Title: Different transmission roates and the risk of advanced HIV discuss: a systematic review and network meta-analysis of observational studies Author: Quosen Chen, Ding Zong, Yangyang She, Yahan Lyu, Xiao Gong, Matthew J. Feinstein, YI Yang, Hongbo Jiang Date:2019.09.27

Table 1: Detailed information of included studies in this review continued to Appendix A3 3.1 Table 1: Characteristics of included studies in this review

No. of study	,	ation of ine	cluded studies in this r	review continued to	Appendix A3 3	3.1 Table	1: Characteristics of included studies in this review												
	study period 1	Median study	Study	Region	Study method	Time lag	Definition of advanced HIVdisease (AHD)	No. of AHD via MSM	No. of PLHIV via MSM	No. of AHD via IDU	No. of PLHIV via IDU	No. of AHD via HC	No. of PLHIV via HC	No. of AHD	No. of PLHIV	No. of male	No. of female	Age	Continents
1	1984-2000	1992	2003 Wong KH	China (Hong Kong)	surveillance	3	Late HIV diagnosis was definded as progression to AIDS within 3 months after HIV diagnosis (AIDS within 3 months of HIV diagnosis).	77	376	7	32	255	876	365	1530	1269	261	NA	Asia
2	1985-2005	1995	2006 McDonald EA	Australia	surveillance	3	Delayed diagnosis was defined as an HIV diagnosis followed by diagnosis of an AIDS-defining illness within 3 months, or an initial presentation with a CD4 cell count below 200 cells/µL.	26	205	NA	NA	12	94	52	319	275	44	NA	Oceania
3	1985-2005	1995	2010 Kivelii PS	Finland	surveillance	3	Late HIV diagnosis wasdefined as diagnosis when the first CD4 count was <200 cells/µL, or when AIDS occurred within 3 months of HIV diagnosis	101	396	31	237	76	289	211	934	719	215	33	Europe
4	1986-1998	1992	2000 Girardi E	Italy	surveillance	3	Patients with AIDS were defined as 'late testers' if the time interval between first positive HIV test result and AIDS diagnosis was ≤3 months.	111	311	176	1165	145	360	503	1967	1484	483	>18	Europe
5	1986-2010	1998	2013 Spomraft-Ragaller P	Germany	cohort	3	monums. Very late presenting patients in our study were determined as those with advanced HIV disease according to the consensus definition (CD4 T cell counts less than 200/ul and/or clinical AIDS).	96	175	11	23	35	69	188	348	278	70	34-8	Europe
6	1987-2006	1996-5	2009 Camicer-Pont D	Spain	surveillance	3	Patients were defined as "late testers" if their first HIV test had been positive within the period of three months before or at the time of	909	1736	1023	3188	620	1056	2713	6186	4984	1202	36	Europe
7	1994-1996	1995	2002 Castilla J	Spain	surveillance	1	diagnosis of an AIDS diagnosis, Late testers were defined as persons who had a first positive HIV test in the month of or immediately preceding AIDS diagnosis.	1420	3413	2695	17021	2268	4496	7283	26580	21281	5299	>15	Europe
8	1994-2006	2000	2009 Lemoh C	Australia	surveillance	3	Individuals were defined as having a delayed diagnosis of HIV if the diagnosis of AIDS was made earlier than 3 months after HIV diagnosis or the CD4 count was <200 cells/µL at diagnosis of HIV infection.	NA	NA	14	101	173	491	627	2779	2530	249	37	Oceania
9	1994-2012	2003	2015 Jiang HB	China (Mainland)	surveillance	1	We defined AHD as presence of a first-reported CD4 count <200 cells/ll or an AIDS-defining event within 1 month of HIV diagnosis,	63	399	17	24	160	403	289	980	803	177	36	Asia
							referring to European consensus definition. Presentation with advanced HIV disease was defined as presenting for care with a CD4 count less than 200 cells/µl or presenting with an												
10	1995-2009	2002	2012 Helleberg M 2005 Longo B	Denmark	cohort	NA	AIDS-defining event, regardless of the CD4 cell count. Late testers were defined as those persons for whom the first HIV test had been performed within six months of the AIDS diagnosis.	408 1517	1336	48 977	233	503	1284	1039	3027 17007	2286	741 4027	37	Europe
12	1996-2002 1996-2005	1999 2000-5	2005 Longo B 2006 Delpierre C	Italy France	surveillance cohort	0 NA	Patients were defined as "late testers" if they had presented with either symptoms of clinical AIDS or a CD4 cell count less than 200/µL	483	2831 1523	78	8089	2652 876	4364 2190	6253 1718	4516	12980 3116	4027	>18 37	Europe
12	1996-2009	2002-5	2012 Tey JSH	Singapore	surveillance	12	during the year of diagnosis. Late-stage HIV infection is defined as CD4 count less than 200 mm3 or AIDS-defining opportunistic infections at first diagnosis or within	412	1094	NA	NA	1426	2640	2012	3735	3358	377	>15	Asia
