

S4 Table. Annual incident infection estimates for the 3'809 HIV-1 notifications of 2008—2013; performance-based estimation; comparison of sensitivities S1, S2, and S3

A. Calculation of performance-based incident infection rate (IIR-P) utilizing the adjusted sensitivities S1

Diagnostic Performance			Notifications of 2008					Notifications of 2009					Notifications of 2010					Notifications of 2011							
			Notifications with Inno-Lia; N=661				All; N=763	Notifications with Inno-Lia; N=599				All; N=649	Notifications with Inno-Lia; N=587				All; N=597	Notifications with Inno-Lia; N=549				All; N=557			
ALG #	Sensitivity S1	Specificity (%)	N ruled older	N ruled incident	N estimated incident	IIR-P	Total N estimated incident	N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident	N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident	N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident
15.1	31.90	95.14	521	140	399	0.604	461	480	119	332	0.555	92.0	360	480	107	290	0.494	81.9	295	462	87	223	0.406	67.3	226
15	32.60	94.32	520	141	384	0.581	444	477	122	327	0.546	93.8	354	477	110	285	0.485	83.4	290	456	93	230	0.418	71.9	233
11.2	31.40	94.05	528	133	368	0.557	425	478	121	335	0.560	100.6	363	485	102	264	0.449	80.6	268	455	94	241	0.439	78.8	245
13	30.00	95.00	535	126	372	0.562	429	493	106	304	0.508	90.3	330	492	95	263	0.447	79.5	267	468	81	214	0.390	69.4	217
7	24.60	98.38	555	106	415	0.627	479	517	82	315	0.525	83.7	341	517	70	263	0.448	71.5	268	485	64	240	0.437	69.6	243
9	23.70	98.38	561	100	404	0.612	467	524	75	296	0.494	80.7	320	521	66	256	0.436	71.2	260	491	58	222	0.405	66.2	226
11.1	31.40	93.37	528	133	360	0.545	416	478	121	328	0.548	100.6	356	485	102	255	0.434	79.7	259	455	94	233	0.424	77.8	236
12.1	31.40	93.38	525	136	372	0.563	430	477	122	332	0.555	98.5	360	482	105	267	0.455	80.7	271	453	96	241	0.439	77.9	244
4.1	34.60	91.89	519	142	334	0.505	385	467	132	315	0.526	104.1	341	462	125	292	0.498	98.6	297	451	98	202	0.368	72.8	205
8.1	25.20	96.76	525	136	522	0.789	602	476	123	472	0.788	99.8	511	480	107	401	0.683	86.5	407	450	99	370	0.674	85.3	375
mean	29.68	95.07	mean	393	0.595	454	mean	336	0.560	94.4	364	mean	283	0.483	81.4	288	mean	242	0.440	73.7	245				
SD	3.78	2.17	SD	51	0.077	59	SD	50	0.083	7.8	54	SD	43	0.074	7.7	44	SD	47	0.085	6.1	47				
lower limit 95%CI	27.34	93.72	lower limit 95%CI	361	0.547	417	lower limit 95%CI	305	0.509	89.6	330	lower limit 95%CI	257	0.437	76.6	261	lower limit 95%CI	213	0.387	69.9	216				
upper limit 95%CI	32.02	96.41	upper limit 95%CI	425	0.642	490	upper limit 95%CI	366	0.612	99.2	397	upper limit 95%CI	310	0.529	86.1	316	upper limit 95%CI	271	0.493	77.5	274				

