HIV	100	0.0	0.0		0.0	
Togo	Ségbéna	2005	2000	ELISA	HR	42	2.4				
Togo	Ségbéna	2005	2000	ELISA	HR	49	10.2				
Uganda	Biggar	2006	2001	ELISA, V	GP	525	11.8	1.0		5	100
Uganda	Biggar	2006	2001	V	HR	603	4.5	0.5		1	100
Uganda	Eller	2012	NA	O	HIV	48	2.1			2.1	
Uganda	Hladik	2006	1999	EIA, Ib	B	2952	0.5				
Uganda	Kalyesubul a	2011	2006-	O, O, ELISA,	HIV	240	3.3			3.3	
Uganda	O'Reilly	2011	2008	V	HIV	250	2.4	2.8		2.4	
Uganda	O'Reilly	2011	2008	O,	OP	250	2.8	0.4			

Uganda	Pirillo	2007	2001-2002	ELISA, V	HIV	165	0.6		2.4
Uganda	Seremba	2010	2006	ELISA, O, EIA, Ib, V	IP	380	12.6	3.7	
Uganda	Stevens	2008	2004-2006	EIA	GP	333	11.1		
Uganda	Stevens	2008	2004-2006		GP	194	5.2		
Uganda	Walusansa (rapid assay = RIBA?)	2009	2003-2004	O	HIV	122	3.3		3.3
Zambia	Kapembwa	2011	2007-2008	ELISA	HIV	323	1.2		1.2
Zambia	Stevens	2008	2004-2006	EIA	GP	352	1.7		
Zimbabwe	Chin'ombe	2009	1999-2000	EIA	B	30	0.0		
Zimbabwe	Chin'ombe	2009	1999-2000	EIA	LD	60	20.0		
Zimbabwe	Kallestrup	2003		ELISA, Ib	HIV	124	0.8		0.8
Zimbabwe	Kallestrup	2003		ELISA, Ib	GP	145	0.0		

¹ GP: general population; ANC: antenatal clinic, HIV: Human Immunodeficiency virus infected, BD: blood donor, OP: outpatient, IP: in-patient, LD: Liver disease, HR: high risk

References for studies included in analysis

1. Strand RT, Franque-Ranque M, Bergstrom S, Weiland O (2003) Infectious aetiology of jaundice among pregnant women in Angola. *Scandinavian Journal of Infectious Diseases* 35: 401-403.
2. Ntagirabiri R, Baransaka E, Ndayiragije A, Niyongabo T (2014) Prevalence of hepatitis C virus in Burundi: A nationwide survey. [French] Prevalence du virus de l'hepatite C au Burundi: Enquete nationale. *Journal Africain d'Hepato-Gastroenterologie* 8: 25-28.
3. Ntagirabiri R, Cikomola J, Baransaka E, Ndirahisha E, Ndabaneze E, et al. (2014) Hepatic steatosis and metabolic syndrome in black African adult: Burundi case. [French] Steatose hepatique lors du syndrome metabolique chez l'adulte noir africain : cas du Burundi. *Journal Africain d'Hepato-Gastroenterologie* 8: 195-199.
4. Njouom R, Pasquier C, Ayouba A, Sandres-Saune K, Mfoupouendoun J, et al. (2003) Hepatitis C virus infection among pregnant women in Yaounde, Cameroon: Prevalence, viremia, and genotypes. *Journal of Medical Virology* 69: 384-390.
5. Njouom R, Pasquier C, Ayouba A, Tejiokem MC, Vessiere A, et al. (2005) Low risk of mother-to-child transmission of hepatitis C virus in Yaounde, Cameroon: the ANRS 1262 study. *American Journal of Tropical Medicine & Hygiene* 73: 460-466.
6. Mbanya D, Tayou Tagny C (2005) Blood safety begins with safe donations: update among blood donors in Yaounde, Cameroon. *Transfusion Medicine* 15: 395-399.
7. Tagny CT, Mbanya D, Murphy EL, Lefrere JJ, Laperche S (2014) Screening for hepatitis C virus infection in a high prevalence country by an antigen/antibody combination assay versus a rapid test. *Journal of Virological Methods* 199: 119-123.
8. Mbanya DN, Takam D, Ndumbe PM (2003) Serological findings amongst first-time blood donors in Yaounde, Cameroon: is safe donation a reality or a myth? *Transfusion Medicine* 13: 267-273.
9. Mogtomo ML, Fomekong SL, Kuate HF, Ngane AN (2009) [Screening of infectious microorganisms in blood banks in Douala (1995-2004)]. *Sante* 19: 3-8.
10. Foupouapouognigni Y, Mba SAS, Betsem a Betsem E, Rousset D, Froment A, et al. (2011) Hepatitis B and C virus infections in the three Pygmy groups in Cameroon. *Journal of Clinical Microbiology* 49: 737-740.
11. Njouom R, Pasquier C, Ayouba A, Gessain A, Froment A, et al. (2003) High rate of hepatitis C virus infection and predominance of genotype 4 among elderly inhabitants of a remote village of the rain forest of South Cameroon. *J Med Virol* 71: 219-225.
12. Laurent C (2007) HIV and Hepatitis C Virus Coinfection, Cameroon. *Emerg Infect Dis*.
13. Pepin J, Lavoie M, Pybus OG, Pouillot R, Foupouapouognigni Y, et al. (2010) Risk factors for hepatitis C virus transmission in colonial Cameroon. *Clinical Infectious Diseases* 51: 768-776.
14. Kurbanov F, Tanaka Y, Fujiwara K, Sugauchi F, Mbanya D, et al. (2005) A new subtype (subgenotype) Ac (A3) of hepatitis B virus and recombination between genotypes A and E in Cameroon. *Journal of General Virology* 86: 2047-2056.
15. Nerrienet E, Pouillot R, Lachenal G, Njouom R, Mfoupouendoun J, et al. (2005) Hepatitis C virus infection in cameroon: A cohort-effect. *Journal of Medical Virology* 76: 208-214.
16. Pasquier C, Njouom R, Ayouba A, Dubois M, Sartre MT, et al. (2005) Distribution and heterogeneity of hepatitis C genotypes in hepatitis patients in Cameroon. *Journal of Medical Virology* 77: 390-398.
17. Pepin J, Labbe A-C, Mamadou-Yaya F, Mbelesso P, Mbadingai S, et al. (2010) Iatrogenic transmission of human T cell lymphotropic virus type 1 and hepatitis C virus through parenteral treatment and chemoprophylaxis of sleeping sickness in colonial Equatorial Africa. *Clinical Infectious Diseases* 51: 777-784.
18. Alidjinou EK, Moukassa D, Ebatetou-Ataboho E, Mahoungou GH, Pambou JP, et al. (2014) Higher levels of hepatitis C virus RNA found in blood donors co-infected with HIV as compared to HCV mono-infected donors. *Journal of Infection in Developing Countries* 8: 1068-1071.
19. Atipo-Ibara BI, Mimesse J, Bokilo-Dzia A, Deby G, Ahoui-Apendi C, et al. (2014) Hepatitis C: Study of the genotypes in Congo (Brazzaville). [French]