14	1996-2014	2005	2016 Op De Coul ELM	Netherlands	cohort	3	one year of HIV diagnosis. Advanced HIV disease was defined as CD4-200/mm3, or AIDS-defining event regardless of CD4 count. CD4 count at time of diagnosis	3535	12314	336	701	2725	6876	7331	20965	16877	4088	36	Europe
	1997-2002	1999-5	2007 Teira Cobo R	Spain	cohort		was defined as the first CD4 count within 3 months after diagnosis. Delayed diagnosis was defined as patients diagnosed with HIV infection and AIDS simultaneously or within the first month after the first	115	548	114	999	229		506	2820	NA	NA	NA	Europe
15	1997-2002	2002	2007 Telli Cooli K 2011 Ndiaye B	France	surveillance	NA	positive serologic test, or those with a first CD4+ cell count below 200/µl. Presentation with "advanced HIV disease" was defined as initial presentation to care (i.e., the first clinical visit for HIV care) with CD4	147	674		47	229	944	520	1819	NA	NA	35	Europe
10	1997-2007	2002	2018 Lee CY	China (Taiwan)	cohort	3	count <200/mm3 or clinically-defined AIDS. AIDS incidence at presentation was defined as the frequency of patients who developed AIDS ≤3 months of HIV diagnosis.	2719	11677	154	47 6646	1592	4152	4571	22665	21085	1580	32.74	Asia
18	1999-2003	2001	2004 Manavi K	UK	cross-section	1	Late presentation was defined as positive HIV test with baseline CD4+ T-cell count of less than 200 cells/µL. Baseline CD4+ T-cell counts were obtained within the first three weeks of diagnosis of HIV infection.	15	79	9	23	14	34	65	189	145	44	NA	Europe
19	1999-2012	2005-5	2016 Maquera-Afaray J	Peru	surveillance	0	Based on the definitions proposed by the Europan group (European Late Presenter Consensus Working Group), advanced HIV disease	350	447	NA	NA	492	777	1106	1714	1224	490	35	South
20	1999-2012	2005-5	2015 Wright ST	Australia	cohort	6	was defined persons whose CD4 cell count was less than 200 cells/mm3 at the diagnosis of HIV We defined presentation with advanced HIV disease as diagnosis with CD4 cell count <200 cells/µL or AIDS illness within six months of	144	842	12	47	70	261	245	1202	1118	84	NA	America Oceania
21	2000-2004	2002	2009 Wohl AR	USA	cross-section	12	HIV diagnosis. "Late testers' were defined as persons who received their first HIV diagnosis within 12 months of an AIDS diagnosis	130	189	11	20	72	95	267	383	316	67	NA	North Americ
22	2000-2004	2002	2013 Rurangirwa J	USA	surveillance	6	We defined late HIV detection as an AIDS diagnosis within 6 months of HIV diagnosis.	2091	6252	200	344	148	263	3424	9031	NA	NA	>18	North Americ
23	2000-2005	2003 2003-5	2011 Tang JJ 2010 Lee JH	USA	surveillance	12	Late testers were people diagnosed with HIV within 12 months before their AIDS diagnosis Initial CD4+ T-cell counts were measured within 6 months of HIV diagnosis. Late diagnosis was defined by initial CD4+ T-cell counts <200	9540 268	16219 917	1916 NA	3324 NA	4937 412	6558	17364 858	28382	NA 2108	NA 191	NA	North Americ
24	2000-2007 2000-2007	2003-5	2010 Lee JH 2010 Yang BR	South Korea USA	cross-section	3	cells/mm3. We defined late HIV diagnosis as an AIDS diagnosis within three months of an HIV diagnosis.	1134	917 3749	NA 240	NA 792	412 854	1189 2648	3110	2299 9964	7225	2739	>15 >13	Asia North Americ
25	2000-2008	2003-3	2010 Yang BK 2012 Saganic L	USA	surveillance	12	We defined are new outgrown as an ALDS outgrown within three mounts of an HLV outgrown. The time-based measure defines a case as late if the individual is diagnosed with AIDS within 12 months of initial HIV diagnosis.	320	971	75	179	125	284	704	1904	1622	282	NA	North Americ
27	2000-2011	2005-5	2016 Tossas-Milligan KY	Puerto Rico	cohort	12	Late HIV testing (LT) defined as an AIDS diagnosis within a year of first positive HIV test.	67	151	61	139	228	458	377	795	508	287	≥ 18	North Americ
28	2000-2011	2005-5	2013 Mocroft A	35 European countries		6	Late presentation with advanced disease was diffined as a person diagnosed with HIV with a CD4 count below 200/mm3 or an AIDS defining event, regardless of CD4 cell count, in the 6 months following HIV diagnosis.	7924	32761	2104	5555	14511	37006	28081	84524	NA	NA	NA	Europe
29 20	2001-2005 2001-2017	2003 2009	2009 Duffus WA 2018 Li Xin	USA China (Mainland)	cohort surveillance	12 NA	Late testers (those diagnosed with AIDS within 1 year of their initial HIV diagnosis) Delayed diagnosis was defined as AIDS or CD4 cell count <200 µL in the reported year.	342 115	656 302	82	132 18	491 223	1008 427	1311 361	2564 783	1594 673	970 110	≥18 >50	North Americ Asia