B. Calculation of performance-based incident infection rate (IIR-P) utilizing the adjusted sensitivities S2

Diagnostic Performance			Notifications of 2008					Notifications of 2009						Notifications of 2010						Notifications of 2011										
			Notifications with Inno-Lia; N=661				All; N=763	Notifications with Inno-Lia; N=599					All; N=649	Notifications with Inno-Lia; N=587					All; N=597	Notifications with Inno-Lia; N=549					All; N=557					
ALG #	Sensitivity S2 (%)	Specificity (%)	N ruled older	N ruled incident	N estimated incident	IIR-P	Total N estimated incident	N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident	N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident	N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident					
15.1	52.90	95.14	521	140	225	0.340	259	480	119	187	0.312	92.0	203	480	107	163	0.278	81.9	166	462	87	126	0.229	67.3	127					
15	53.60	94.32	520	141	216	0.327	249	477	122	184	0.306	93.8	199	477	110	160	0.273	83.4	163	456	93	129	0.235	71.9	131					
11.2	52.60	94.05	528	133	201	0.304	232	478	121	183	0.305	100.6	198	485	102	144	0.245	80.6	146	455	94	131	0.239	78.8	133					
13	50.90	95.00	535	126	203	0.306	234	493	106	166	0.277	90.3	180	492	95	143	0.244	79.5	145	468	81	117	0.213	69.4	118					
7	45.20	98.38	555	106	219	0.331	252	517	82	166	0.277	83.7	180	517	70	139	0.236	71.5	141	485	64	126	0.230	69.6	128					
9	43.90	98.38	561	100	211	0.320	244	524	75	154	0.258	80.7	167	521	66	134	0.228	71.2	136	491	58	116	0.212	66.2	118					
11.1	52.60	93.37	528	133	194	0.293	224	478	121	177	0.295	100.6	192	485	102	137	0.234	79.7	140	455	94	125	0.228	77.8	127					
12.1	52.80	93.38	525	136	200	0.302	231	477	122	178	0.298	98.5	193	482	105	143	0.244	80.7	146	453	96	129	0.235	77.9	131					
4.1	55.10	91.89	519	142	188	0.285	217	467	132	178	0.296	104.1	192	462	125	165	0.281	98.6	168	451	98	114	0.207	72.8	115					
8.1	45.80	96.76	525	136	269	0.407	311	476	123	243	0.406	99.8	264	480	107	207	0.352	86.5	210	450	99	191	0.348	85.3	194					
mean	50.54	95.07	mean				212	0.321	mean				182	0.303	94.4	mean				153	0.261	81.4	mean				130	0.238	73.7	132
SD	4.01	2.17	SD				23	0.035	SD				24	0.040	7.8	SD				22	0.037	7.7	SD				22	0.040	6.1	22
lower limit 95%CI	48.06	93.72	lower limit 95%CI				198	0.300	lower limit 95%CI				167	0.278	89.6	lower limit 95%CI				140	0.238	76.6	lower limit 95%CI				117	0.213	69.9	118
upper limit 95%CI	53.02	96.41	upper limit 95%CI				227	0.343	upper limit 95%CI				196	0.328	99.2	upper limit 95%CI				167	0.284	86.1	upper limit 95%CI				144	0.263	77.5	146

