

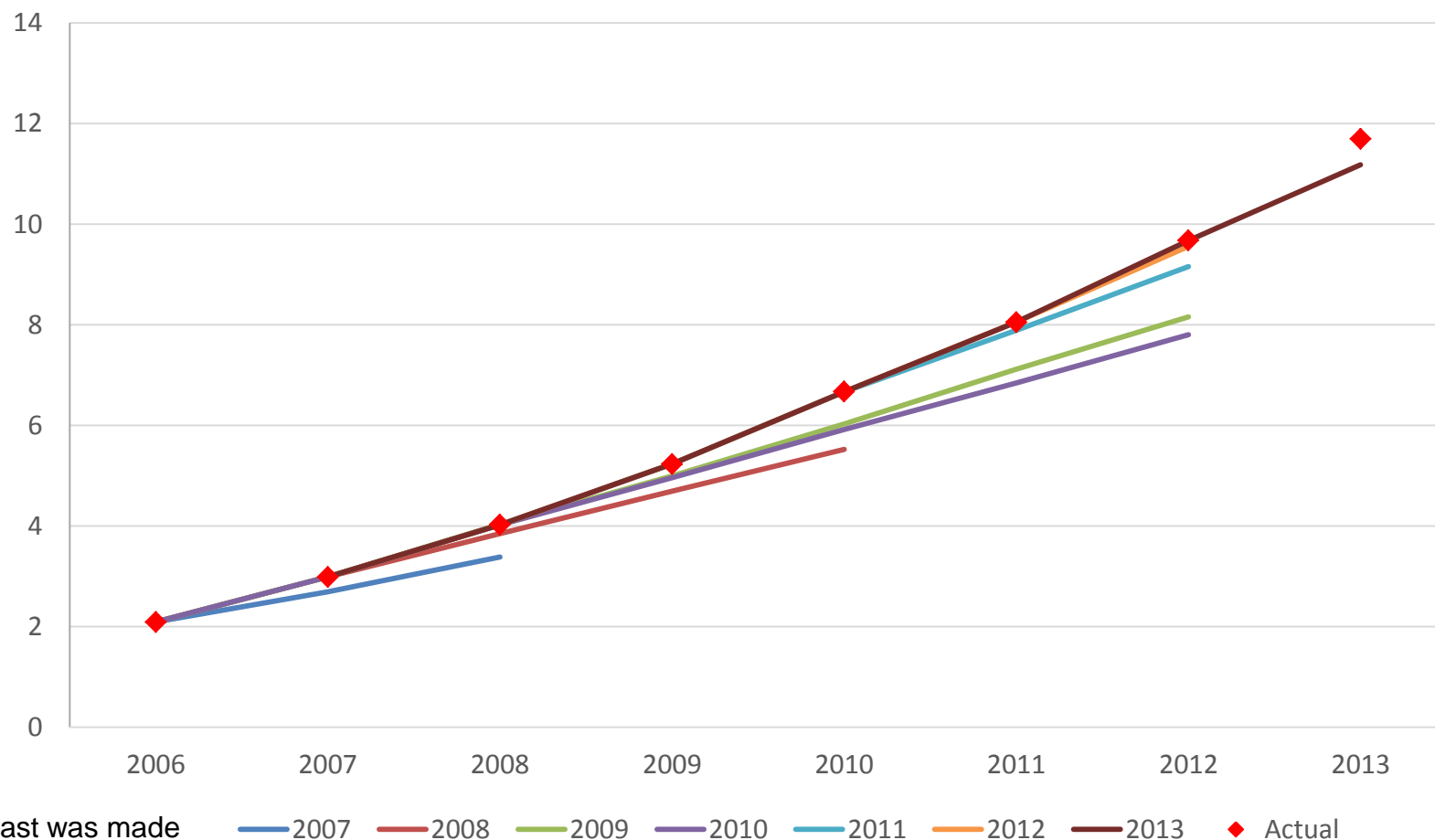
Consolidated Forecast of Global ARV Demand for Adults: Scenarios, Data and Forecasts 2014 – 2018

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For the Forecasting Technical Working Group: WHO,
UNICEF, CHAI, SCMS, Global Fund, UNAIDS, Avenir
Health

Purpose

- Forecast numbers of patients on ARVs and demand for individual ARVs in low and middle-income countries for 2014 to 2018 using best available evidence.
- Data sources include:
 - WHO ARV Survey
 - GPRM procurements
 - CHAI forecasts
 - UNAIDS estimates of need for ART
 - Global Fund quantification of ARV use for 2014 and 2015
 - SCMS quantification

Linear Projections Consistently Under-Estimating Growth



Projection Methods: Number on ART

Linear extrapolation: Linear extrapolation of last three years of UNAIDS/WHO reported data on the number receiving ART for 154 low and middle income countries.

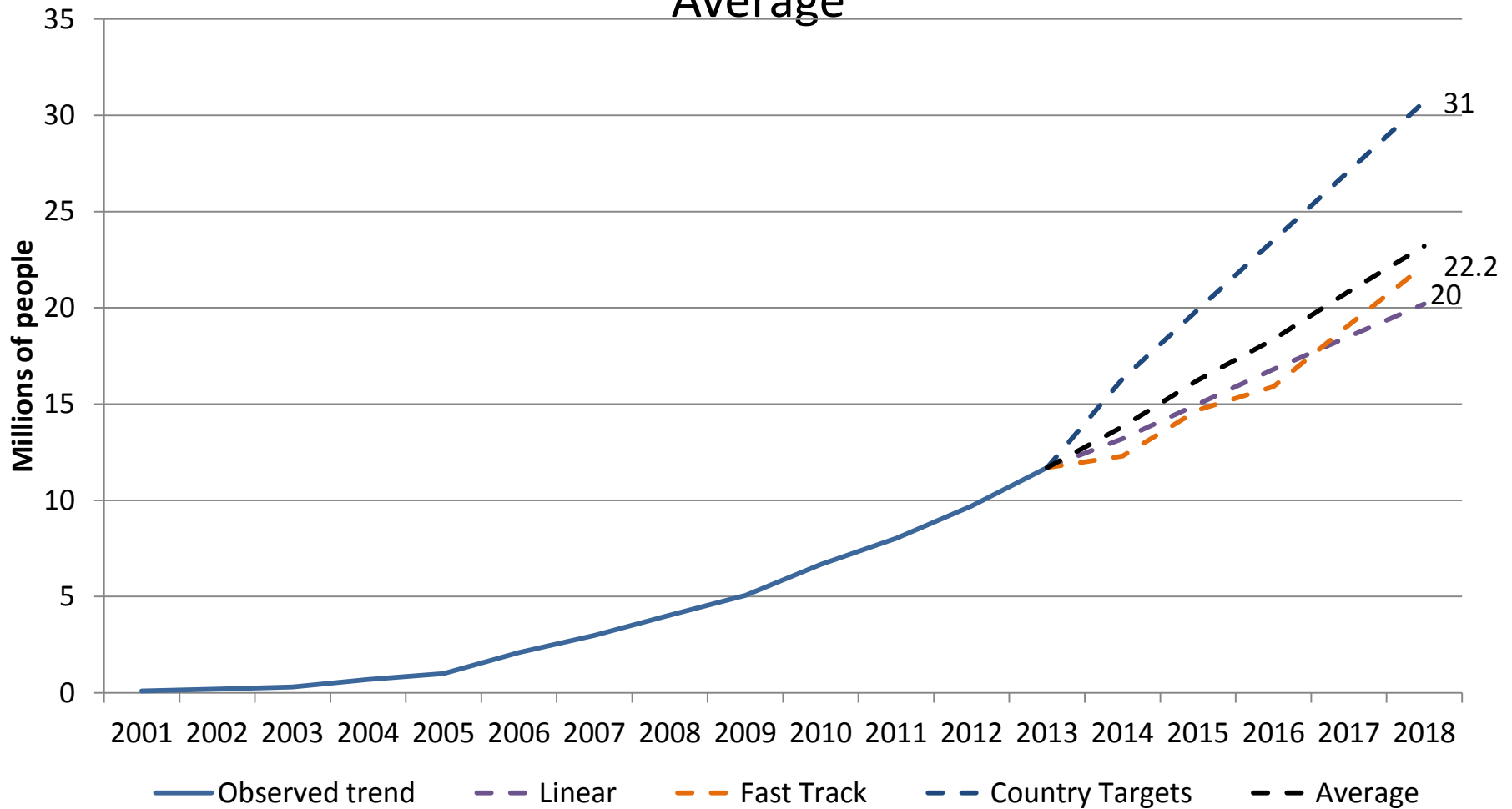
Country targets: ARV demand up to 2020 extrapolated from 2013 baseline demand using national targets stated by 46 countries, from the 2013 WHO ARV survey, scaled up to all LMIC.

Fast Track: 90% of PLHIV identified and started on treatment, 90% retained on treatment by 2020.