30 31	2001-2017 2002-2003	2009 2002-5	2018 Li Xin 2007 Delpierre C	China (Mainland) France	surveillance cross-section	NA	Patients were defined as 'late testers' if they had presented either symptoms of clinical AIDS or CD4 cell count 200/mm3 within the	115	302	2 NA	18 NA	223	427 633	361	783 954	673 NA	110 NA	>50 37	Asia Europe
29	2002-2003	2002 3	2007 Depierre C 2016 Kundro MA		surveillance		calendar year for diagnosis. CD4 cell count and viral load at diagnosis were defined as the nearest CD4 cell count or viral load respectively to within 6 months of HIV		278	NA	NA	93	507	167	993	249	744	31	South
32	2002-2014 2003-2005	2008	2016 Kundro MA 2011 Colucci A	Argentina Italy	surveillance cross-section	6	diagnosis. Very late presenters (VLP) were defined as those with CD4+ counts < 200. "Late testers'" were defined as those with a time period of ≤6 months between first HIV positive test and AIDS diagnosis	46	278	NA 11	NA 80	93 57	507 82	167	993 245	249 201	43	31 42-3	America Europe
34	2003-2007	2004	2010 Oliva J	Spain	cross-section	0	DD (delayed diagnosis) was defined as the patient with CD4 count less than 200 cells/mL at diagnosis.	321	1158	207	517	535	1226	1177	3129	2497	632	NA NA	Europe
35	2003-2009	2006	2011 Leutscher PDC	Denmark	cohort	0	Late presenters were defined as patients who had a recorded CD4 count below 200 cells/ micro liter at the time of their HIV diagnosis.	20	87	NA	NA	43	107	63	194	138	56	38	Europe
36	2003-2012	2007-5	2016 Jeong SJ	13 Asian countries	cohort	3	Late presentation into care as defined as a CD4 count <200 cells/µL or an AIDS-defining event within +/- 3 months of first positive HIV test.	378	684	311	343	1782	2394	2681	3744	2691	1053	34	Asia
37	2004-2005	2005	2009 Sobrino-Vegas P	Spain	cohort	6	We defined DHD as subjects whose first CD4 cell count during the six months following HIV diagnosis was below 200 cells/µL or those who were diagnosed of AIDS.	200	724	97	204	298	722	653	1749	1358	391	>13	Europe
38	2004-2013	2008-5	2016 Sobrino-Vegas P	Spain	cohort	6	We defined a newly-diagnosed individual as a patient diagnosed with HIV up to six months before study entry. We defined patients with hte presentation with advanced HIV disease (LPAD) as those presenting for care with a CD4 cell count below 200 cells/ml or with an ADE	768	4151	209	470	955	2315	2049	7165	5959	1205	34	Europe
							(1) The HIV/AIDS patients died from non-accidental causes.												
39	2004-2015	2009-5	2016 Liu ZQ	China (Mainland)	surveillance	NA	(2) Regardless of its surviving or not, the HIV/AIDS patients with CD4 count less than 200/µL were included. (3) The patients were diagnosed as AIDS with CD4 count between 200 and 499/µL.	444	2182	59	245	419	844	1210	3447	3194	253	NA	Asia
							(4) The patients were diagnosed as AIDS by clinicians without CD4 count test. (5) Based on the inference of existing data, a portion of patients was considered as AIDS without clinical diagnosis or CD4 count test.												
40	2005-2010	2007-5	2012 Dickson NP	New zealand	surveillance	3	Presentation with 'advanced HIV disease' is a subset having a CD4 count <200 cells/mL and also includes all who have an AIDS defining	93	374	NA	NA	85	202	194	606	NA	NA	NA	Oceania
							event within 3 months of HIV diagnosis regardless of CD4 count. (1) The HIV/AIDS patients died from non-accidental causes.												
41	2005-2015	2010	2017 Sun L	China (Mainland)	cross-section	NA	(2) Regardless of its surviving or not, the HIV/AIDS patients with CD4 count less than 200/µL were included. (3) The patients were diagnosed as AIDS with CD4 count between 200 and 499/µL.	137	414	3	5	141	339	288	771	672	99	NA	Asia
							(4) The patients were diagnosed as AIDS by clinicians without CD4 count test. (5) Based on the inference of existing data, a portion of patients was considered as AIDS without clinical diagnosis or CD4 count test.												
							(1) The HIV/AIDS patients died from non-accidental causes.												
42	2005-2015	2010	2017 Zhang NN	China (Mainland)	surveillance	NA	(2) Regardless of its surviving or not, the HIV/AIDS patients with CD4 count less than 200/µL were included. (3) The patients were diagnosed as AIDS with CD4 count between 200 and 499/µL.	50	304	6	17	88	275	182	658	525	133	NA	Asia
							(4) The patients were diagnosed as AIDS by clinicians without CD4 count test. (5) Based on the inference of existing data, a portion of patients was considered as AIDS without clinical diagnosis or CD4 count test.												