- Virus de l'hepatite C: Etude des genotypes au Congo (Brazzaville). *Journal Africain d'Hepato-Gastroenterologie* 8: 16-19.
20. Dokekias AE, Okandze-Elenga JP, Kinkouna AGS, Lepfoundzou ABD, Garcia S (2003) [Seroprevalence of viral hepatitis C in polytransfused patients at Central University Hospital of Brazzaville]. *Bulletin de la Societe de Pathologie Exotique* 96: 279-282.
 21. Cantaloube JF, Gallian P, Bokilo A, Jordier F, Biagini P, et al. (2010) Analysis of hepatitis C virus strains circulating in Republic of the Congo. *Journal of Medical Virology* 82: 562-567.
 22. Kabinda JM, Katchunga BP (2010) Viral hepatitis B and C in individuals infected with human immunodeficiency virus in Bukavu (South-Kivu), Democratic Republic of Congo. [French] Les hepatites virales B et C chez les porteurs du virus de l'immunodeficiency humaine a Bukavu (Sud-Kivu), Republique democratique du Congo. *Journal Africain d'Hepato-Gastroenterologie* 4: 230-235.
 23. Ndong-Atome G-R, Makuwa M, Njouom R, Branger M, Brun-Vezinet F, et al. (2008) Hepatitis C virus prevalence and genetic diversity among pregnant women in Gabon, central Africa. *BMC infectious diseases* 8: 82.
 24. Kouegnigan Rerambiah L, Biyoghe AS, Bengone C, Djoba Siawaya JF (2014) Evaluation of blood donors questionnaire in a developing country: The case of Gabon
Evaluation du questionnaire de preselection de donneurs de sang dans un pays en developpement: le cas du Gabon. *Transfusion Clinique et Biologique* 21: 116-119.
 25. Rerambiah LK, Rerambiah LE, Bengone C, Siawaya JFD (2014) The risk of transfusion-transmitted viral infections at the Gabonese National Blood Transfusion Centre. *Blood Transfusion* 12: 330-333.
 26. Ndong-Atome G-R, Njouom R, Padilla C, Bisvigou U, Makuwa M, et al. (2009) Absence of intrafamilial transmission of hepatitis C virus and low risk for sexual transmission in rural central Africa indicate a cohort effect. *Journal of Clinical Virology* 45: 349-353.
 27. Ndong-Atome GR, Makuwa M, Ouwe-Missi-Oukem-Boyer O, Pybus OG, Branger M, et al. (2008) High prevalence of hepatitis C virus infection and predominance of genotype 4 in rural Gabon. *J Med Virol* 80: 1581-1587.
 28. Njouom R, Caron M, Besson G, Ndong-Atome GR, Makuwa M, et al. (2012) Phylogeography, risk factors and genetic history of hepatitis C virus in Gabon, Central Africa. *PloS one* 7.
 29. Stevens W, Kamali A, Karita E, Anzala O, Sanders EJ, et al. (2008) Baseline morbidity in 2,990 adult African volunteers recruited to characterize laboratory reference intervals for future HIV vaccine clinical trials. *PloS one* 3.
 30. Elsheikh R, Daak A, Elsheikh M, Karsany M, Adam I (2007) Hepatitis B virus and Hepatitis C virus in pregnant Sudanese women. *Virology Journal* 4 (104).
 31. Nagi (2007) Seroprevalence of Hepatitis B and C Viral Infections among blood donors in Shendi, River Nile State, Sudan. *Research Journal of Medicine and Medical Sciences* 2: 122-126.
 32. Abou MAA, Eltahir YM, Ali AS (2009) Seroprevalence of Hepatitis B virus and Hepatitis C virus among blood donors in Nyala, South Dar Fur, Sudan. *Virology Journal* 6.
 33. Mudawi HMY, Smith HM, Rahoud SA, Fletcher IA, Babikir AM, et al. (2007) Epidemiology of HCV infection in Gezira state of central Sudan. *Journal of Medical Virology* 79: 383-385.
 34. Hladik W, Kataaha P, Mermin J, Purdy M, Otekat G, et al. (2006) Prevalence and screening costs of hepatitis C virus among Ugandan blood donors. *Tropical Medicine & International Health* 11: 951-954.
 35. Biggar RJ, Ortiz-Conde BA, Bagni RK, Bakaki PM, Wang CD, et al. (2006) Hepatitis C Virus Genotype 4 in Ugandan Children and Their Mothers. *Emerging Infectious Diseases* 12: 1440-1443.
 36. O'Reilly JI, Ocama P, Opio CK, Alfred A, Paintsil E, et al. (2011) Risk factors and seroprevalence of hepatitis C among patients hospitalized at Mulago Hospital, Uganda. *Journal of Tropical Medicine*.
 37. Seremba E, Ocama P, Opio CK, Kagimu M, Thomas DL, et al. (2010) Poor performance of hepatitis C antibody tests in hospital patients in Uganda. *Journal of Medical Virology* 82: 1371-1378.
 38. Dray X, Dray-Spira R, Bronstein JA, Mattera D (2005) [Prevalences of HIV, hepatitis B and hepatitis C in blood donors in the Republic of Djibouti]. *Medecine Tropicale* 65: 39-42.

39. Fessehaye N, Naik D, Fessehaye T (2011) Transfusion transmitted infections - a retrospective analysis from the National Blood Transfusion Service in Eritrea. *The Pan African medical journal* 9: 40.
40. Ramos JM, Belda S, Reyes F, Rodriguez JC, Royo G, et al. (2012) Prevalence of HIV, HBV, HCV, HTLV and *Treponema pallidum* among patients attending a rural hospital in Southern Ethiopia. *Journal of Clinical Virology* 53: 268-269.
41. Tessema B, Yismaw G, Kassu A, Amsalu A, Mulu A, et al. (2009) Seroprevalence of HIV, HBV, HCV and syphilis infections among blood donors at Gondar University Teaching Hospital, Northwest Ethiopia: Declining trends over a period of five years. *BMC infectious diseases* 10.
42. Ayele W, Nokes DJ, Abebe A, Messele T, Dejene A, et al. (2002) Higher prevalence of anti-HCV antibodies among HIV-positive compared to HIV-negative inhabitants of Addis Ababa, Ethiopia. *Journal of Medical Virology* 68: 12-17.
43. Berhe N, Myrvang B, Gundersen SG (2007) Intensity of *Schistosoma mansoni*, hepatitis B, age, and sex predict levels of hepatic periportal thickening/fibrosis (PPT/F): a large-scale community-based study in Ethiopia. *American Journal of Tropical Medicine & Hygiene* 77: 1079-1086.
44. Ali S, Abera S, Mihret A, Abebe T (2012) Association of hepatitis c virus infection with type II diabetes in ethiopia: A hospital-based case-control study. *Interdisciplinary Perspectives on Infectious Diseases* 2012.
45. Abreha T, Woldeamanuel Y, Pietsch C, Maier M, Asrat D, et al. (2011) Genotypes and viral load of hepatitis C virus among persons attending a voluntary counseling and testing center in Ethiopia. *Journal of Medical Virology* 83: 776-782.
46. Yimer G, Gry M, Amogne W, Makonnen E, Habtewold A, et al. (2014) Evaluation of patterns of liver toxicity in patients on antiretroviral and anti-tuberculosis drugs: A prospective four arm observational study in Ethiopian patients. *PLoS ONE* 9.
47. Hassall OW, Thitiri J, Fegan G, Pole L, Mwarumba S, et al. (2012) The microbiologic safety of umbilical cord blood transfusion for children with severe anemia in Mombasa, Kenya. *Transfusion* 52: 1542-1551.
48. Muasya T, Lore W, Yano K, Yatsushashi H, Owiti FR, et al. (2008) Prevalence of hepatitis C virus and its genotypes among a cohort of drug users in Kenya. *East African Medical Journal* 85: 318-325.
49. Randriamanantany ZA, Rajaonatahina DH, Razafimanantsoa F, Rasamindrakotroka MT, Andriamahenina R, et al. (2012) Prevalence and trends of hepatitis C virus among blood donors in Antananarivo, from 2003 to 2009. *Transfusion Clinique et Biologique* 19: 52-56.
50. Sutcliffe S, Taha TE, Kumwenda NI, Taylor E, Liomba GN (2002) HIV-1 prevalence and herpes simplex virus 2, hepatitis C virus, and hepatitis B virus infections among male workers at a sugar estate in Malawi. *Journal of Acquired Immune Deficiency Syndromes: JAIDS* 31: 90-97.
51. Nyirenda M, Beadsworth MBJ, Stephany P, Hart CA, Hart IJ, et al. (2008) Prevalence of infection with hepatitis B and C virus and coinfection with HIV in medical inpatients in Malawi. *Journal of Infection* 57: 72-77.
52. Stokx J, Gillet P, De Weggheleire A, Casas EC, Maendaenda R, et al. (2011) Seroprevalence of transfusion-transmissible infections and evaluation of the pre-donation screening performance at the Provincial Hospital of Tete, Mozambique. *BMC infectious diseases* 11: 141.
53. Cunha L, Plouzeau C, Ingrand P, Gudo JP, Ingrand I, et al. (2007) Use of replacement blood donors to study the epidemiology of major blood-borne viruses in the general population of Maputo, Mozambique. *J Med Virol* 79: 1832-1840.
54. Reddy R, Vermeulen M, Lelie N, Sykes W, Crookes R, et al. (2009) Impact of individual-donation nucleic acid testing on risk of human immunodeficiency virus, hepatitis B virus, and hepatitis C virus transmission by blood transfusion in South Africa. *Transfusion* 49: 1115-1125.
55. Fang CT, Field SP, Busch MP, Heyns AdP (2003) Human immunodeficiency virus-1 and hepatitis C virus RNA among South African blood donors: estimation of residual transfusion risk and yield of nucleic acid testing. *Vox Sanguinis* 85: 9-19.