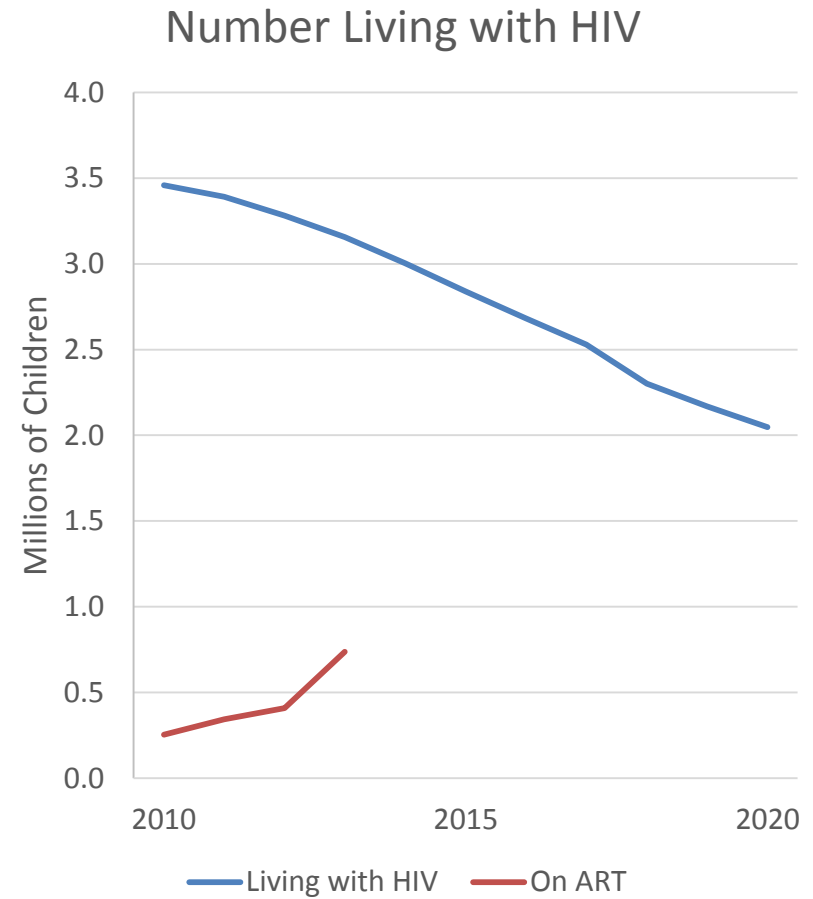
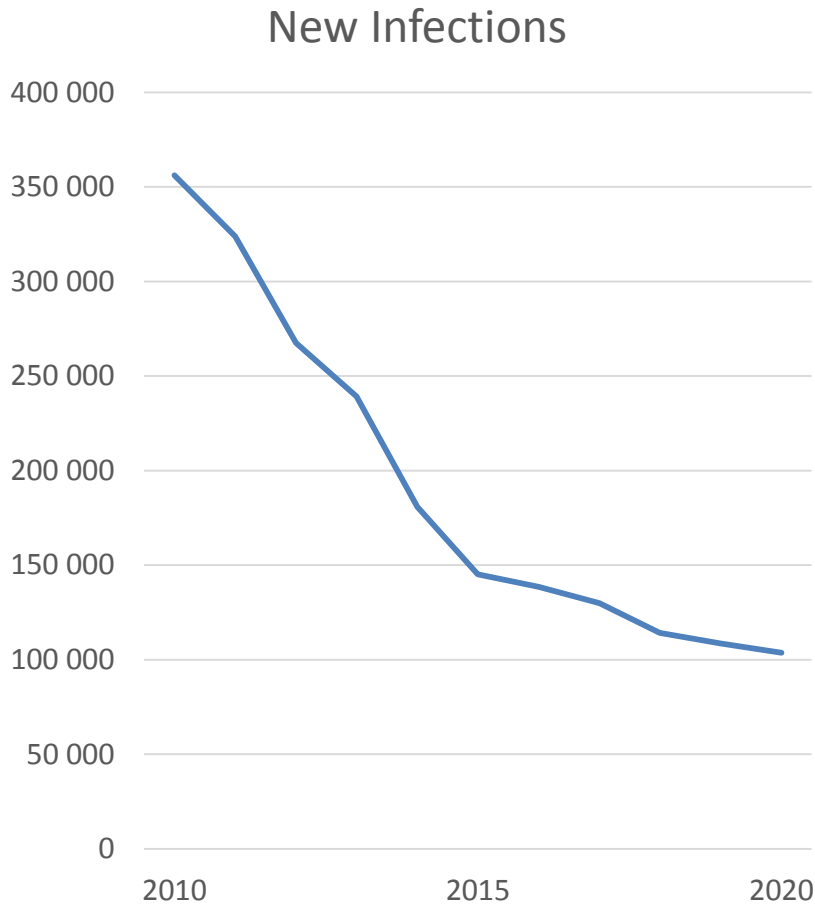
CHAI projections: Linear extrapolation of trend from last 3 years for 21 highest burden countries, plateauing at universal access under existing WHO guidelines, then scaled-up to all LMIC.

Projected Number of Patients on ART: Adults and Children

Country Target, Fast Track, Linear and CHAI Projections and Average



Estimates and Projections of New Child Infections and Number Living with HIV



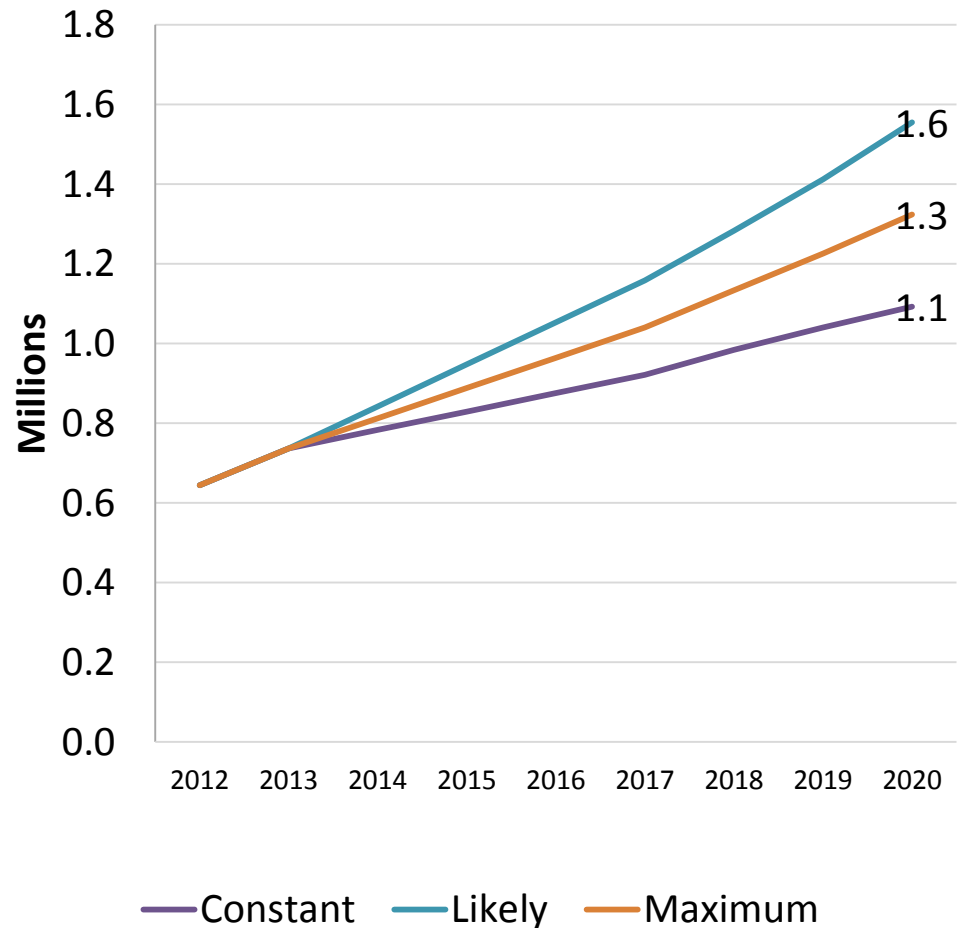
Number of Children 0-14 on ART

Coverage in 2020 by Scenario

Scenario	PMTCT	ART
Constant	64%	35%
Likely	88%	77%
Maximum	95%	100%

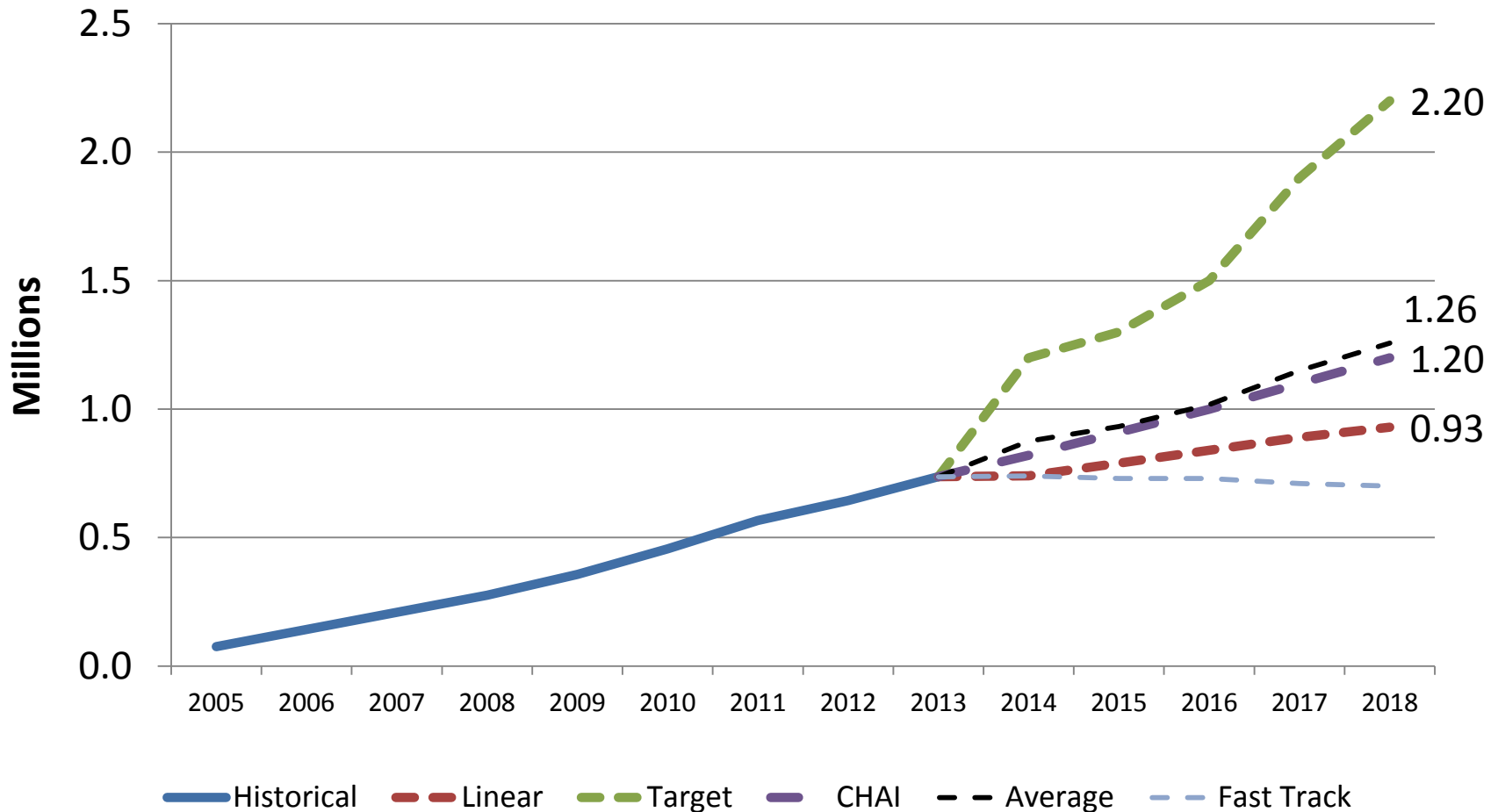
Projections made for 21 priority countries representing 80% of LMIC. Numbers scaled-up to all LMIC.