43	2006-2006	2006	2008 Kiertiburanakul S	Thailand	surveillance	NA	Baseline CD4 count <200 cells/mm3	5	9	2	6	44	92	68	141	79	62	35-5	Asia
44	2006-2008	2007	2011 Lo YC	China (Taiwan)	cohort	3	HIV-infected patients aged ≥15 years were consecutively enrolled if they had received first positive HIV tests in the 3 months preceding enrollment, and had CD4 cell counts determined within 3 months of enrollment. Earolled HIV-infected patients were defined as having late	83	184	2	8	22	35	107	227	220	7	31	Asia
45	2005-2008	2007	2017 Pyziak-Kowalska	Poland	surveillance	NA	HIV diamosis if they had an initial CD4 cell count <200cells/ulwhich is the most commonly employed definition of late HIV diamosis. Advanced HIV disease was defined as having CD4 T cell count below 200 and/or AIDS-defining event regardless of CD4 T cell count.	103	498	110	262	113	275	363	1132	911	221	31-3	Europe
46	2006-2015	2010-5	KA 2017 Mao LC	China (Mainland)	surveillance	NA	Late diagnosed patients were defined by CD4 T-cell counts less than 200 cells/mm(3) or diagnosis as AIDS at diagnosis or during the	105	372	NA	NA	59	198	174	589	56	533	NA	Asia
47	2007-2011	2009	2014 Trepka MJ	USA	cohort	3	renorted vear. Late diagnosis was defined as AIDS diagnosis within 3 months of HIV diagnosis.	2709	11825	NA	NA	2777	8906	7060	25585	18533	7052	>12	North America
48	2007-2011	2009	2014 Oliva J	Spain	surveillance	3	"Advanced HIV disease" (AD) was defined as the presence of a CD4 count below 200 cells/µL in the first analysis performed within 3 months after HIV diagnosis	1193	5846	285	837	1587	4021	3356	11426	9278	2148	35	Europe
49	2007-2011	2009	2012 Bai F	Italy	cohort	1	All patients who present with a CD4+ T lymphocyte count <200 cells/µL and/or AIDS-defining event from 30 days prior to 30 days after their first moving HU test were considered to have "advanced HU/ disease" (AHD)	34	152	4	10	41	111	79	275	225	50	31	Europe
							Patients with late presentation with advanced disease (LPAD) were those whose first CD4 cell count was less than 200 cells/mm3 or												South
50	2008-2010	2009	2015 Valentini MB	Brazil	cross-section	12	presented an AIDS defining opportunistic infection. Eligible patients had at least one CD4 cell count or an AIDS defining opportunistic infection (CDC) registered between the diagnosis and one year thereafter.	66	243	NA	NA	127	277	193	520	NA	NA	NA	America
51	2009-2010	2009-5	2012 Tang HL	China (Mainland)	cross-section	NA	Late diagnosed patients were defined by CD4 T-cell counts less than 200 cells/mm(3) or diagnosis as AIDS at diagnosis or during the reported year.	49	159	94	283	1313	2191	2496	3912	2414	1498	43-4	Asia
52	2009-2010	2009-5	2015 Dai SY	China (Mainland)	cross-section	12	Patients with late diagnosis were defined as either those who were diagnosed with AIDS at the time of HIV diagnosis or as those who developed AIDS no more than 1 year after HIV	NA	NA	47	80	572	769	653	899	608	291	>18	Asia
							diagnosis.												
53	2010-2010 2010-2010	2010 2010	2013 Hall HI 2013 Hall HI	Australia Canada	surveillance surveillance	3	Diagnosed with AIDS within 3 months of HIV diagnosis Diagnosed with AIDS within 3 months of HIV diagnosis	87 19	655 257	6	23 92	82 20	278	198	1051	896 1165	150 306	NA NA	Oceania North America
53	2010-2010	2010	2013 Hall HI	France	surveillance	3	Diagnosed with AIDS within 3 months of HIV diagnosis	290	2459	20	74	634	3645	959	6265	4199	2066	NA	Europe
53 53	2010-2010	2010 2010	2013 Hall HI 2013 Hall HI	Italy USA	surveillance surveillance	3	Diagnosed with AIDS within 3 months of HIV diagnosis Diagnosed with AIDS within 3 months of HIV diagnosis	134 6913	1165 25892	41 1357	254 3470	325 3704	1796 12184	557 12378	3839 43130	2889 33609	943 9521	NA NA	Europe
33	2010-2010	2010	2013 Haii Hi	034	surveinance	3	(1) The HIV/AIDS patients died from non-accidental causes.	0913	23892	1337	3470	3704	12104	12378	43130	33009	9321	NA.	North Americ
54	2010-2014	2012	2016 Jin X	China (Mainland)	surveillance	NA	(2) Regardless of its surviving or not, the HIV/AIDS patients with CD4 count less than 200/µL were included. (3) The patients were diagnosed as AIDS with CD4 count between 200 and 499/µL.	19179	80441	11311	44367	120598	273765	151088	398573	NA	NA	NA	Asia
							(4) The patients were diagnosed as AIDS by clinicians without CD4 count test. (5) Based on the inference of existing data, a portion of patients was considered as AIDS without clinical diagnosis or CD4 count test.												
55	2010-2015	2012-5	2016 Levy I	Israel	cohort	0	Advanced HIV disease (AHD): Persons presenting for care with a CD4+ T-cell count below 200 cells/mm3 or presenting with an AIDS-	24	217	5	52	28	87	57	356	300	56	NA	Asia
							defining event at diagnosis, regardless of the CD4+ T-cell count. (1) The HIV/AIDS patients died from non-accidental causes.												
44	2010-2016	2013	2017 Lin ZM	China (Mainland)	surveillance	NA	 In HIV/AUX5 patients duel from non-accidental causes. Regardless of its surviving or not, the HIV/AUX5 patients with CD4 count less than 200/µL were included. The patients were diagnosed as AIDS with CD4 count between 200 and 499/µL. 	2854	12057	1836	4424	14329	29625	19624	47343	38259	9084	44-49	Asia
50	2010-2016	2013	2017 Lin 234	China (Manhand)	survenance	104	(4) The patients were diagnosed as AIDS by clinicians without CD4 count test.	2834	12037	1830	4424	14329	29023	19024	47343	38239	9084	44/47	Asia
57	2011-2014	2012-5	2015 Qi Y	China (Mainland)	surveillance	NA	(5) Based on the inference of existing data, a portion of patients was considered as AIDS without clinical diagnosis or CD4 count test. Late diagnosed patients were defined as AIDS at diagnosis or during the reported year.	42	153	NA	NA	106	258	148	411	348	63	39-34	Asia
							 The HIV/AIDS patients died from non-accidental causes. Regardless of its surviving or not, the HIV/AIDS patients with CD4 count less than 200/µL were included. 												
58	2011-2015	2013	2018 Jin L	China (Mainland)	surveillance	NA	 (2) regulates to its sarving of not, in error/rADS patients with CD4 count tests man 200 µL, were included. (3) The patients were diagnosed as AIDS with CD4 count between 200 and 499µL. (4) The patients were diagnosed as AIDS by clinicians without CD4 count test. 	836	2642	NA	NA	1960	4049	2949	7073	5696	1377	38-5	Asia
							(5) Based on the inference of existing data, a portion of patients was considered as AIDS without clinical diagnosis or CD4 count test.												