56. Parboosing R, Paruk I, Lalloo UG (2008) Hepatitis C virus seropositivity in a South African Cohort of HIV co-infected, ARV naive patients is associated with renal insufficiency and increased mortality. *Journal of Medical Virology* 80: 1530-1536.
57. Croce F, Fedeli P, Dahoma M, Deho L, Ramsan M, et al. (2007) Risk factors for HIV/AIDS in a low HIV prevalence site of sub-Saharan Africa. *Tropical Medicine & International Health* 12: 1011-1017.
58. Matee MIN, Magesa PM, Lyamuya EF (2006) Seroprevalence of human immunodeficiency virus, hepatitis B and C viruses and syphilis infections among blood donors at the Muhimbili National Hospital in Dar es Salaam, Tanzania. *BMC Public Health* 6: 21.
59. Bowring AL, Luhmann N, Pont S, Debaulieu C, Derozier S, et al. (2013) An urgent need to scale-up injecting drug harm reduction services in Tanzania: Prevalence of blood-borne viruses among drug users in Temeke District, Dar-es-Salaam, 2011. *International Journal of Drug Policy* 24: 78-81.
60. Puato M, Migliorato I, Tirrito C, Ruvoletto M, Zanardo M, et al. (2007) Does HCV infection have a more favourable outcome in Tanzanian people? Data from the Lugalawa study. *Digestive & Liver Disease* 39: 891-892.
61. Meschi S, Sane Schepisi M, Nicastrì E, Bevilacqua N, Castilletti C, et al. (2010) The prevalence of antibodies to human herpesvirus 8 and hepatitis B virus in patients in two hospitals in Tanzania. *Journal of Medical Virology* 82: 1569-1575.
62. Msuya SE, Mbizvo, E.M. et al (2006) Seroprevalence of Hepatitis B and C viruses among women of childbearing age in Moshi urban, Tanzania. *East African Medical Journal* 83: 91-94.
63. Chin'ombe N, Chavhunduka E, Matarira HT (2009) Seroprevalence of HBV and HCV in primary hepatocellular carcinoma patients in Zimbabwe. *Infectious Agents and Cancer* 4.
64. Kallestrup P, Zinyama R, Gomo E, Dickmeiss E, Platz P, et al. (2003) Low prevalence of hepatitis C virus antibodies in HIV-endemic area of Zimbabwe support sexual transmission as the major route of HIV transmission in Africa. *Aids* 17: 1400-1402.
65. Ceriani C, Cerulli T, Cagnin D, Cavallari S, Ndayake J, et al. (2014) Prevalence of HBV, HDV, HCV, and HIV infection during pregnancy in northern Benin. *Journal of Medical Virology* 86: 1281-1287.
66. Zeba MTA, Karou SD, Sagna T, Djigma F, Bisseye C, et al. (2011) HCV prevalence and co-infection with HIV among pregnant women in Saint Camille Medical Centre, Ouagadougou. *Tropical Medicine & International Health* 16: 1392-1396.
67. Collenberg E, Ouedraogo T, Ganame J, Fickenscher H, Kynast-Wolf G, et al. (2006) Seroprevalence of six different viruses among pregnant women and blood donors in rural and urban Burkina Faso: A comparative analysis. *Journal of Medical Virology* 78: 683-692.
68. Simpore J, Ilboudo D, Samandoulougou A, Guardo P, Castronovo P, et al. (2005) HCV and HIV co-infection in pregnant women attending St. Camille Medical Centre in Ouagadougou (Burkina Faso). *Journal of Medical Virology* 75: 209-212.
69. Kania D, Sangare L, Sakande J, Koanda A, Nebie YK, et al. (2009) A new strategy to improve the cost-effectiveness of human immunodeficiency virus, hepatitis B virus, hepatitis C virus, and syphilis testing of blood donations in sub-Saharan Africa: a pilot study in Burkina Faso. *Transfusion* 49: 2237-2240.
70. Nagalo BM, Bisseye C, Sanou M, Kienou K, Nebie YK, et al. (2012) Seroprevalence and incidence of transfusion-transmitted infectious diseases among blood donors from regional blood transfusion centres in Burkina Faso, West Africa. *Tropical Medicine & International Health* 17: 247-253.
71. Nagalo MB, Sanou M, Bisseye C, Kabore MI, Nebie YK, et al. (2011) Seroprevalence of human immunodeficiency virus, hepatitis B and C viruses and syphilis among blood donors in Koudougou (Burkina Faso) in 2009. *Blood Transfusion* 9: 419-424.
72. Ouedraoga AS, Yameogo JT, Poda GEA, Kientega Y, Traore R (2012) Prevalence of anti-CMV antibodies in blood donors in ouagadougou (Burkina Faso)
Prevalence des anticorps anti-cytomegalovirus chez les donneurs de sang de ouagadougou (Burkina Faso). *Medecine et Sante Tropicales* 22: 107-109.
73. Zeba MTA, Sanou M, Bisseye C, Kiba A, Nagalo BM, et al. (2014) Characterisation of hepatitis C virus genotype among blood donors at the regional blood transfusion centre of Ouagadougou, Burkina Faso. *Blood Transfusion* 12: s54-s57.