Prepared by UNAIDS for Pediatric ARV Drug Optimization Meeting (PADO)

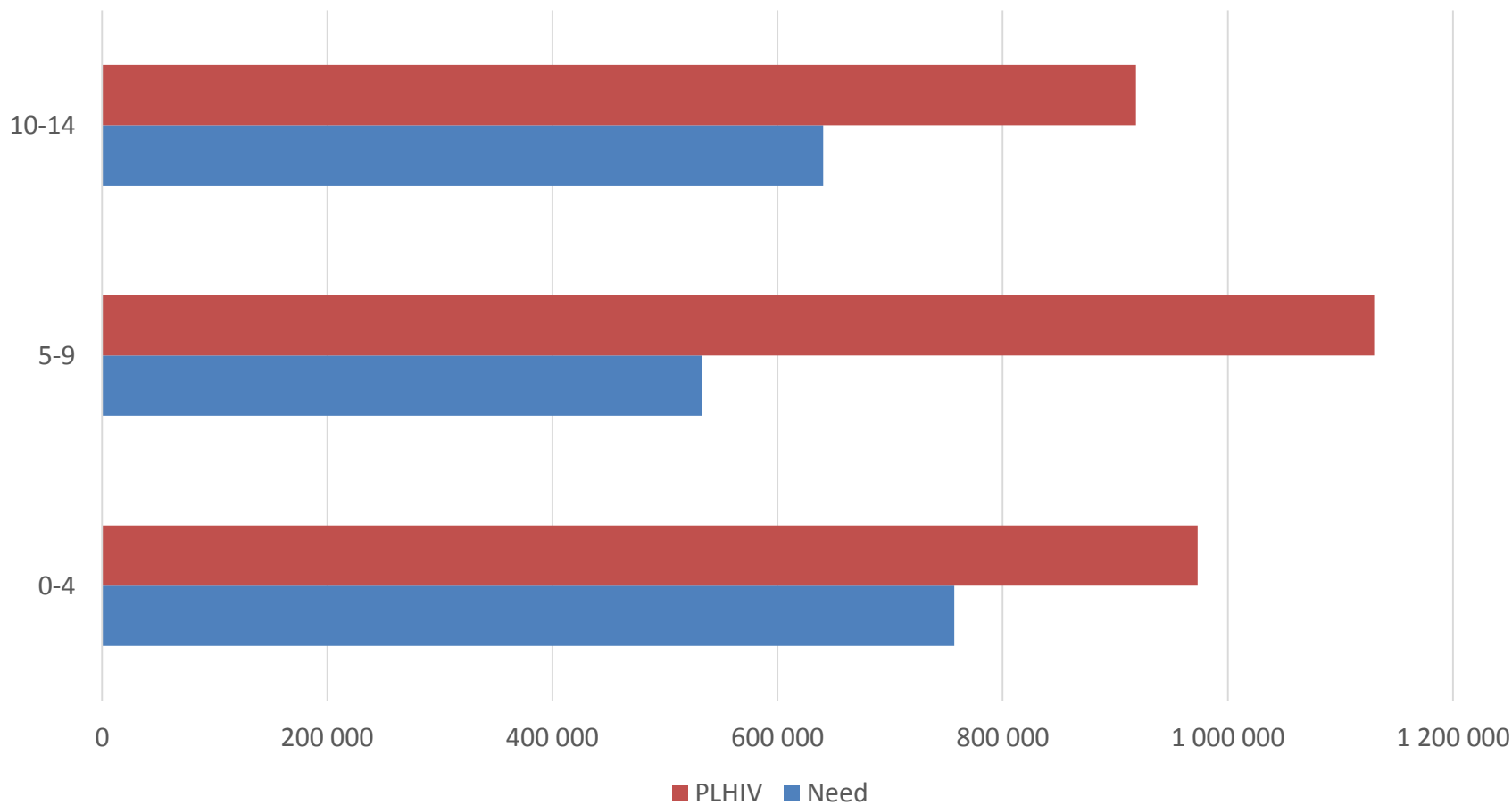


Number of Children on ART

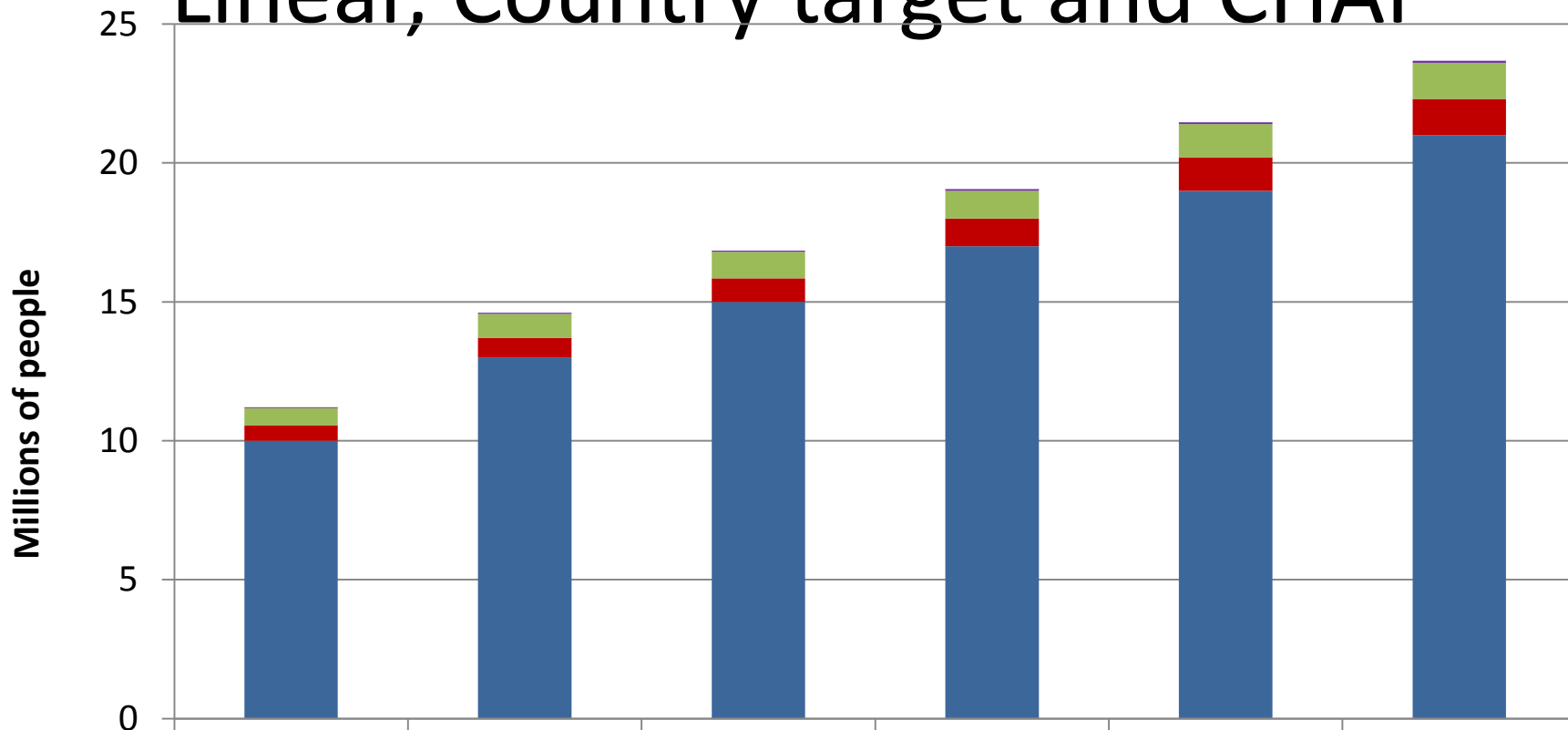
Country Target, Linear and CHAI Projections



Need for ART and PLHIV by Age

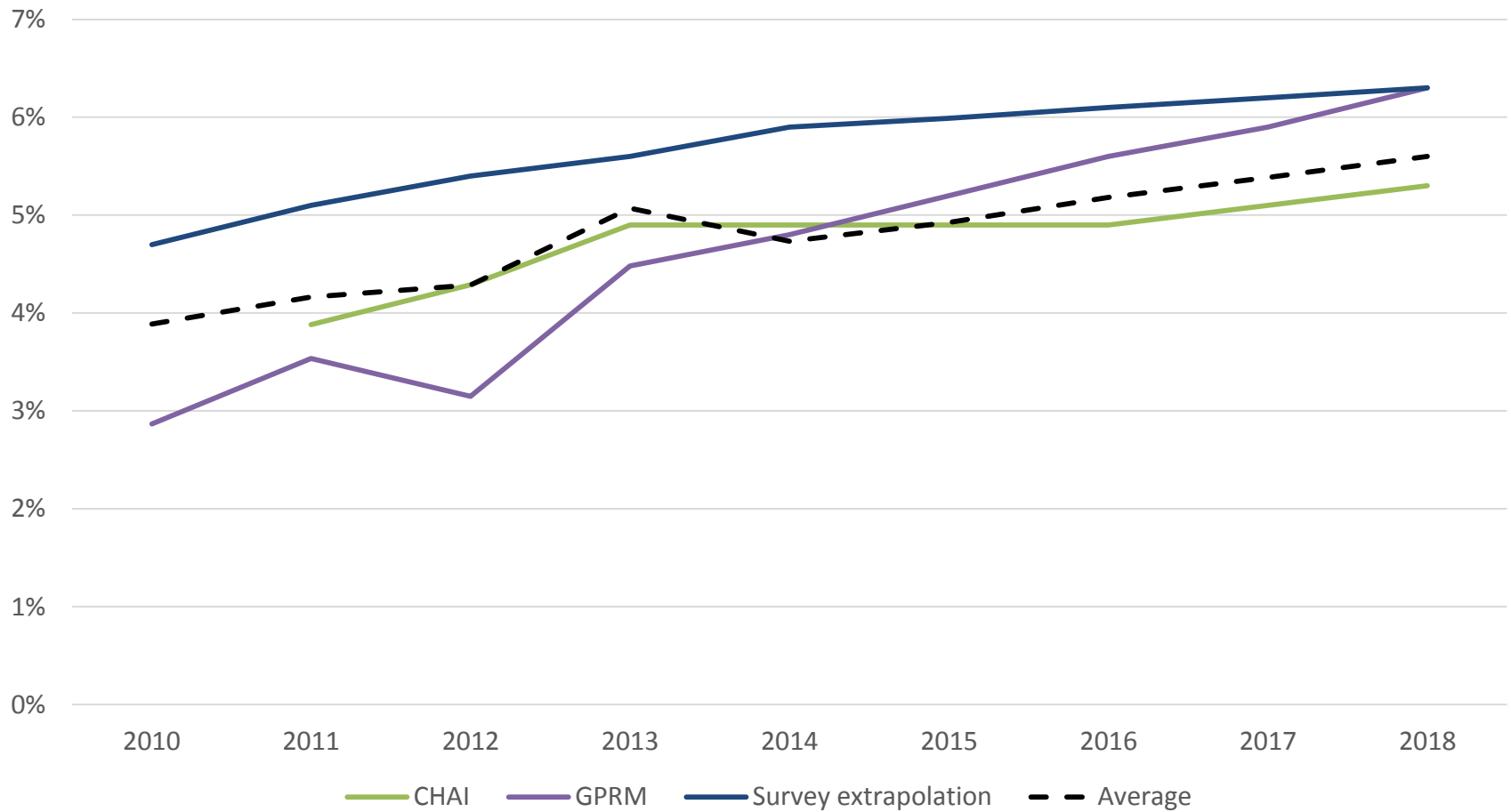


Average Number on ART based on Linear, Country target and CHAI



	2013	2014	2015	2016	2017	2018
Child SL	27 000	41 000	47 000	54 000	67 000	76 000
Child FL	630 000	860 000	950 000	1 000 000	1 200 000	1 300 000
Adult SL	550 000	710 000	850 000	1 000 000	1 200 000	1 300 000
Adult FL	10 000 000	13 000 000	15 000 000	17 000 000	19 000 000	21 000 000