							 The HIV/AIDS patients died from non-accidental causes. Regardless of its surviving or not, the HIV/AIDS patients with CD4 count less than 200/µL were included. 												
59	2011-2015	2013	2017 Guo Y	China (Mainland)	surveillance	NA	 The patients were diagnosed as AIDS with CD4 count between 200 and 499µL. The patients were diagnosed as AIDS by clinicians without CD4 count test. 	578	2090	17	101	309	669	916	2922	2761	161	34-49	Asia
							(5) Based on the inference of existing data, a portion of patients was considered as AIDS without clinical diagnosis or CD4 count test.												
							 The HIV/AIDS patients died from non-accidental causes. Regardless of its surviving or not, the HIV/AIDS patients with CD4 count less than 200/µL were included. 												
60	2011-2016	2013-5	2018 Li JZ	China (Mainland)	surveillance	NA	 The patients were diagnosed as AIDS with CD4 count between 200 and 499 µL. The patients were diagnosed as AIDS by clinicians without CD4 count test. 	206	1133	NA	NA	64	198	273	1365	1306	59	37-78	Asia
							(5) Based on the inference of existing data, a portion of patients was considered as AIDS without clinical diagnosis or CD4 count test. (1) The HIV/AIDS patients died from non-accidental causes.												
61	2011-2017	2014	2018 Zhang HL	China (Mainland)	surveillance	N.A	(2) Regardless of its surviving or not, the HIV/AIDS patients with CD4 count less than 200/uL were included.	828	3850	25	283	1208	3218	2088	7427	6811	616	34	Asia
61	2011-2017	2014	2018 Zhang HL	Crima (Mainland)	surveillance	NA	 The patients were diagnosed as AIDS with CD4 count between 200 and 499)µL. The patients were diagnosed as AIDS by clinicians without CD4 count test. 	8.28	.5850	25	283	1208	3218	2088	/427	0811	016	.54	Asia
62	2012-2012	2012	2014 Pan XH	China (Mainland)	cross-section	1	(5) Based on the inference of existing data, a portion of patients was considered as AIDS without clinical diagnosis or CD4 count test. HIV late diagnosed patients and early diagnosed patients were classified by first CD4(+) T cell counts less than 200 cells/µL within one	137	716	NA	NA	344	1114	\$00	1894	1511	383	36.4	Asia
63	2012-2012	2012	2014 Pan XH 2017 Senard O	China (Mainland) France	cross-section cohort		month of HIV diagnosis. Persons with CD4: 200/mm3 at HIV diagnosis were defined as advanced patients.	137	90	NA	NA	344	91	40	1894	1511	363	36-4 37-13	Asia Europe
0.5	2012-2013	2012-5	2017 Senard O 2017 Chkhartishvili N	Georgia	cohort	~	Late presenter with advanced disease was defined as a person diagnosed with HIV with a CD4 cell count <200 cells/mm3 or an AIDS	15	311	NA 392	NA 649	33	91	49	186	137	49	37-13	Europe
64	2012-2015 2012-2016	2013-5 2014	2017 Chkhartishvili N 2017 Li X	Georgia China (Mainland)	cohort surveillance	6 NA	defining illness, regardless of CD4 cell count, in the six months after HIV diagnosis Late diagnosed patients were defined as AIDS during the reported year.	56 518	311 2141	392	649 103	380	778	870 931	1987 3064	1478 2850	214	37 NA	Asia
64 65		2014	2017 El X 2018 Fakoya I	9 European countries		0	AHD was defined as the patients who was diagnosed as CD4 <200 cells mm3 at time of diagnosis.	110	827	NA	NA	321	985	431	1812	1226	586	>18	Europe
64 65 66	2013-2015						 The HIV/AIDS patients died from non-accidental causes. Regardless of its surviving or not, the HIV/AIDS patients with CD4 count less than 200/µL were included. 												