74. Tao I, TR C, B D, F D, TM Z, et al. (2014) Seroepidemiology of hepatitis B and C viruses in the general population of burkina faso. *Hepatitis Research and Treatment* 2014: 781843.
75. Rouet F, Chaix ML, Inwoley A, Msellati P, Viho I, et al. (2004) HBV and HCV prevalence and viraemia in HIV-positive and HIV-negative pregnant women in Abidjan, Cote d'Ivoire: The ANRS 1236 study. *Journal of Medical Virology* 74: 34-40.
76. Campo DS, Purdy MA, Dimitrova ZE, Skums P, Xia G-l, et al. (2014) Intra-host diversity and evolution of hepatitis C virus endemic to Cote d'Ivoire. *Journal of Medical Virology* 86: 765-771.
77. Mbotto CI, Davies A, Fielder M, Jewell AP (2005) Hepatocellular carcinoma in The Gambia and the role of hepatitis B and hepatitis C. *International Seminars in Surgical Oncology* 2.
78. Kirk GD, Lesi OA, Mendy M, Akano AO, Sam O, et al. (2004) The Gambia Liver Cancer Study: Infection with hepatitis B and C and the risk of hepatocellular carcinoma in West Africa. *Hepatology* 39: 211-219.
79. Peto TJ, Mendy ME, Lowe Y, Webb EL, Whittle HC, et al. (2014) Efficacy and effectiveness of infant vaccination against chronic hepatitis B in the Gambia Hepatitis Intervention Study (1986-90) and in the nationwide immunisation program. *BMC Infectious Diseases* 14.
80. Lassey AT, Damale NK, Bekoe V, Klufio CA (2004) Hepatitis C virus seroprevalence among mothers delivering at the Korle-Bu Teaching Hospital, Ghana. *East African Medical Journal* 81: 198-201.
81. Ampofo W, Nii-Trebi N, Ansah J, Abe K, Naito H, et al. (2002) Prevalence of blood-borne infectious diseases in blood donors in Ghana. *Journal of Clinical Microbiology* 40: 3523-3525.
82. Kubio C, Tierney G, Quaye T, Nabilisi JW, Ziemah C, et al. (2012) Blood transfusion practice in a rural hospital in Northern Ghana, Damongo, West Gonja District. *Transfusion* 52: 2161-2166.
83. Owusu-Ofori S, Temple J, Sarkodie F, Anokwa M, Candotti D, et al. (2005) Predonation screening of blood donors with rapid tests: implementation and efficacy of a novel approach to blood safety in resource-poor settings. *Transfusion* 45: 133-140.
84. Nkrumah B, Owusu M, Frempong HO, Averi P (2011) Hepatitis B and C viral infections among blood donors from rural Ghana. *Ghana Medical Journal* 45: 97-100.
85. Allain JP, Opare-Sem O, Sarkodie F, Rahman R, Owusu-Ofori S (2009) Deferred donor care in a regional hospital blood center in Ghana. *Transfusion* 49: 669-675.
86. Allain JP, Sarkodie F, Asenso-Mensah K, Owusu-Ofori S (2010) Relative safety of first-time volunteer and replacement donors in West Africa. *Transfusion* 50: 340-343.
87. Candotti D, Temple J, Sarkodie F, Allain JP (2003) Frequent recovery and broad genotype 2 diversity characterize Hepatitis C virus infection in Ghana, West Africa. *Journal of Virology* 77: 7914-7923.
88. Jiang Y, Obuseh F, Ellis W, Piyathilake C, Stiles J, et al. (2007) Association of vitamin A deficiency with decrease in tumor necrosis factor-alpha expressing CD3-CD56+ natural killer cells in Ghanaians. *Nutrition Research* 27: 400-407.
89. Obuseh FA, Jolly PE, Jiang Y, Shuaib FM, Waterbor J, et al. (2010) Aflatoxin B1 albumin adducts in plasma and aflatoxin M1 in urine are associated with plasma concentrations of vitamins A and E. *International journal for vitamin and nutrition research Internationale Zeitschrift fur Vitamin- und Ernährungsforschung. Journal international de vitaminologie et de nutrition.* 80: 355-368.
90. Dash B, Afriyie-Gyawu E, Huebner HJ, Porter W, Wang JS, et al. (2007) Determinants of the variability of aflatoxin-albumin adduct levels in Ghanaians. *Journal of Toxicology & Environmental Health Part A* 70: 58-66.
91. Apea-Kubi KA, Yamaguchi S, Sakyi B, Ofori-Adjei D (2006) HTLV-1 and other viral sexually transmitted infections in antenatal and gynaecological patients in Ghana. *West African Journal of Medicine* 25: 17-21.
92. Plamondon M, Labbe AC, Frost E, Deslandes S, Alves AC, et al. (2007) Hepatitis C virus infection in Guinea-Bissau: a sexually transmitted genotype 2 with parenteral amplification? *PloS one* 2: e372.
93. Diarra A, Kouriba B, Baby M, Murphy E, Lefrere JJ (2009) HIV, HCV, HBV and syphilis rate of positive donations among blood donations in Mali: Lower rates among volunteer blood donors. *Transfusion Clinique et Biologique* 16: 444-447.