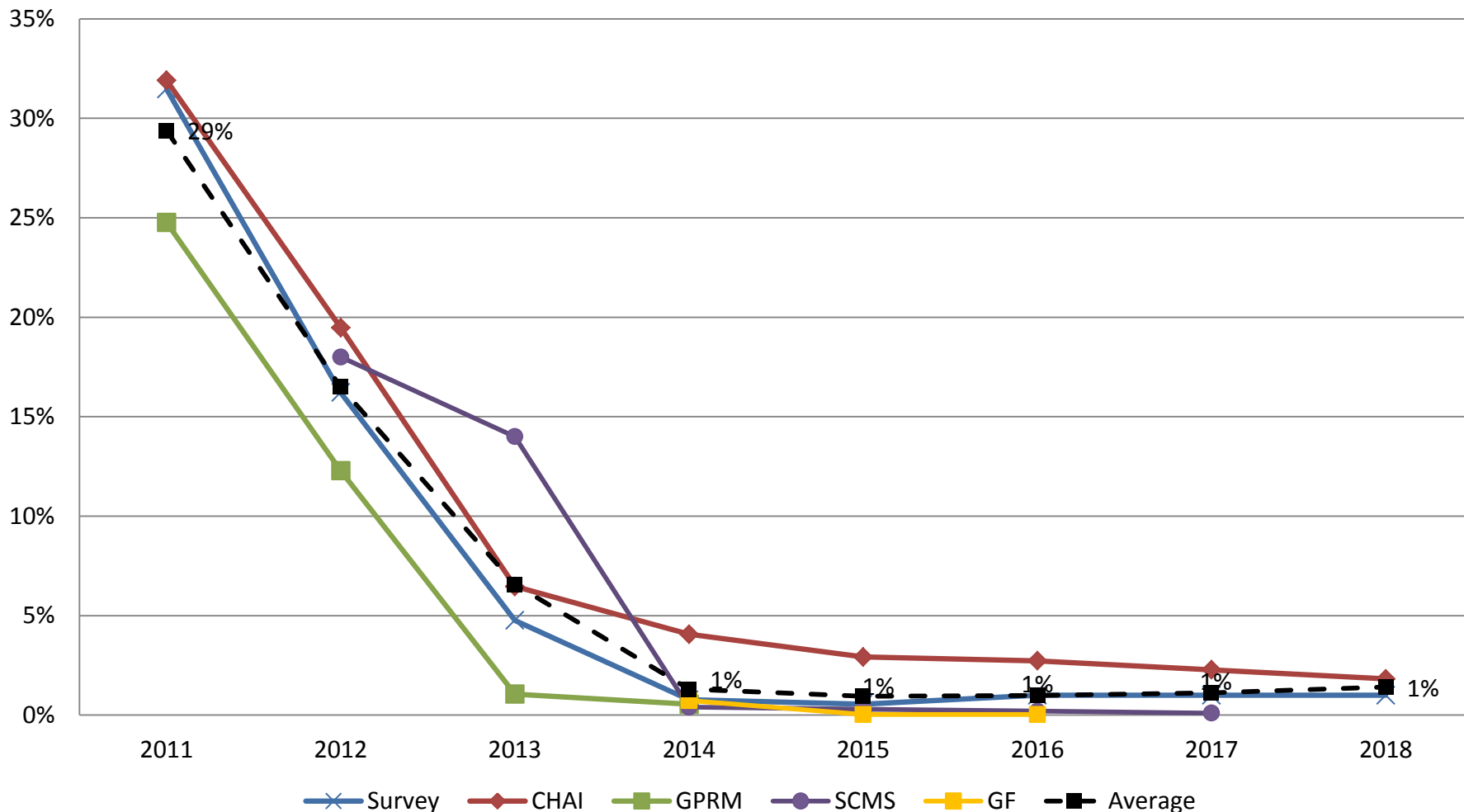
Percent of Adults on Second Line Regimens



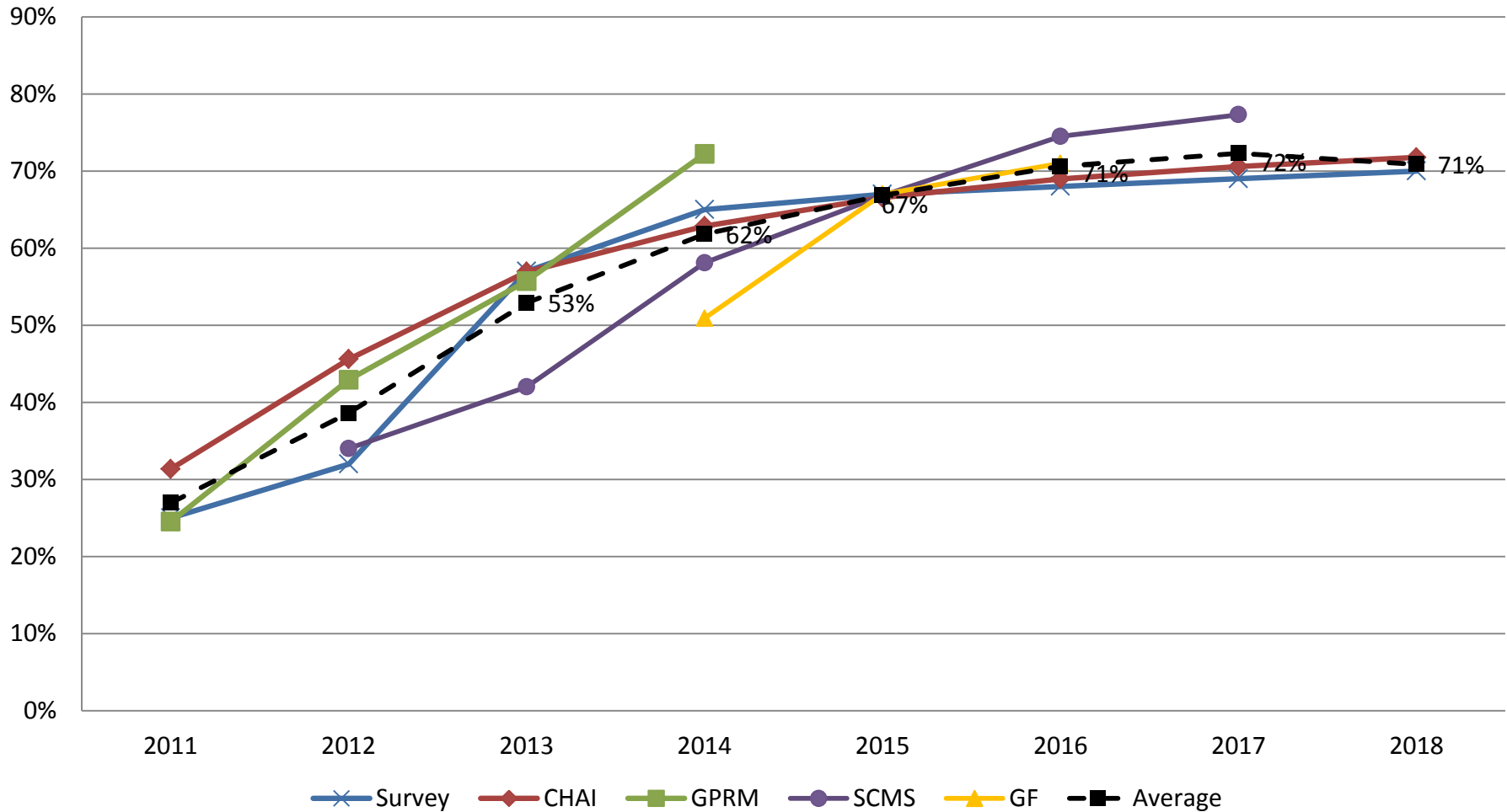
Distribution of ARV Regimens

- Survey
 - Linear regression of 2011, 2012 and 2013 consumption data from the ARV use surveys was projected to 2018.
 - For countries that did not provide data, regional averages were used.
- CHAI
 - Detailed analysis for 21 highest-burden countries based on information from CHAI country teams, national guidelines, and publicly available data, then scaled to all generic-accessible countries.
- Compare to:
 - GPRM procurements
 - Global Fund quantification
 - SCMS quantification