64 65 66	2013-2015		2016 Meng Q	China (Mainland)	surveillance	NA	 (2) regulates to its sarving of not, in error/rADS patients with CD4 count tests man 200 µL, were included. (3) The patients were diagnosed as AIDS with CD4 count between 200 and 499µL. (4) The patients were diagnosed as AIDS by clinicians without CD4 count test. 	79	365	73	183	4722	8847	4928	9526	6844	2682	NA	Asia
64 65 66	2013-2015	2014					(5) Based on the inference of existing data, a portion of patients was considered as AIDS without clinical diagnosis or CD4 count test.												_
64 65 67	2014-2014					3	AHD: CD4 count < 200 cells/IL or clinical AIDS within 3 months of diagnosis.	134 NA	775	NA	NA	229	578	363	1421	1098		37	Europe
64 65 67 68 68	2014-2014 2014-2015	2014-5	2017 Cuzin L	France China (Mainland)	cohort	12	Late detection was defined as a first CD4 count <200'mm3 or clinically-defined AIDS or a AIDS diagnosis within one year after HIV				44	0.2	726	100	200	197	323		Ari-
64 65 67 68 69	2014-2014 2014-2015 2016-2016	2014-5 2016	2017 Cuzin L 2017 Chen ZB	China (Mainland)	surveillance	12	diagnosis.		NA	14	55	93	236	109	300	187	113	36-2	Asia
64 65 67 68 69 70	2014-2014 2014-2015 2016-2016 1996-2011	2014-5 2016 2003-5	2017 Cuzin L 2017 Chen ZB 2014 Wilson K	China (Mainland) France	surveillance cross-section	12 NA	diagnosis. presented with <200 CD4 cells/mm3 or an AIDS defining event within the calendar year of diagnosis were classified as patients with advanced disease	99	433	5	17	81	213	308	1096	649	113 327	36·2 ≥18	Europe
64 65 67 68 69 70 71	2014-2014 2014-2015 2016-2016 1996-2011 1992-2006	2014-5 2016 2003-5 1999	2017 Cuzin L 2017 Chen ZB 2014 Wilson K 2012 Toure A	China (Mainland) France France	surveillance cross-section cohort		diagnosis. presentot win -200 CD4 cellvium3 or an ADS defining event within the calendar year of diagnosis were classified as patients with advanced disease patients with ACM2-5200 cellorium3 ar fine contact with ULH Early into care with advanced HIV disease was defined as care entry with a CD4 const < 200 cellujil.or with a CD4 ADS-defining event,	99 454	433 1604	5 98	17 239	81 455	213 1366	308 1139	1096 3570	649 2731	113 327 837	36·2 ≥18 36·3	Europe Europe
64 65 66 67 68 69 70 71 71 72 73	2014-2014 2014-2015 2016-2016 1996-2011	2014-5 2016 2003-5	2017 Cuzin L 2017 Chen ZB 2014 Wilson K	China (Mainland) France	surveillance cross-section	NA 0 0	diagramic, presented with -200 CD4 cellstum.3 or an AD5 defining event within the calendar year of diagnosis were classified as patients with advanced disease priorites with CD-200 cellstum.3 at first contact with ULH Entry into care with advanced HIV disease was defined as care entry with a CD4 contat < 200 cells/µl, or with a CDC AD5-defining event, regardless of CD-000 ent	99	433	14 5 98 322 NA	17	81	213	308	1096	649	113 327	36-2 ≥18 36-3 33	Europe
64 65 66 67 68 69 70 71 72 73 74	2014-2014 2014-2015 2016-2016 1996-2011 1992-2006 2000-2015	2014-5 2016 2003-5 1999 2007-5	2017 Cuzin L 2017 Chen ZB 2014 Wilson K 2012 Toure A 2019 Siwak E	China (Mainland) France France Poland	surveillance cross-section cohort cross-section		diagramic, presented with ~200 CD4 cellsum3 or an AD5 defining event within the calendar year of diagnosis were classified as patients with advanced disease priorites with CD4200 cellsum3 at first contact with ULH Entry into care with advanced HIV disease was defined as our entry with a CD4 contst < 200 cells/µL or with a CDC AD5-defining event, regardless of CD4 contact Late testers were preson diagnose with HIV 12 months or best before their AD5 diagnosis AD5 presents were defined a patient presenting with a tast can AD5-defining these within one nonth preceding their first positive	99 454 540	433 1604 2094	5 98 322	17 239 667	81 455 381	213 1366 840	308 1139 1380	1096 3570 3869	649 2731 3224	113 327 837 545	36·2 ≥18 36·3	Europe Europe Europe
64 65 66 67 70 71 72 73 74 75	2014-2014 2014-2015 2016-2016 1996-2011 1992-2006 2000-2015 2001-2006	2014-5 2016 2003-5 1999 2007-5 2003-5	2017 Cuzin L 2017 Chen ZB 2014 Wilson K 2012 Toure A 2019 Siwak E 2006 Schwarz S	China (Mainland) France France Poland USA	surveillance cross-section cohort cross-section surveillance	NA 0 0	diagnosis, precented with 200 CD4 cells inm3 or an AD5 defining event within the calendar year of diagnosis were classified as patients with printers with CD4:250 cells inm3 or fast constant with LUI printers with AD5 cells indicated as an event with a CD4 count < 200 cells/al, or with a CD6 AD5-defining event, martless of CD4 count.	99 454 540 527	433 1604 2094 1353	5 98 322	17 239 667	81 455 381 44	213 1366 840	308 1139 1380	1096 3570 3869 2139	649 2731 3224 1894	113 327 837 545 174	36 2 ≥18 36 3 33 ≥13	Europe Europe Europe North America
64 65 66 67 68 69 70 71 72 73 74 75 76 77	2014-2014 2014-2015 2016-2016 1996-2011 1992-2006 2000-2015 2001-2006 2000-2008	2014-5 2016 2003-5 1999 2007-5 2003-5 2004	2017 Cuzin L 2017 Chen ZB 2014 Wilson K 2012 Toure A 2019 Siwusk E 2006 Schwarcz S 2010 Mena M	China (Mainland) France France Poland USA Italy	surveillance cross-section cohort cross-section surveillance surveillance	NA 0 12 1	diagnosis. presented wik -200 CD4 cellstum3 or an AD5 defining event within the calendar year of diagnosis were classified as patients with advanced disease. patients with CE-200 cellstum3 at first contact with LLH. Early zime or with advanced HW disease was defined as are entry with a CD4 count ~ 200 cells/aft with a CDC AD5-defining event, that tests were representation disease was defined as an eventy with a CD4 count ~ 200 cells/aft with a CDC AD5-defining event, that tests were representations disposed with HW 12 moths or less briefs their AD5 diagnosis. AD5 presents were defined a patients presenting with at least one AD5-defining illness within one month preceding their first positive and HW antiboty vert.	99 454 540 527 25	433 1604 2094 1353 35	5 98 322 NA 8	17 239 667 NA 59	81 455 381 44 41	213 1366 840 75 59	308 1139 1380 830 76	1096 3570 3869 2139 156	649 2731 3224 1894 124	113 327 837 545 174 32	36-2 ≥18 36-3 33 ≥13 41	Europe Europe Europe North America Europe