94. Mboti CI, Andy IE, Eni OI, Jewell AP (2010) Prevalence, sociodemographic characteristics and risk factors for hepatitis C infection among pregnant women in Calabar municipality, Nigeria. *Hepatitis Monthly* 10: 116-120.
95. Onakewhor JU, Okonofua FE (2009) Seroprevalence of Hepatitis C viral antibodies in pregnancy in a tertiary health facility in Nigeria. *Nigerian Journal of Clinical Practice* 12: 65-73.
96. Osazuwa F, Obinna OV, Chika AF (2012) Sero-epidemiology of human immunodeficiency virus, Hepatitis B and C among pregnant women in rural communities of Abaji Area Council, Nigeria
- Nijerya Abaji Bolgesi Kirsal Toplumunda, Gebe Kadınlar Arasında, İnsan Immün Yetmezlik Virüsü, Hepatit B ve C Sero-epidemiolojisi. *TAF Preventive Medicine Bulletin* 11: 431-438.
97. Ugbebor O, Aigbirior M, Osazuwa F, Enabudoso E, Zabayo O (2011) The prevalence of hepatitis B and C viral infections among pregnant women. *North American Journal of Medical Sciences* 3: 238-241.
98. Duru MU, Aluyi HSA, Anukam KC (2009) Rapid screening for co-infection of HIV and HCV in pregnant women in Benin City, Edo State, Nigeria. *African Health Sciences* 9: 137-142.
99. Ogunro PS, Adekanle DA, Fadero FF, Ogungbamigbe TO, Oninla SO (2007) Prevalence of anti-hepatitis C virus antibodies in pregnant women and their offspring in a tertiary hospital in Southwestern Nigeria. *Journal of Infection in Developing Countries* 1: 333-336.
100. Alii JA, Okonko IO, Abraham OA, Kolade AF, Ogunjobi PN, et al. (2010) A serosurvey of blood parasites (*Plasmodium*, microfilaria, HIV, HBsAG, HCV antibodies) in prospective Nigerian blood donors. *Research Journal of Medical Sciences* 4: 255-275.
101. Durojaiye I, Akinbami A, Dosunmu A, Ajibola S, Adediran A, et al. (2014) Seroprevalence of human T lymphotropic virus antibodies among healthy blood donors at a tertiary centre in Lagos, Nigeria. *Pan African Medical Journal* 17.
102. Nna E, Mbamalu C, Ekejindu I (2014) Occult hepatitis B viral infection among blood donors in South-Eastern Nigeria. *Pathogens and Global Health* 108: 223-228.
103. Erhabor O, Ejele OA, Nwauche CA (2006) The risk of transfusion-acquired hepatitis-C virus infection among blood donors in Port Harcourt: the question of blood safety in Nigeria. *Nigerian Journal of Clinical Practice* 9: 18-21.
104. Balogun TM, Emmanuel S, Ojerinde EF (2012) HIV, Hepatitis B and C viruses' coinfection among patients in a Nigerian tertiary hospital. *The Pan African medical journal* 12: 100.
105. Durotoye IA, Issa BA, Fadeyi A, Yussuf AD, Salami AK, et al. (2014) Sero-prevalence of hepatitis B and C among mentally ill patients attending a tertiary hospital in Nigeria. *Annals of African Medicine* 13: 210-216.
106. Nwankwo E, Momodu I, Umar I, Musa B, Adeleke S (2012) Seroprevalence of major blood-borne infections among blood donors in Kano, Nigeria. *Turkish Journal of Medical Sciences* 42: 337-341.
107. Adegoke OA, Kolawole BA, Ikem RT, Adediran A, Aboderin AO, et al. (2008) Seroprevalence of hepatitis C virus infection in Nigerians with type 2 diabetes mellitus. *Nigerian Journal of Clinical Practice* 11: 199-201.
108. Imarengiaye CO, Enosolease ME, Iribhogbe PE, Ehigiegba AE (2006) Risk of transfusion-transmitted hepatitis C virus in a tertiary hospital in Nigeria. *Public Health* 120: 274-278.
109. Jeremiah ZA, Koate B, Buseri F, Emelike F (2008) Prevalence of antibodies to hepatitis C virus in apparently healthy Port Harcourt blood donors and association with blood groups and other risk indicators. *Blood Transfusion* 6: 150-155.
110. Koate BB, Buseri FI, Jeremiah ZA (2005) Seroprevalence of hepatitis C virus among blood donors in Rivers State, Nigeria. *Transfusion medicine (Oxford, England)* 15: 449-451.
111. Egah DZ, Banwat EB, Audu ES, Iya D, Mandong BM, et al. (2007) Hepatitis B surface antigen, hepatitis C and HIV antibodies in a low-risk blood donor group, Nigeria. *Eastern Mediterranean Health Journal* 13: 961-966.
112. Ayolabi CI, Taiwo MA, Omilabu SA, Abebisi AO, Fatoba OM (2006) Sero-prevalence of hepatitis C virus among blood donors in Lagos, Nigeria. *African Journal of Biotechnology* 5: 1944-1946.

113. Buseri FI, Muhibi MA, Jeremiah ZA (2009) Sero-epidemiology of transfusion-transmissible infectious diseases among blood donors in Osogbo, south-west Nigeria. *Blood Transfus* 7: 293-299.
114. Chukwurah EF, Ogbodo SO, Obi GO (2005) Seroprevalence of Hepatitis C Virus (HCV) infection among blood donors in a South-Eastern State of Nigeria. *Biomedical Research* 16: 133-135.
115. Alao OO, Okwori EE, Araoye MO (2010) The sero-prevalence of hepatitis C virus (HCV) infection among prospective blood donors in Makurdi, Nigeria. *Internet Journal of Infectious Diseases* 8.
116. Opaleye OO, Zakariyahu TO, Tijani BA, Bakarey AS (2010) HBV, HCV co-infection among blood donors in Nigeria. *Indian Journal of Pathology and Microbiology* 53: 182-183.
117. Jeremiah ZA, Tony-Enwin EO (2009) Seroepidemiology of transfusion transmissible viral infection among university fresh students in Port Harcourt, Nigeria. *Hepatitis Monthly* 9: 276-281.
118. Nwankiti OO, Ndako JA, Echeonwu GO, Olabode AO, Nwosuh CI, et al. (2009) Hepatitis C Virus infection in apparently healthy individuals with family history of diabetes in Vom, Plateau State Nigeria. *Virology Journal* 6: 110.
119. Oje OJ, Sule WF, Famurewa D (2012) Dual positivity of hepatitis B surface antigen and anti-hepatitis C virus antibody and associated factors among apparently healthy patients of Ekiti State, Nigeria. *Viral Immunology* 25: 448-455.
120. Ola SO, Otegbayo JA, Odaibo GN, Olaleye OD, Olubuyide OL (2002) Serum hepatitis C virus and hepatitis B surface antigenaemia in Nigerian patients with acute icteric hepatitis. *West African Journal of Medicine* 21: 215-217.
121. Onyekwere CA, Anomneze EE, Wali SS (2002) Prevalence of serological markers of chronic hepatitis B virus infection in diabetics in the Lagos University Teaching Hospital, Lagos. *The Nigerian postgraduate medical journal* 9: 129-133.
122. Forbi JC, Gabadi S, Alabi R, Iperepolu HO, Pam CR, et al. (2007) The role of triple infection with hepatitis B virus, hepatitis C virus, and human immunodeficiency virus (HIV) type-1 on CD4+ lymphocyte levels in the highly HIV infected population of North-Central Nigeria. *Memorias do Instituto Oswaldo Cruz* 102: 535-537.
123. Konidena A, Pavani BV (2011) Hepatitis C virus infection in patients with oral lichen planus. *Nigerian Journal of Clinical Practice* 14: 228-231.
124. Amadi ES, Ononiwu CE, Aballa N, Oladimeji SA, Ancke FA, et al. (2009) The epidemiology of hepatitis C virus infection among patients attending the federal dental clinic, Enugu. *Trends in Medical Research* 4: 91-95.
125. Ndako JA, Echeonwu GO, Shidali NN, Bichi IA, Paul GA, et al. (2009) Occurrence of hepatitis C virus infection in type 2 diabetic patients attending Plateau state specialist hospital Jos Nigeria. *Virology Journal* 6: 98.
126. Nwokedi EE, Ilyasu Z, Emokpae MA, Dutse AI, Taura AA (2006) Hepatitis C virus infection among teaching hospital patients in Kano, Nigeria: A retrospective study. *Annals of African Medicine* 5: 185-187.
127. Nwokediuko S, Obienu O, Malu A, Lesi OA (2011) Risk factors for hepatitis C virus transmission obscure in Nigerian patients. *Gastroenterology Research and Practice*.
128. Nwokediuko SC, Oli JM (2008) Hepatitis C virus infection in Nigerians with diabetes mellitus. *Nigerian Journal of Clinical Practice* 11: 94-99.
129. Opaleye OO, Fagbami AH, Lalremruata A, Kun JFJ (2011) Prevalence and association of human parvovirus B19V with hepatitis B and C viruses in Nigeria. *Journal of Medical Virology* 83: 710-716.
130. Olokoba AB, Accama LA, Gashau W, Salawu FK (2011) Risk factors and clinical presentation of hepatitis C virus infection in Nigerians with chronic liver disease. *Tropical Doctor* 41: 146-147.
131. Ukonu AB, Augustine U (2012) The prevalence of hepatitis C Virus (HCV) among lichen planus patients and its clinical pattern at the University of Abuja Teaching Hospital, Gwagwalada, Abuja, Nigeria. *Global Journal of Health Science* 4: 113-119.
132. Balogun WO, Adeleye JO, Akinlade KS, Kuti M, Otegbayo JA (2006) Low prevalence of hepatitis-C viral seropositivity among patients with type-2 diabetes mellitus in a tertiary hospital. *Journal of the National Medical Association* 98: 1805-1808.