C. Calculation of performance-based incident infection rate (IIR-P) utilizing the adjusted sensitivities S3

Diagnostic Performance			Notifications of 2008						Notifications of 2009						Notifications of 2010						Notifications of 2011					
			Notifications with Inno-Lia; N=661					All; N=763	Notifications with Inno-Lia; N=599					All; N=649	Notifications with Inno-Lia; N=587					All; N=597	Notifications with Inno-Lia; N=549					All; N=557
ALG #	Sensitivity S3 (%)	Specificity (%)	N ruled older	N ruled incident	N estimated incident	IIR-P	Total N estimated incident	N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident	N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident	N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident	
15.1	39.60	95.14	521	140	311	0.470	358	480	119	259	0.432	92.0	280	480	107	226	0.385	81.9	230	462	87	174	0.316	67.3	176	
15	40.20	94.32	520	141	300	0.453	346	477	122	255	0.425	93.8	276	477	110	222	0.378	83.4	226	456	93	179	0.326	71.9	182	
11.2	39.20	94.05	528	133	282	0.426	325	478	121	257	0.429	100.6	278	485	102	202	0.344	80.6	205	455	94	184	0.336	78.8	187	
13	37.70	95.00	535	126	284	0.430	328	493	106	233	0.388	90.3	252	492	95	201	0.342	79.5	204	468	81	164	0.298	69.4	166	
7	32.40	98.38	555	106	310	0.468	357	517	82	235	0.392	83.7	254	517	70	197	0.335	71.5	200	485	64	179	0.326	69.6	182	
9	31.40	98.38	561	100	300	0.454	346	524	75	219	0.366	80.7	238	521	66	190	0.323	71.2	193	491	58	165	0.300	66.2	167	
11.1	39.20	93.37	528	133	274	0.414	316	478	121	250	0.417	100.6	270	485	102	194	0.330	79.7	197	455	94	177	0.322	77.8	179	
12.1	39.30	93.38	525	136	282	0.427	326	477	122	252	0.421	98.5	273	482	105	202	0.345	80.7	206	453	96	183	0.333	77.9	185	
4.1	42.10	91.89	519	142	260	0.393	300	467	132	245	0.410	104.1	266	462	125	228	0.388	98.6	232	451	98	157	0.287	72.8	160	
8.1	33.10	96.76	525	136	384	0.581	443	476	123	347	0.579	99.8	376	480	107	295	0.502	86.5	300	450	99	272	0.495	85.3	276	
mean	37.42	95.07	mean		299	0.452	345	mean		255	0.426	94.4	276	mean		216	0.367	81.4	219	mean		183	0.334	73.7	186	
SD	3.72	2.17	SD		34	0.051	39	SD		35	0.058	7.8	38	SD		31	0.053	7.7	32	SD		32	0.059	6.1	33	
lower limit 95%CI	35.12	93.72	lower limit 95%CI		278	0.420	320	lower limit 95%CI		234	0.390	89.6	253	lower limit 95%CI		196	0.334	76.6	200	lower limit 95%CI		163	0.297	69.9	166	
upper limit 95%CI	39.72	96.41	upper limit 95%CI		320	0.483	369	upper limit 95%CI		277	0.462	99.2	300	upper limit 95%CI		235	0.400	86.1	239	upper limit 95%CI		203	0.371	77.5	206	

Notifications of 2012					
Notifications with Inno-Lia; N=643					All; N=643
N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident
551	92	225	0.349	57.9	225
546	97	225	0.349	60.1	225
554	89	199	0.310	55.7	199
561	82	199	0.310	55.1	199
574	69	255	0.396	63.2	255
581	62	234	0.363	59.4	234
554	89	187	0.291	53.5	187
554	89	187	0.291	51.7	187
542	101	184	0.287	56.8	184
553	90	315	0.490	62.1	315
<i>mean</i>		221	0.344	57.5	221
<i>SD</i>		40	0.063	3.7	40
<i>lower limit 95%CI</i>		196	0.305	55.3	196
<i>upper limit 95%CI</i>		246	0.383	59.8	246

Notifications of 2013					
Notifications with Inno-Lia; N=597					All; N=600
N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident
519	78	181	0.303	50.3	182
516	81	175	0.293	50.4	176
519	78	167	0.280	50.2	168
527	70	161	0.269	47.8	161
540	57	206	0.345	55.0	207
545	52	192	0.321	52.5	193
519	78	155	0.260	47.7	156
518	79	159	0.267	47.4	160
510	87	146	0.244	48.3	146
515	82	285	0.478	60.5	287
<i>mean</i>		183	0.306	51.0	184
<i>SD</i>		40	0.068	4.1	41
<i>lower limit 95%CI</i>		158	0.264	48.5	158
<i>upper limit 95%CI</i>		208	0.348	53.6	209