Table 1: Detailed information of included studies in this review continued to Appendix A3 3.1 Table 1: Characteristics of included studies in this review (continued)

of study	study period	Median study period	Study	Region	Study method	Time lag	Definition of advanced HIVdisease (AHD)	No. of AHD via MSM	No. of PLHIV via MSM	No. of AHD via IDU	No. of PLHIV via IDU	via HC	No. of PLHIV via HC	No. of AHD	No. of PLHIV	No. of male	No. of female	Age	Continer
78	2012-2016	2014	2019 Hu X	China (Mainland)	cross-section	3	advanced HIV disease was defined as a patient with a CD4+ T-cell count < 200 mm3, or a patient with an AIDS-defining illness regardless of CD4+ T-cell count during diagnosis	332	1439	347	1077	19526	41994	20325	45118	32028	13090	50-3	Asia
19	1998-2000	1999	2001 de Munain JL	Spain	surveillance	0	late diagnosis (stage C) was defined according to CD4 cell count at diagnosis	15	46	8	32	22	47	45	125	NA	NA	37-3	Europ
D	1990-2005	1997-5	2009 Chen KT	China (Taiwan)	surveillance	3	Persons with HIV were those who received a diagnosis of HIV with or without a diagnosis of ADS at the same time. Persons with ADS were those who had ADS shear they first received their HIV diagnosis, or those who progressed to having ADS after first being reported with HIV infection. The diagnosis year for HIV diagnosis was they card FIV diagnosis if ADS was not contemporarously persent, but HIV and ADS were diagnosed within the same clandar month, it was the year of ADS diagnosis. For people with ADS the year of ADS diagnosis was end as the diagnosis year.	1134	3807	90	3240	1114	2734	2389	9961	9104	857	32	Asi
81	1998-2005	2001-5	2009 Shouse RL	USA	surveillance	12	AIDS diagnosis after 1 year HIV diagnosis	40994	100231	12487	32154	22766	61101	107784	281421	200882	80539	NA	North Ar
2	2000-2004	2002	2006 Castilla J	Spain	surveillance	NA	Patients with CD4+ lymphocyte count lower than 200 cells per microlitre and those who already presented signs of an AIDS defining disease were considered late diagnoses of HIV infection.	144	353	117	299	316	669	616	1407	1071	336	37	Eur
12	2015-2015	2015	2016 Reinhardt S	Guatemala	cohort	0	abeate were consuled inte diagnoses of Fit v intection. Baseline AIDS-defining illnesses	87	464	NA	NA	832	3174	931	3686	2133	1553	34-4	South A
4	1996-2002	1999	2005 Brannstrom J	Sweden	surveillance	3	A "late tester" was defined as a patient with AIDS where the time interval between first positive HIV test and AIDS diagnosis within 3 month	77	166	6	65	116	224	219	487	360	127	≥15	Eur
5	2005-2018	2011-5	2019 Luo TF	China (Mainland)	surveillance	NA	(1) The HIV/AIDS parient died from non-accidental causes. (2) Regulates of its surviving or not, the HIV/AIDS parients with CP4 count less than 200 µL were included. (3) The parients were diagnosed an AIDS with CP4 count between 200 and 490 µL. (4) The parients were diagnosed an AIDS with CP4 count between 200 and 490 µL. (5) Based on the intervine of existing data, particle of parients ware caused and AIDS without chickal diagnosis or CD4 count test.	6	28	NA	NA	312	576	320	608	442	166	NA	As
16	2006-2017	2011-5	2018 Chen LY	China (Mainland)	surveillance	NA	AIDS diagnosis at HIV diagnosis or within the calendar year among newly dagnosed cases	23	96	54	246	472	1790	549	2132	1254	878	≥18	As
87	2011-2017	2014	2019 Zhang M	China (Mainland)	surveillance	NA	 The HIV/ADS parient died from non-accidental causes. Regardless of in surving or not, the HIV/ADS patients with CD4 count less than 200 jul, were included. The patients were diagnosd an ADS with CD4 count between 201 and 499 Jul. The patients were diagnosd an ADS by clinicians without CD4 count test. Bland on the interview of existing data, patient of patients was considered an ADS without clinical diagnosis or CD4 count test. 	11	63	130	267	414	1198	592	1562	1038	524	46-75	As
8	2011-2016	2013-5	2018 Linng HM	China (Mainland)	surveillance	NA	 The HWAIDS patient diaf from son-accidental cause. C.B. Regardse of 3 so winking are std. HWIJADD patients with CD4 count less than 200 jul, were included. The patients were diagnosed as AIDS with CD4 count between 200 and 490 jul. The patients were diagnosed as AIDS by dimixing without CD4 count text. The patients were diagnosed as AIDS by dimixing without CD4 count text. The patients were diagnosed as AIDS by dimixing without CD4 count text. The patients were diagnosed as AIDS by dimixing without CD4 count text. 	542	2162	NA	NA	1181	2764	1885	5213	4357	856	36-567	А
•	2012-2016	2014	2018 Xie H	China (Mainland)	sarveillance	NA	 The HWADDS patients diaf from non-accidental causes. Regardises of its averying or not, the HWADDS patients with CPA count less than 200/µL were included. The patients were diagnoed as ADDS with CPA count between 200 and 499µL. The patients were diagnoed as ADDS by clinicians withous CPA count test. Based on the inference of existing data, a portion of patients was considered as ADDS without clinical diagnosis or CPA count test. 	4	27	9	19	662	1324	679	1387	977	410	NA	,