133. Daramola OOM, George AO, Ogunbiyi AO (2002) Hepatitis C virus and lichen planus in Nigerians: any relationship? *International Journal of Dermatology* 41: 217-219.
134. Ejiofor OS, Ibe BC, Emodi IJ, Ikefuna AN, Ilechukwu GC, et al. (2009) The role of blood transfusion on the prevalence of hepatitis C virus antibodies in children with sickle cell anaemia in Enugu, South East Nigeria. *Nigerian Journal of Clinical Practice* 12: 355-358.
135. Igetei R, Otegbayo JA, Lesi OA, Anumudu CI, Ndububa DA (2010) P53 codon 249 mutation and other risk factors among Nigerians with hepatocellular carcinoma. *Journal African du Cancer* 2: 133-139.
136. Ola SO, Otegbayo JA, Odaibo GN, Olaleye DO, Olubuyide IO, et al. (2009) Occult HBV infection among a cohort of Nigerian adults. *Journal of Infection in Developing Countries* 3: 442-446.
137. Miri-Dashe T, S O, MT D, RP C, I M, et al. (2014) Comprehensive reference ranges for hematology and clinical chemistry laboratory parameters derived from normal Nigerian adults. *PLoS ONE [Electronic Resource]* 9: e93919.
138. Diop S, Ndiaye M, Seck M, Chevalier B, Jambou R, et al. (2009) [Prevention of transfusion transmitted malaria in endemic area]. *Transfusion Clinique et Biologique* 16: 454-459.
139. Vray M, Debonne JM, Sire JM, Tran N, Chevalier B, et al. (2006) Molecular epidemiology of hepatitis B virus in Dakar, Senegal. *J Med Virol* 78: 329-334.
140. Etard J-F, Colbachini P, Dromigny J-A, Perrier-Gros-Claude J-D (2003) Hepatitis C antibodies among blood donors, Senegal, 2001. *Emerging Infectious Diseases* 9: 1492-1493.
141. Guimaraes Nebenzahl H, Lopes A, Castro R, Pereira F (2013) Prevalence of human immunodeficiency virus, hepatitis C virus, hepatitis B virus and syphilis among individuals attending anonymous testing for HIV in Luanda, Angola. *South African Medical Journal* 103: 186-188.
142. Batina Agasa S, Dupont E, Kayembe T, Molima P, Malengela R, et al. (2010) Multiple transfusions for sickle cell disease in the Democratic Republic of Congo: the importance of the hepatitis C virus. *Transfusion Clinique et Biologique* 17: 254-259.
143. El-Amin HH, Osman EM, Mekki MO, Abdelraheem MB, Ismail MO, et al. (2007) Hepatitis C virus infection in hemodialysis patients in Sudan: two centers' report. *Saudi Journal of Kidney Diseases & Transplantation* 18: 101-106.
144. Gasim GI, Hamdan HZ, Hamdan SZ, Adam I (2012) Epidemiology of hepatitis B and hepatitis C virus infections among hemodialysis patients in Khartoum, Sudan. *Journal of Medical Virology* 84: 52-55.
145. Otedo AEO, Mc'Ligeyo SO, Okoth FA, Kayima JK (2003) Seroprevalence of hepatitis B and C in maintenance dialysis in a public hospital in a developing country. *South African Medical Journal Suid-Afrikaanse Tydskrif Vir Geneeskunde* 93: 380-384.
146. Vardas E, Ross MH, Sharp G, McAnerney J, Sim J (2002) Viral hepatitis in South African healthcare workers at increased risk of occupational exposure to blood-borne viruses. *Journal of Hospital Infection* 50: 6-12.
147. de Waal N, Rabie H, Bester R, Cotton MF (2006) Mass needle stick injury in children from the Western cape. *Journal of tropical pediatrics* 52: 192-196.
148. Mosendane T, Kew MC, Osih R, Mahomed A (2012) Nurses at risk for occupationally acquired blood-borne virus infection at a South African academic hospital. *South African Medical Journal Suid-Afrikaanse Tydskrif Vir Geneeskunde* 102: 153-156.
149. Adjei AA, Armah HB, Gbagbo F, Ampofo WK, Quaye IKE, et al. (2007) Correlates of hepatitis C virus infection among incarcerated Ghanaians: a national multicentre study. *Journal of Medical Microbiology* 56: 391-397.
150. Adjei AA, Armah HB, Gbagbo F, Ampofo WK, Boamah I, et al. (2008) Correlates of HIV, HBV, HCV and syphilis infections among prison inmates and officers in Ghana: A national multicenter study. *BMC infectious diseases* 8: 33.
151. Adoga MP, Banwat EB, Forbi JC, Nimzing L, Pam CR, et al. (2009) Human immunodeficiency virus, hepatitis B virus and hepatitis C virus: sero-prevalence, co-infection and risk factors among prison inmates in Nasarawa State, Nigeria. *Journal of Infection in Developing Countries* 3: 539-547.
152. Erhabor O, Ejele OA, Nwauche CA (2007) Epidemiology and management of occupational exposure to blood borne viral infections in a resource poor setting: the case for availability of post exposure prophylaxis. *Nigerian Journal of Clinical Practice* 10: 100-104.