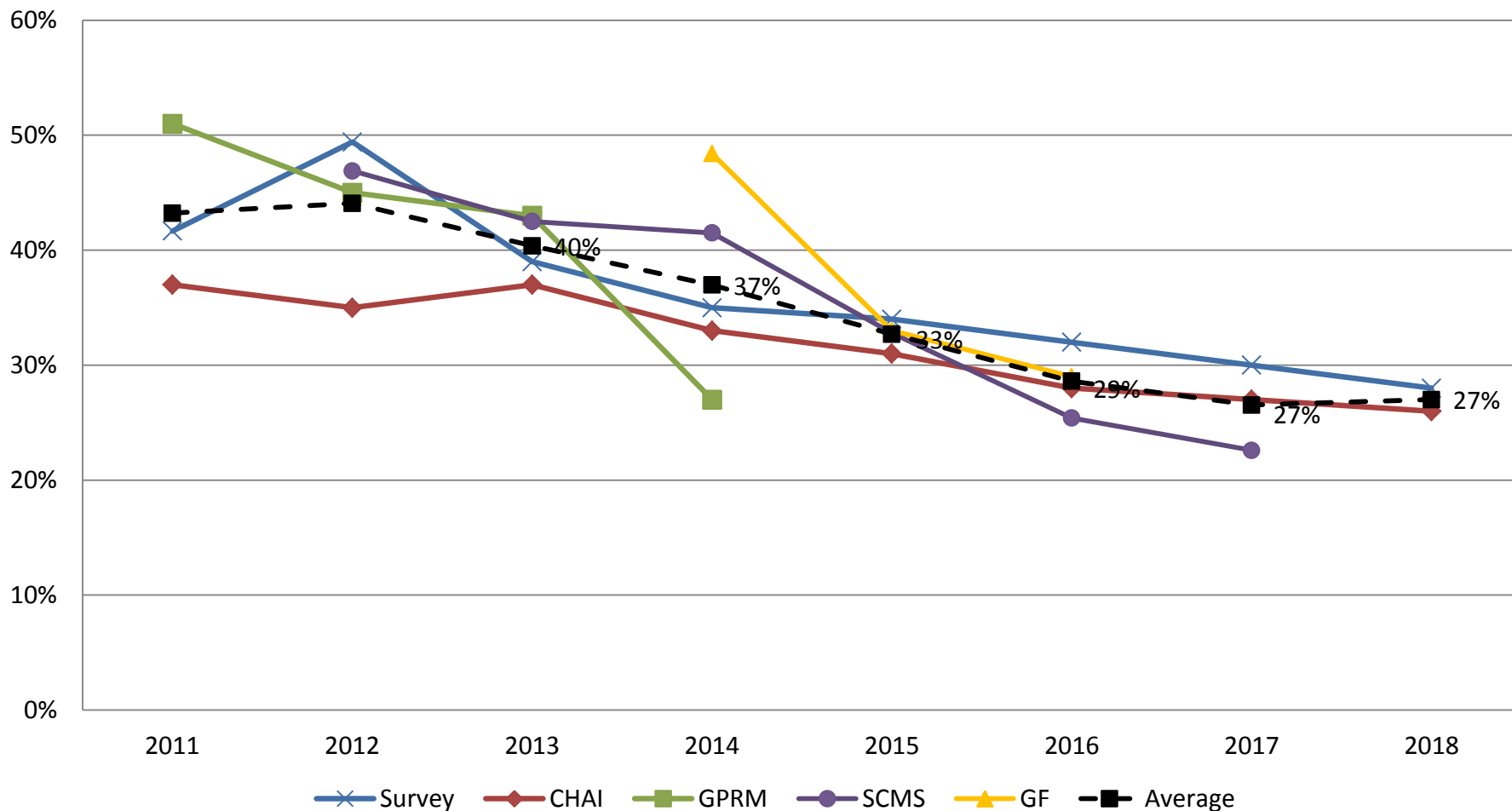
d4T Share of Adult Primary NRTIs



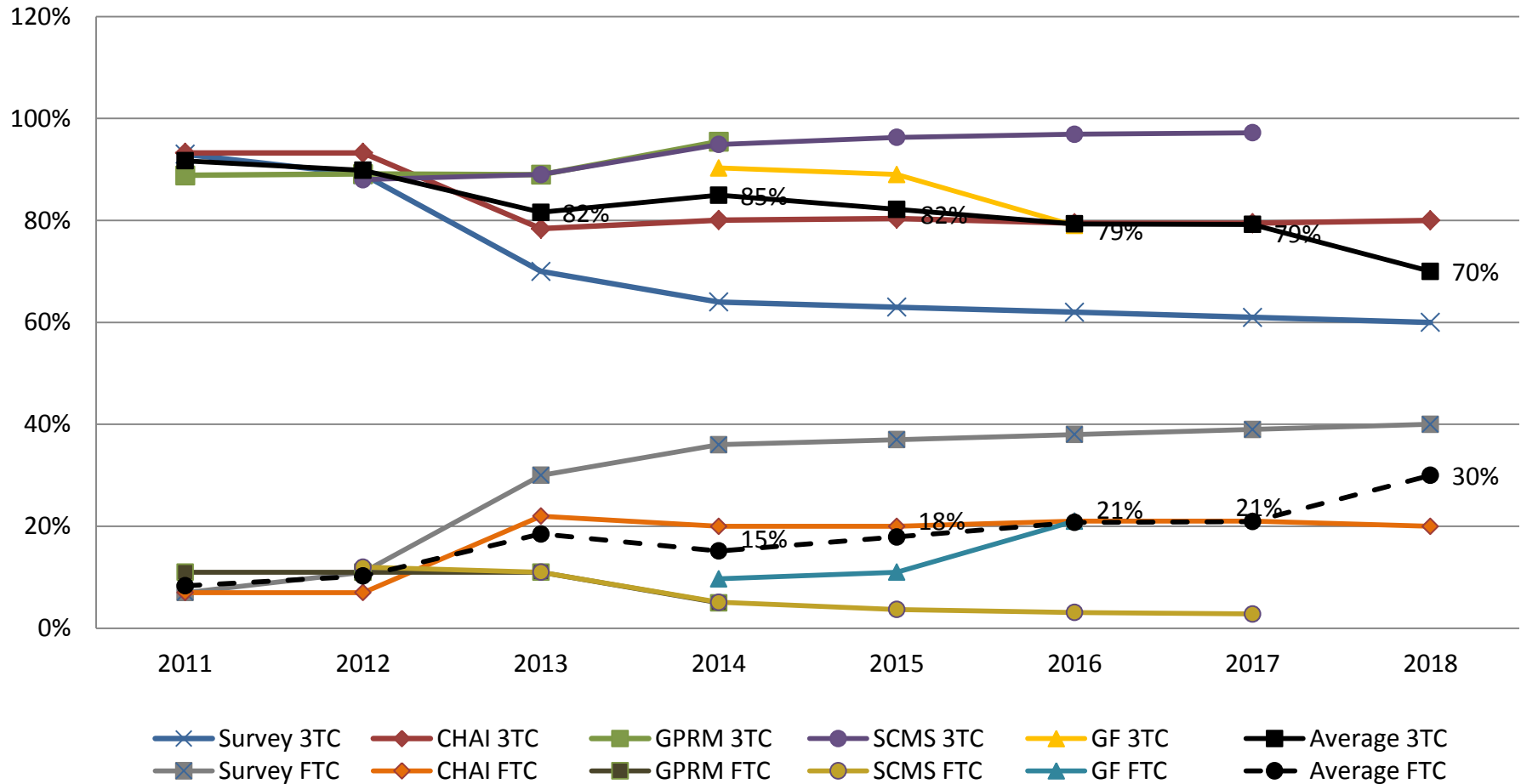
TDF Share of Adult Primary NRTIs



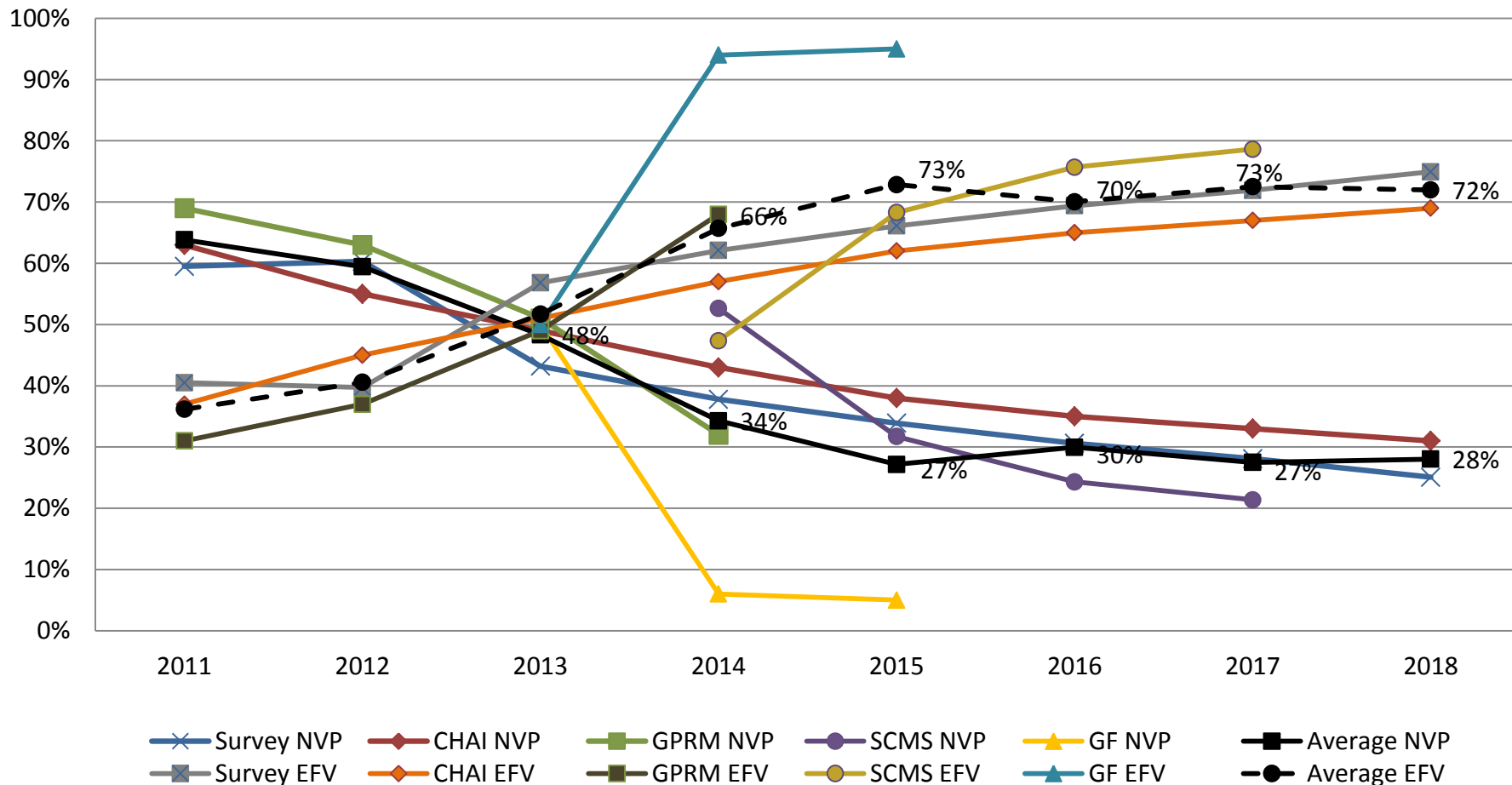
ZDV Share of Adult Primary NRTIs



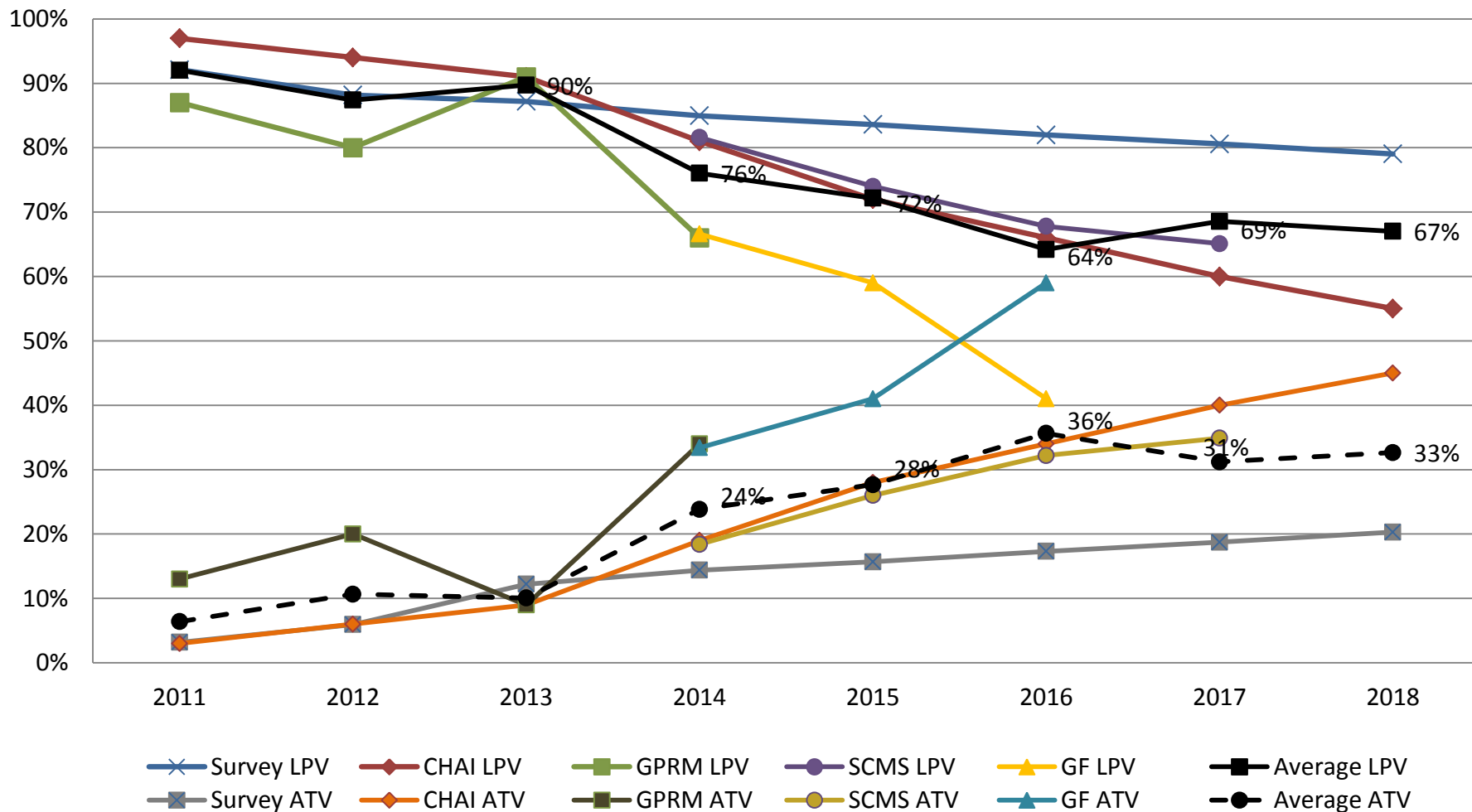
3TC and FTC Share of Adult Secondary NRTIs