All 3809 notifications, 2008–2013	
Total n estimated incident	Mean IIR
1749	0.459
1721	0.452
1668	0.438
1604	0.421
1792	0.471
1699	0.446
1609	0.422
1653	0.434
1559	0.409
2498	0.656
1755	0.461
270	0.071
1588	0.417
1923	0.505

Notifications of 2012					
Notifications with Inno-Lia; N=643					All; N=643
N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident
551	92	126	0.197	57.9	126
546	97	126	0.196	60.1	126
554	89	109	0.169	55.7	109
561	82	109	0.169	55.1	109
574	69	134	0.209	63.2	134
581	62	122	0.190	59.4	122
554	89	101	0.157	53.5	101
554	89	101	0.156	51.7	101
542	101	104	0.162	56.8	104
553	90	163	0.253	62.1	163
<i>mean</i>		119	0.186	57.5	119
<i>SD</i>		19	0.030	3.7	19
<i>lower limit 95%CI</i>		107	0.167	55.3	107
<i>upper limit 95%CI</i>		131	0.204	59.8	131

Notifications of 2013					
Notifications with Inno-Lia; N=597					All; N=600
N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident
519	78	102	0.171	50.3	102
516	81	98	0.165	50.4	99
519	78	91	0.153	50.2	92
527	70	87	0.147	47.8	88
540	57	109	0.182	55.0	109
545	52	100	0.168	52.5	101
519	78	84	0.140	47.7	84
518	79	85	0.143	47.4	86
510	87	82	0.138	48.3	83
515	82	147	0.247	60.5	148
<i>mean</i>		99	0.165	51.0	99
<i>SD</i>		19	0.032	4.1	19
<i>lower limit 95%CI</i>		87	0.145	48.5	87
<i>upper limit 95%CI</i>		111	0.185	53.6	111

All 3809 notifications, 2008–2013	
Total n estimated incident	Mean IIR
984	0.258
967	0.254
910	0.239
874	0.229
945	0.248
887	0.233
867	0.228
887	0.233
879	0.231
1289	0.338
949	0.249
126	0.033
871	0.229
1027	0.270

Notifications of 2012					
Notifications with Inno-Lia; N=643					All; N=643
N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident
551	92	175	0.272	57.9	175
546	97	175	0.272	60.1	175
554	89	153	0.237	55.7	153
561	82	152	0.237	55.1	152
574	69	190	0.296	63.2	190
581	62	173	0.269	59.4	173
554	89	142	0.221	53.5	142
554	89	142	0.221	51.7	142
542	101	144	0.224	56.8	144
553	90	232	0.360	62.1	232
<i>mean</i>		168	0.261	57.5	168
<i>SD</i>		28	0.044	3.7	28
<i>lower limit 95%CI</i>		150	0.234	55.3	150
<i>upper limit 95%CI</i>		185	0.288	59.8	185

Notifications of 2013					
Notifications with Inno-Lia; N=597					All; N=600
N ruled older	N ruled incident	N estimated incident	IIR	IIR, in % of baseline	Total N estimated incident
519	78	141	0.236	50.3	142
516	81	136	0.229	50.4	137
519	78	128	0.214	50.2	128
527	70	123	0.206	47.8	123
540	57	154	0.258	55.0	155
545	52	142	0.238	52.5	143
519	78	118	0.198	47.7	119
518	79	121	0.202	47.4	121
510	87	114	0.190	48.3	114
515	82	210	0.351	60.5	211
<i>mean</i>		139	0.232	51.0	139
<i>SD</i>		28	0.047	4.1	28
<i>lower limit 95%CI</i>		121	0.203	48.5	122
<i>upper limit 95%CI</i>		156	0.261	53.6	157

All 3809 notifications, 2008–2013	
Total n estimated incident	Mean IIR
1361	0.357
1342	0.352
1277	0.335
1226	0.322
1338	0.351
1260	0.331
1224	0.321
1253	0.329
1215	0.319
1837	0.482
1333	0.350
185	0.048
1219	0.320
1448	0.380