153. Ummate I, Denué BA, Kida IM, Ohioma OJ, Baba DB, et al. (2014) Risk factors for hepatitis C virus sero-positivity among haemodialysis patients receiving care at Kidney Centre in a tertiary health facility in Maiduguri, Nigeria. *Pan African Medical Journal* 19.
154. Dahaba M, Gueye S, Ka EF (2014) Trends in hepatitis C infection among hemodialysis patients in Senegal: Results of a decade of prevention. *Saudi Journal of Kidney Diseases & Transplantation* 25: 1341-1345.
155. Segbena AY, Prince-David M, Kagone TS, Dagnra AY (2005) [Human immunodeficiency virus, hepatitis C virus and hepatitis B viruses in patients with sickle-cell disease in Togo]. *Transfusion Clinique et Biologique* 12: 423-426.
156. Bekondi C, Mobima T, Ouavene JO, Koffi B, Konamna X, et al. (2010) [Etiopathological factors of hepatocellular carcinoma in Bangui, Central African Republic: clinical, biological characteristics and virological aspects of patients]. *Pathologie Biologie* 58: 152-155.
157. Mudawi HMY, Smith HM, Fletcher IA, Fedail SS (2007) Prevalence and common genotypes of HCV infection in Sudanese patients with hepatosplenic schistosomiasis. *Journal of Medical Virology* 79: 1322-1324.
158. Ahmed RE, Karsany MS, Adam I (2008) Brief report: acute viral hepatitis and poor maternal and perinatal outcomes in pregnant Sudanese women. *Journal of Medical Virology* 80: 1747-1748.
159. Abdulkerim A, Hussen M (2014) Prevalence of hepatitis B and C virus infections among patients with chronic hepatitis at Bereka Medical Center, Southeast Ethiopia: a retrospective study. *BMC Research Notes* 7: 272.
160. Atina JO, Ogutu EO, Hardison WG, Mumo J (2004) Prevalence of hepatitis A, B, C and human immunodeficiency virus seropositivity among patients with acute icteric hepatitis at the Kenyatta National Hospital, Nairobi. *East African Medical Journal* 81: 183-187.
161. Blanton RE, Abdel Salam E, Curtis Kariuki H, Magak P, Silva LK, et al. (2002) Population-based differences in *Schistosoma mansoni*- and hepatitis C-induced disease. *Journal of Infectious Diseases* 185: 1644-1649.
162. Jaka H, Mshana SE, Rambau PF, Masalu N, Chalya PL, et al. (2014) Hepatocellular carcinoma: Clinicopathological profile and challenges of management in a resource-limited setting. *World Journal of Surgical Oncology* 12.
163. Szymanska K, Lesi OA, Kirk GD, Sam O, Taniere P, et al. (2004) Ser-249 TP53 mutation in tumour and plasma DNA of hepatocellular carcinoma patients from a high incidence area in the Gambia, west Africa. *International Journal of Cancer* 110: 374-379.
164. Ndububa DA, Ojo OS, Adetiloye VA, Durosini MA, Olasode BJ, et al. (2005) Chronic hepatitis in Nigerian patients: A study of 70 biopsy-proven cases. *West African Journal of Medicine* 24: 107-111.
165. Okonkwo UC, Nwosu MN, Ukah C, Okpala OC, Ahaneku JI (2011) The clinical and pathological features of hepatocellular carcinoma in Nnewi, Nigeria. *Nigerian Journal of Medicine: Journal of the National Association of Resident Doctors of Nigeria* 20: 366-371.
166. Sunmonu TA, Adekanle O, Komolafe MA, Ndububa DA (2012) Cognitive function in patients with liver cirrhosis without overt hepatic encephalopathy: Assessment using an automated neuropsychological test battery. *Arab Journal of Gastroenterology* 13: 4-8.
167. Ntagirabiri R, Ngendakumana F, Niyongabo T (2012) Human immunodeficiency virus and hepatitis C virus co-infection in Burundi. [French]
Co-infection par le virus de l'immunodéficience humaine et le virus de l'hépatite C au Burundi. *Journal Africain d'Hépatite-Gastroentérologie* 6: 128-131.
168. Laurent C, Bourgeois A, Mpoudi-Ngole E, Kouanfack C, Ciaffi L, et al. (2010) High rates of active hepatitis B and C co-infections in HIV-1 infected Cameroonian adults initiating antiretroviral therapy. *HIV medicine* 11: 85-89.
169. Pirillo MF, Bassani L, Germinario EA, Mancini MG, Vyankandondera J, et al. (2007) Seroprevalence of hepatitis B and C viruses among HIV-infected pregnant women in Uganda and Rwanda. *J Med Virol* 79: 1797-1801.
170. Mudawi H, Hussein W, Mukhtar M, Yousif M, Nemer O, et al. (2014) Overt and occult hepatitis B virus infection in adult Sudanese HIV patients. *International Journal of Infectious Diseases* 29: e65-e70.

171. Eller MA, Eller LA, Ratto-Kim S, Ouma BJ, Lo V, et al. (2012) Single-cell level response of HIV-specific and cytomegalovirus-specific CD4 T cells correlate with viral control in chronic HIV-1 subtype a infection. *Journal of Acquired Immune Deficiency Syndromes* 61: 9-18.
172. Walusansa V, Kagimu M (2009) Screening for hepatitis C among HIV positive patients at Mulago hospital in Uganda. *African Health Sciences* 9: 143-146.
173. Kalyesubula R, Kagimu M, Opio KC, Kiguba R, Semitala CF, et al. (2011) Hepatotoxicity from first line antiretroviral therapy: an experience from a resource limited setting. *African Health Sciences* 11: 16-23.
174. Patel P, Davis S, Tolle M, Mabikwa V, Anabwani G (2011) Prevalence of hepatitis B and hepatitis C coinfections in an adult HIV centre population in Gaborone, Botswana. *American Journal of Tropical Medicine & Hygiene* 85: 390-394.
175. Wester CW, Busmann H, Moyo S, Avalos A, Gaolathe T, et al. (2006) Serological evidence of HIV-associated infection among HIV-1-infected adults in Botswana. *Clinical Infectious Diseases* 43: 1612-1615.
176. Balew M, Moges F, Yismaw G, Unakal C (2014) Assessment of hepatitis B virus and hepatitis C virus infections and associated risk factors in HIV infected patients at Debretabor hospital, South Gondar, Northwest Ethiopia. *Asian Pacific Journal of Tropical Disease* 4: 1-7.
177. Manyazewal T, Sisay Z, Biadgilign S, Abegaz WE (2014) Hepatitis B and hepatitis C virus infections among antiretroviral-naive and -experienced HIV co-infected adults. *Journal of Medical Microbiology* 63: 742-747.
178. Harania RS, Karuru J, Nelson M, Stebbing J (2008) HIV, hepatitis B and hepatitis C coinfection in Kenya. *Aids* 22: 1221-1222.
179. Rabenau HF, Lennemann T, Kircher C, Gurtler L, Staszewski S, et al. (2010) Prevalence- and gender-specific immune response to opportunistic infections in HIV-infected patients in Lesotho. *Sexually Transmitted Diseases* 37: 454-459.
180. Moore E, Beadsworth MBJ, Chaponda M, Mhango B, Faragher B, et al. (2010) Favourable one-year ART outcomes in adult Malawians with hepatitis B and C co-infection. *Journal of Infection* 61: 155-163.
181. Chasela CS, Wall P, Drobeniuc J, King CC, Teshale E, et al. (2012) Prevalence of hepatitis C virus infection among human immunodeficiency virus-1-infected pregnant women in Malawi: The BAN study. *Journal of Clinical Virology* 54: 318-320.
182. Andreotti M, Pirillo MF, Liotta G, Jere H, Maulidi M, et al. (2014) The impact of HBV or HCV infection in a cohort of HIV-infected pregnant women receiving a nevirapine-based antiretroviral regimen in Malawi. *BMC Infectious Diseases* 14: 180.
183. Nanche D, Letang E, Nhampossa T, David C, Menendez C, et al. (2011) Alterations in T cell subsets in human immunodeficiency virus-infected adults with co-infections in southern Mozambique. *American Journal of Tropical Medicine and Hygiene* 85: 776-781.
184. Rodrigues MdCV, Viotti JB, Braga RF, Lourenco LFS, Antunes CMdF, et al. (2008) HIV/HCV coinfection in Infectious Disease Units in Mozambique and Brazil: a comparative study. *Revista Da Sociedade Brasileira de Medicina Tropical* 41: 518.
185. Mayaphi SH, Rossouw TM, Masemola DP, Olorunju SA, Jeffrey Mphahlele M, et al. (2012) HBV/HIV co-infection: The dynamics of HBV in South African patients with AIDS. *South African Medical Journal* 102: 157-162.
186. Hoffmann CJ, Dayal D, Cheyip M, McIntyre JA, Gray GE, et al. (2012) Prevalence and associations with hepatitis B and hepatitis C infection among HIV-infected adults in South Africa. *International Journal of STD and AIDS* 23: e10-e13.
187. Barth RE, Huijgen Q, Tempelman HA, Mudrikova T, Wensing AM, et al. (2011) Presence of occult HBV, but near absence of active HBV and HCV infections in people infected with HIV in rural South Africa. *J Med Virol* 83: 929-934.
188. Gededzha MP, Mphahlele MJ, Lukhwareni A, Selabe SG (2010) Should routine serological screening for HCV be mandatory in HIV/AIDS patients enrolling for HAART in South Africa? *South African Medical Journal Suid-Afrikaanse Tydskrif Vir Geneeskunde* 100: 814-815.
189. Dahoma M, Johnston LG, Holman A, Miller LA, Mussa M, et al. (2011) HIV and related risk behavior among men who have sex with men in Zanzibar, Tanzania: results of a behavioral surveillance survey. *AIDS & Behavior* 15: 186-192.