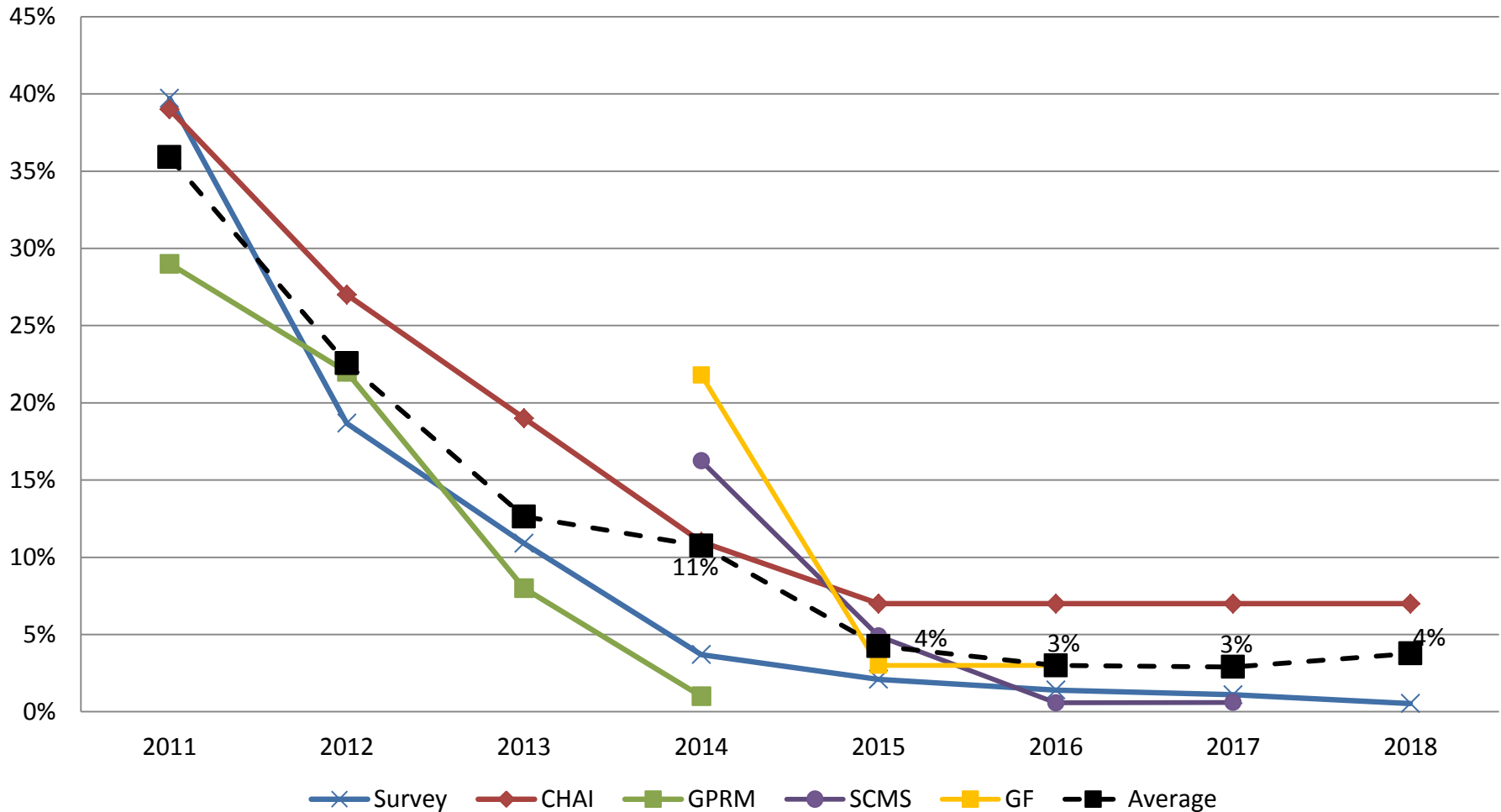
NVP and EFV Share of Adult NNRTIs



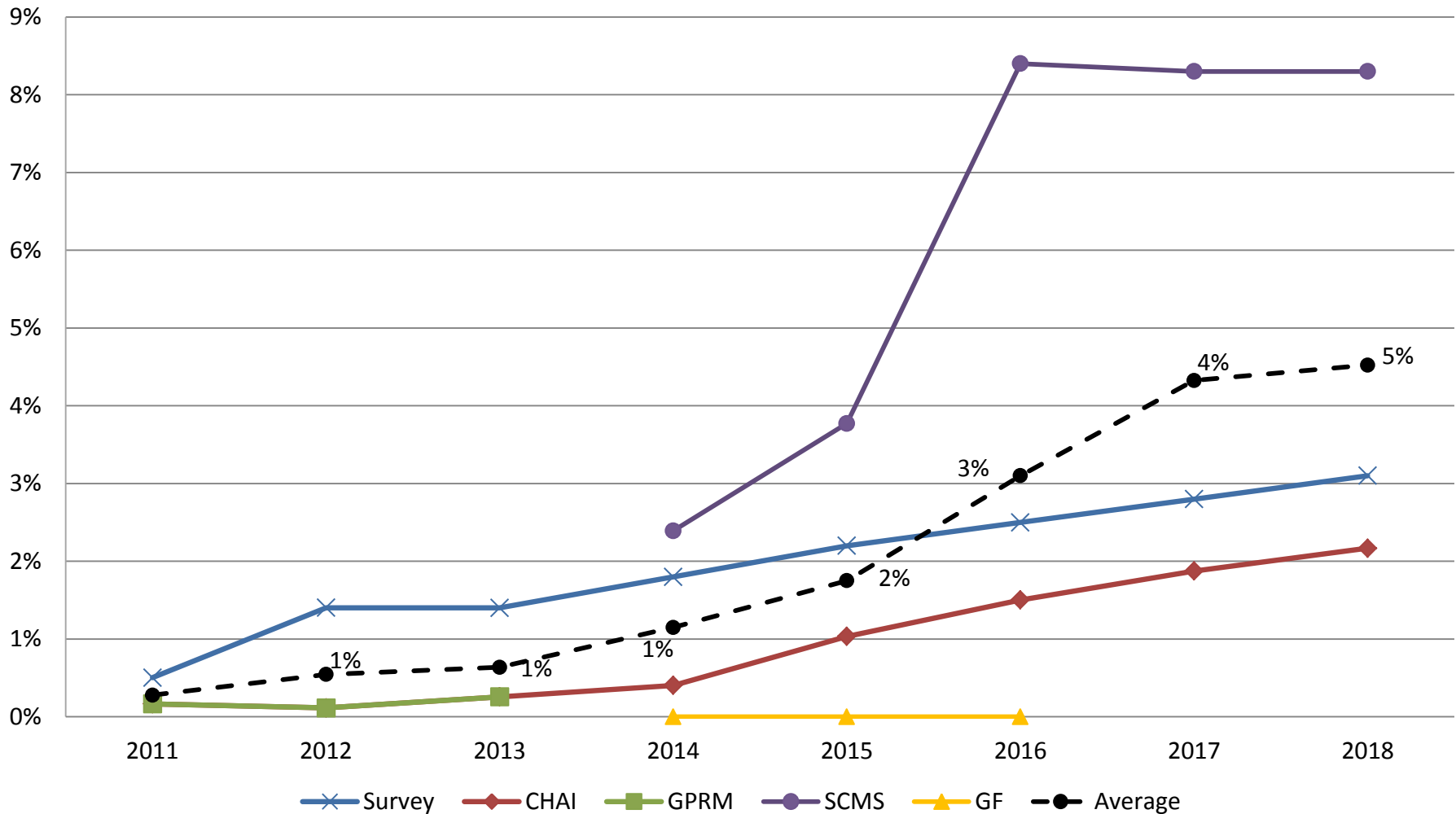
LPV and ATV Share of Adult PIs



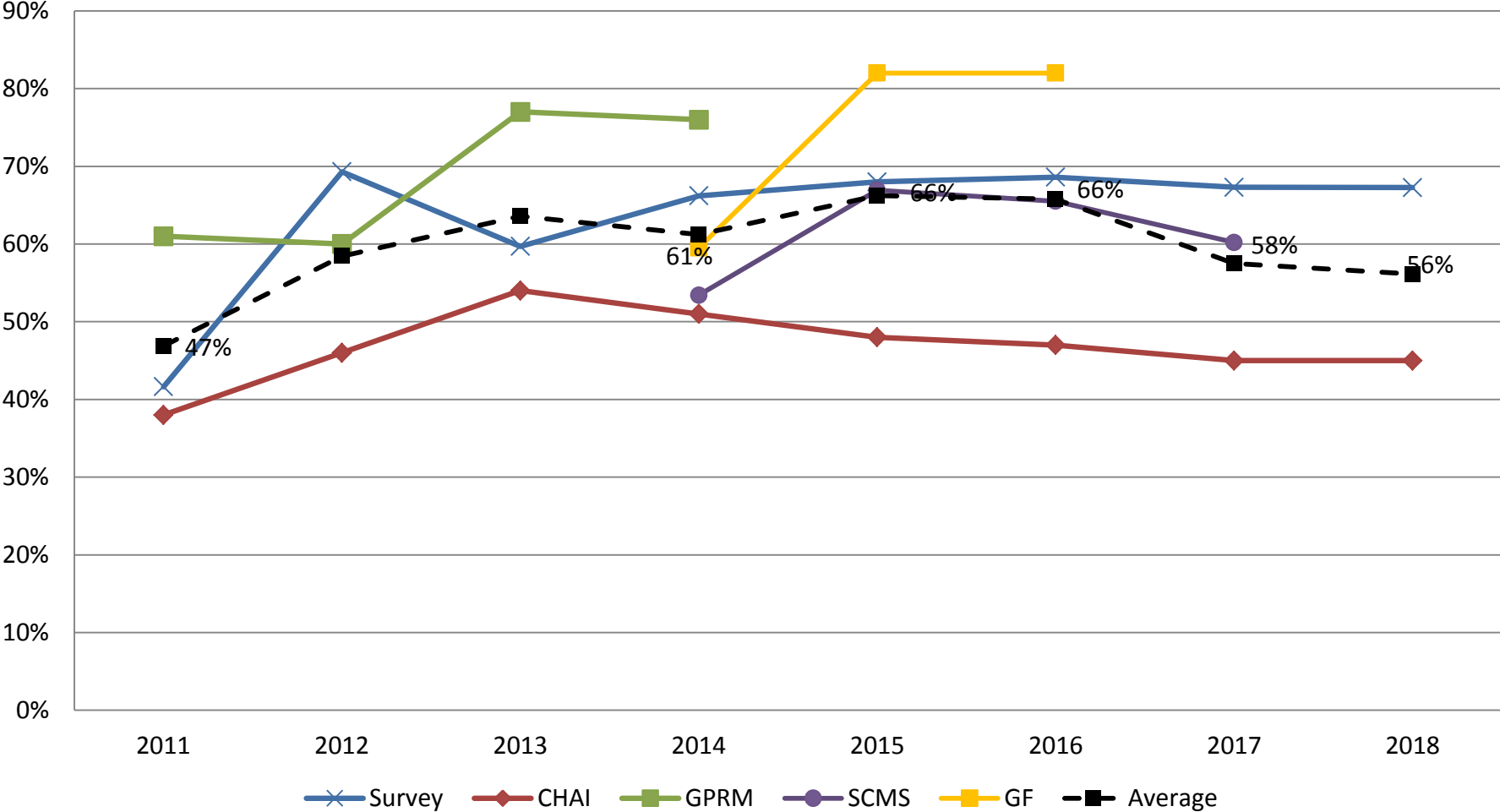
d4T Share of Pediatric Primary NRTIs



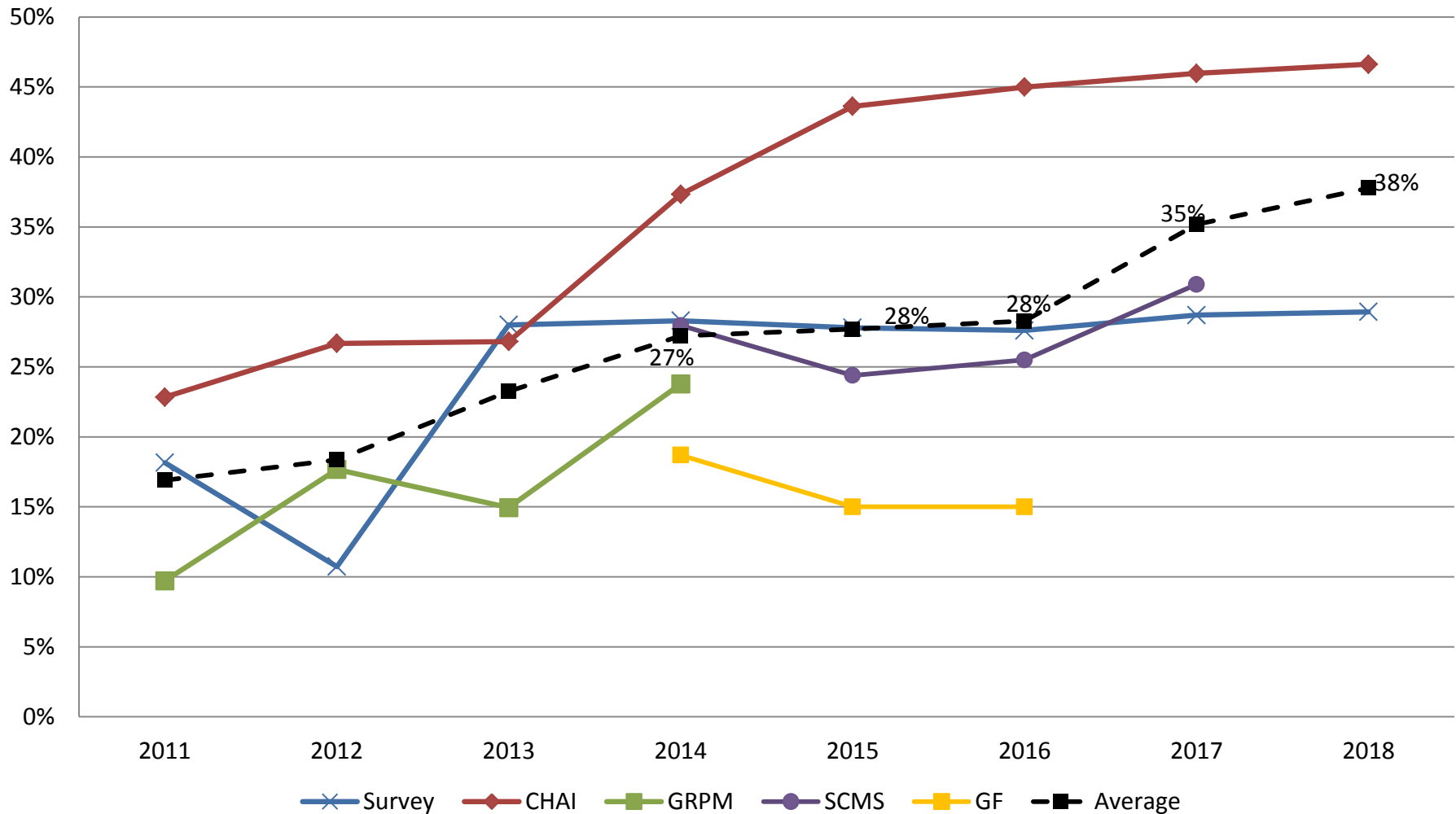
TDF Share of Pediatric Primary NRTIs



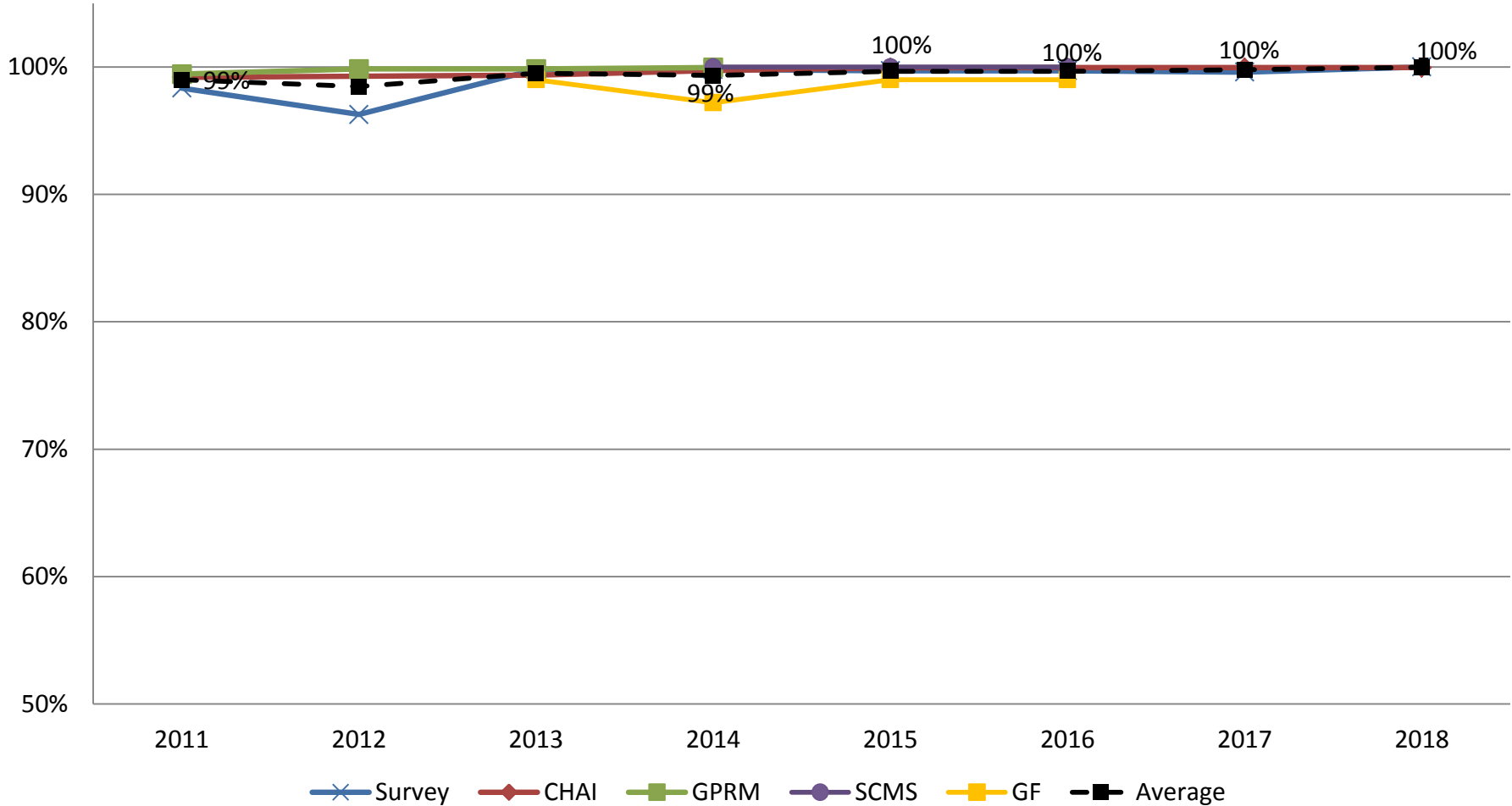
ZDV Share of Pediatric Primary NRTIs



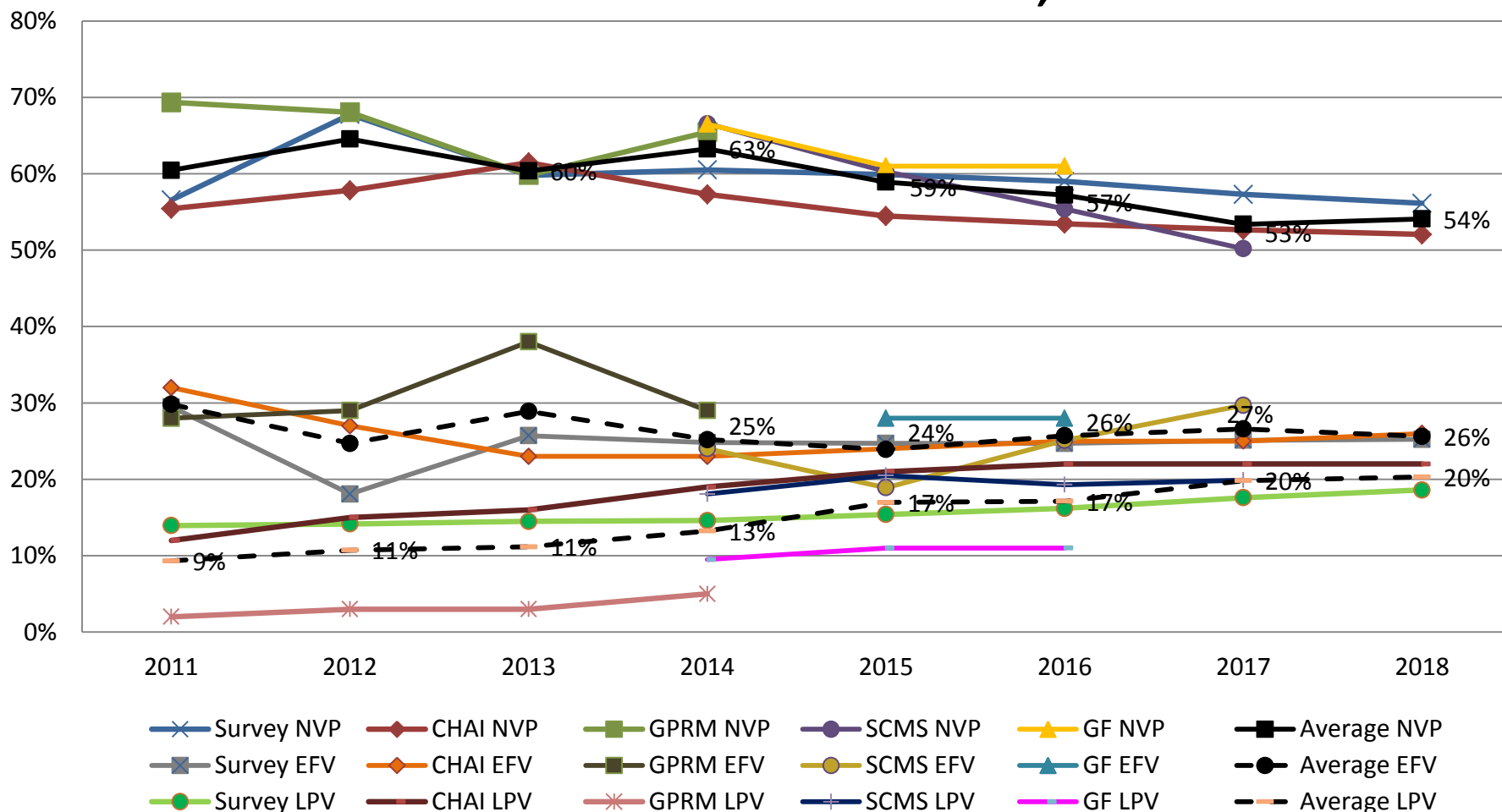
ABC Share of Pediatric Primary NRTIs



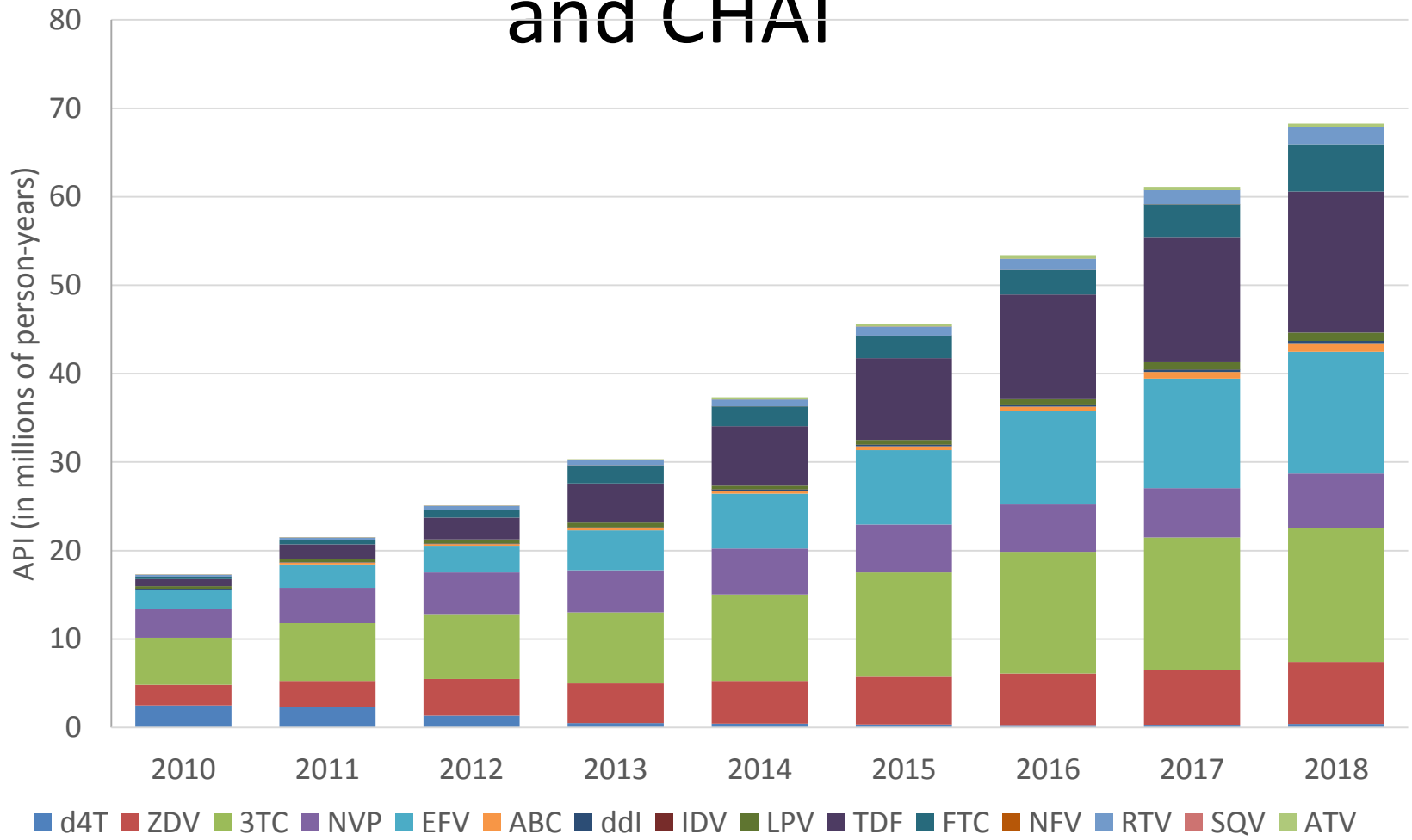
3TC Share of Pediatric Secondary NRTIs



Pediatric Market Share of NVP, EFV and LPV



Volume of Demand for ARVs (Person-Years): Based on average of Linear, Country target and CHAI



Volume of Demand for ARVs (Person-Years)

Average Projection

Drug	2014	2015	2016	2017	2018
d4T	437,464	354,831	285,402	327,674	397,103
AZT	4,838,831	5,373,524	5,804,129	6,195,017	6,999,781
TDF	6,723,703	9,244,296	11,833,707	14,169,238	15,939,842
ABC	333,498	442,820	536,574	745,557	907,409
ddl	141,583	179,223	227,394	285,457	331,411