)	2012-2016	2014	2018 Tang H	China (Mainland)	sarveillance	NA	 The HWARDS patients did from non-accidental causes. Reguilless of its surviving or one, the HWARDS patients with CD4 count less than 200/µL were included. The patients were diagnosed as ARDS with CD4 count between 200 and 499/µL. The patients were diagnosed as ARDS by clinicians without CD4 counts less than 200 and 499/µL. The patients were diagnosed as ARDS by clinicians whom clinical diagnosis or CD4 count test. 	1272	4926	NA	NA	3236	6906	4508	11832	9679	2153	≥15	А
1	2016-2017	2016-5	2019 Yang K	China (Mainland)	surveillance	NA	Late diagnosis was defined as the first CD4 cell count 200 mm3 within the calendar year for diagnosis	644	2459	14	23	1293	3323	1953	5826	4748	1078	43	А
	2007-2017	2012	2019 Xu Y	China (Mainland)	surveillance	NA	(1) The HWAIDS patient disk from son-accidental cause. (2) Regardise of 3 wirving or not. HeI/WAIDDs patients with CD4 count less than 200/µL were included. (2) The patients were diagnosed as AIDS with CD4 count between 200 and 490/µL. (4) The patients were diagnosed as AIDS by dimitism ware MARCD4 Count test. (5) Based on the Hierbare of existing data, a portion of patients was condensed as AIDS without clinical diagnosis or CD4 count test.	149	412	1	35	37	181	187	628	532	96	37-56	А
	2011-2017	2014	2018 Huang YL	China (Mainland)	surveillance	NA	 The HIV/AIDS patients died from non-accidental causes in the calendar year. AIDS diagnosis at HIV diagnosis or within the calendar year among newly dagnosed cases 	139	537	9	28	745	1966	901	2551	2071	480	NA	
	2015-2017	2016	2019 Yang ZK	China (Mainland)	surveillance	NA	 The HWADDS patients diaf from non-accidental causes. Regardless of its surviving or not, the HW/AIDS patients with CD4 count less than 200/µL were included. The patients were diagnosal a AIDS with CD4 count between 201 and 499/µL. The patients were diagnosal a AIDS by clinicians without CD4 count less. Based on the intervee of existing data, a position of patients was conduced a AIDS whou clinical diagnosis or CD4 count test. 	56	241	NA	NA	137	494	202	776	626	150	39-32	,
	2012-2016	2014	2019 Duan RR	China (Mainland)	surveillance	NA	 The HIV/ADS parients diafform non-accidental causes. The parients were diagnosed as ADS with CD4 count less than 200 jul, were included. The parients were diagnosed as ADSS with CD4 count between 200 and 499 jul. The parients were diagnosed as ADSS by clinicians without CD4 count less. The structure of existing data. ADSS by clinicians without CD4 count less than 200 jul, were included. The parients were diagnosed as ADSS by clinicians without CD4 count less. The structure of existing data. ADSS by clinicians without CD4 count less. 	10	53	2	6	269	632	282	693	508	185	53	
	2012-2017	2014-5	2018 Bing PF	China (Mainland)	surveillance	NA	Late diagnosis was defined as nwely diagnoed and the first CD4 cell count 200/mm3 within the calendar year for diagnosis	448	2336	NA	NA	368	1208	829	3605	3239	366	35-36	
	2005-2016	2010-5	2018 Xu QS	China (Mainland)	surveillance	12	Late diagnosis was defined as AIDS diagnosis at HIV diagnosis or within one year following HIV diagnosis	10	58	2	62	21	90	33	210	168	42	30-32	
	2013-2017	2015	2019 Zhang ZH	China (Mainland)	sarveillance	NA	 The HWA/DDS patients diaf from non-accidental causes. Regardless of its averying or ont, eHWA/DDS patients with CD4 count less than 200 µJL were included. The patients were diagnosed as ADDS with CD4 count between 200 and 499 µL. The patients were diagnosed as ADDS by clinicians whom CD4 count less. The patients were diagnosed as ADDS by clinicians whom CD4 count less than 200 µJL were included. The patients were diagnosed as ADDS by clinicians whom CD4 count less. The patients were diagnosed as ADDS by clinicians whom CD4 count less. The patients were diagnosed as ADDS by clinicians whom CD4 count less. 	109	393	NA	NA	136	301	253	714	627	87	36-2	
	2010-2017	2013-5	2018 Ye L	China (Mainland)	surveillance	NA	 The HWARDS patients did from non-accidental causes. Regardless of its surviving or not, the HWARDS patients with CD4 count less than 200 jul, were included. The patients were diagnosal as ADS by dinkians whom CD4 count less. The patients were diagnosal as ADS by dinkians whom CD4 count less. Based on the interver of existing data, a point on platients ware conduced as ADS by dinkians when CD4 count test. 	126	438	0	24	205	502	333	972	830	142	39	
	2012-2017	2014-5	2019 Zhu Y	China (Mainland)	surveillance	NA	 The HWARDS patients dief from non-accidental causes. CB Regardies of stravinging orts, the HWARDS patients with CD4 count leav han 200/pd, were included. The patients were diagnosed as AIDS with CD4 count between 200 and 499/µL. The patients were diagnosed as AIDS by clinicians without CD4 count sets without clinical diagnosis or CD4 count test. 	13	46	4	6	425	897	442	931	667	264	56	
1	2012-2016	2014	2018 Huang SZ	China (Mainland)	surveillance	NA	 The newly diagnosed HIV/AIDS patients died from non-accidental causes. Regardless of its surviving or not, the HIV/AIDS patients with CD4 count less than 200/µL were included. The patients were diagnosed as AIDS with CD4 count between 200 and 499/µL 	115	377	26	56	180	377	323	933	802	131	36-5	