190. Waddell RD, Magesa PM, Pallangyo KJ, Matee M, Bakari M, et al. (2006) Coinfection with HIV and HCV in a blood bank population in Dar es Salaam, Tanzania. *Journal of Clinical Virology* 36: 237-238.
191. Nagu TJ, Bakari M, Matee M (2008) Hepatitis A, B and C viral co-infections among HIV-infected adults presenting for care and treatment at Muhimbili National Hospital in Dar es Salaam, Tanzania. *BMC Public Health* 8: 416.
192. Franzeck FC, Ngwale R, Msongole B, Hamisi M, Abdul O, et al. (2013) Viral Hepatitis and Rapid Diagnostic Test Based Screening for HBsAg in HIV-infected Patients in Rural Tanzania. *PLoS ONE [Electronic Resource]* 8: e58468.
193. Kapembwa KC, Goldman JD, Lakhi S, Banda Y, Bowa K, et al. (2011) HIV, Hepatitis B, and Hepatitis C in Zambia. *Journal of global infectious diseases* 3: 269-274.
194. Telatela SP, Matee MI, Munubhi EK (2007) Seroprevalence of hepatitis B and C viral co-infections among children infected with human immunodeficiency virus attending the paediatric HIV care and treatment center at Muhimbili National Hospital in Dar-es-Salaam, Tanzania. *BMC Public Health* 7: 338.
195. Simporé J, Ilboudo D, Karou D, Pietra V, Granato M, et al. (2006) Prevalence of HHV-8 infections associated with HIV, HBV and HCV in pregnant women in Burkina Faso. *Journal of Medical Sciences* 6: 93-98.
196. Rouet F, Chaix ML, Inwoley A, Anaky MF, Fassinou P, et al. (2008) Frequent occurrence of chronic hepatitis B virus infection among West African HIV type-1-infected children. *Clin Infect Dis* 46: 361-366.
197. Jobarteh M, Malfroy M, Peterson I, Jeng A, Sarge-Njie R, et al. (2010) Seroprevalence of hepatitis B and C virus in HIV-1 and HIV-2 infected Gambians. *Virology Journal* 7: 230.
198. Sagoe KWC, Agyei AA, Ziga F, Lartey M, Adiku TK, et al. (2012) Prevalence and impact of hepatitis B and C virus co-infections in antiretroviral treatment naive patients with HIV infection at a major treatment center in Ghana. *Journal of Medical Virology* 84: 6-10.
199. Honge BL, Jespersen S, Medina C, Te DDS, Silva ZJD, et al. (2014) Hepatitis C prevalence among HIV-infected patients in Guinea-Bissau: A descriptive cross-sectional study. *International Journal of Infectious Diseases* 28: 35-40.
200. Onakewhor JU, Okonofua FE (2009) The prevalence of dual human immunodeficiency virus/hepatitis C virus (HIV/HCV) infection in asymptomatic pregnant women in Benin City, Nigeria. *African Journal of Reproductive Health* 13: 97-108.
201. Buseri FI, Muhibi MA, Jeremiah ZA (2009) Sero-epidemiology of transfusion-transmissible infectious diseases among blood donors in Osogbo, south-west Nigeria. *Blood Transfusion* 7: 293-299.
202. Agwale SM, Tanimoto L, Womack C, Odama L, Leung K, et al. (2004) Prevalence of HCV coinfection in HIV-infected individuals in Nigeria and characterization of HCV genotypes. *Journal of Clinical Virology* 31 Suppl 1: S3-6.
203. Sadoh AE, Sadoh WE, Iduoriyekemwen NJ (2011) HIV co-infection with hepatitis B and C viruses among Nigerian children in an antiretroviral treatment programme. *SAJCH South African Journal of Child Health* 5: 7-10.
204. Adewole OO, Anteyi E, Ajuwon Z, Wada I, Elegba F, et al. (2009) Hepatitis B and C virus co-infection in Nigerian patients with HIV infection. *Journal of Infection in Developing Countries* 3: 369-375.
205. Adekunle AE, Oladimeji AA, Temi AP, Adeseye AI, Akinyeye OA, et al. (2011) Baseline CD4+ T lymphocyte cell counts, hepatitis B and C viruses seropositivity in adults with Human Immunodeficiency Virus infection at a tertiary hospital in Nigeria. *The Pan African medical journal* 9: 6.
206. Tremeau-Bravard A, Ogbukagu IC, Ticao CJ, Abubakar JJ (2012) Seroprevalence of hepatitis B and C infection among the HIV-positive population in Abuja, Nigeria. *African Health Sciences* 12: 312-317.
207. Inyama PU, Uneke CJ, Anyanwu GI, Njoku OM, Idoko JH, et al. (2005) Prevalence of antibodies to Hepatitis C virus among Nigerian patients with HIV infection. *Online Journal of Health and Allied Sciences* 4.
208. Agbaji O, Thio CL, Meloni S, Graham C, Muazu M, et al. (2013) Impact of hepatitis C virus on HIV response to antiretroviral therapy in Nigeria. *Journal of Acquired Immune Deficiency Syndromes: JAIDS* 62: 204-207.

209. Otegbayo JA, Taiwo BO, Akingbola TS, Odaibo GN, Adedapo KS, et al. (2008) Prevalence of hepatitis B and C seropositivity in a Nigerian cohort of HIV-infected patients. *Annals of Hepatology* 7: 152-156.
210. Ladep NG, Agaba PA, Agbaji O, Muazu A, Ugoagwu P, et al. (2013) Rates and impact of hepatitis on human immunodeficiency virus infection in a large African cohort. *World Journal of Gastroenterology* 19: 1602-1610.
211. Opaleye OO, Oluremi AS, Atiba AB, Adewumi MO, Mabayoje OV, et al. (2014) Occult hepatitis B virus infection among HIV positive patients in Nigeria. *Journal of Tropical Medicine* 2014.
212. Eze JC, Ibeziako NS, Ikefuna AN, Nwokoye IC, Uleanya ND, et al. (2014) Prevalence and risk factors for hepatitis C and human immunodeficiency virus coinfection among children in Enugu Nigeria. *African Journal of Infectious Diseases* 8: 5-8.
213. Omosigho OP, Inyinbor HE, Emumwen EG, Mohammed SK, Ledogo G, et al. (2011) Hepatitis C virus co-infection in human immunodeficiency virus positive population in Bida, North Central Nigeria. *Internet Journal of Infectious Diseases* 9.
214. Diop-Ndiaye H, Toure-Kane C, Etard JF, Lo G, Diaw P, et al. (2008) Hepatitis B, C seroprevalence and delta viruses in HIV-1 Senegalese patients at HAART initiation (retrospective study). *J Med Virol* 80: 1332-1336.