3TC	9,778,696	11,814,266	13,767,516	14,961,992	15,127,955
FTC	2,226,966	2,536,014	2,759,801	3,703,497	5,370,547
NVP	5,181,541	5,405,119	5,358,637	5,577,570	6,178,686
EFV	6,212,694	8,412,013	10,534,941	12,387,320	13,756,964
LPV	427,019	529,326	597,149	798,833	935,386
ATV	237,487	312,482	393,387	385,206	434,285
RTV	775,434	1,028,298	1,289,129	1,581,238	1,892,027

Volume of Demand for API (Metric Tons)

Average Projection

<i>Drug</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>
d4T	10	8	6	7	9
ZDV	1,210	1,330	1,424	1,338	1,671
TDF	726	998	1,278	1,531	1,721
ABC	72	96	116	162	196
ddl	15	20	25	31	36
3TC	1,094	1,307	1,525	1,576	1,681
FTC	139	177	189	258	383
NVP	750	783	776	803	894
EFV	1,342	1,817	2,276	2,676	2,971
LPV	375	407	422	470	493
ATV	14	23	34	35	43
RTV	125	140	154	166	177

Summary - Adult API Market

- Continued growth in numbers of people on ART, adding about 1.5 million per year
 - By 2018, 55% coverage of those eligible under WHO 2013 guidelines
- Slow but steady increase in proportion of adults on second line regimens
- Largest volume gains for TDF, EFV, FTC, 3TC, ZDV
- Although ATV is projected to grow, LPV is expected to retain majority of PI market

Summary – Paediatric API Market

- The number of children on treatment is expected to continue to expand in spite of reductions in new pediatric infections
- Gradual changes in market share for ARVs except for sharp declines in d4T

Thank you

Volume of Demand for ARVs (Person-Years)

Linear Projection

Drug	2014	2015	2016	2017	2018
d4T	357,208	268,855	180,984	230,704	326,366
AZT	4,930,795	5,178,063	5,415,586	5,626,390	6,369,736
TDF	6,244,902	8,417,758	10,668,322	12,653,284	14,102,060
ABC	295,998	358,805	419,918	543,998	626,626
ddl	131,783	154,542	187,684	225,411	256,605
3TC	9,488,120	10,854,414	12,383,811	13,016,282	12,579,525
FTC	2,036,185	2,205,904	2,242,454	3,208,448	5,114,169
NVP	4,942,705	4,835,157	4,547,966	4,628,376	5,211,725
EFV	5,941,845	7,778,439	9,556,889	11,049,227	12,092,060
LPV	559,835	618,958	652,728	827,774	918,358
ATV	144,287	224,046	309,043	281,608	325,385
RTV	724,173	895,408	1,082,301	1,274,212	1,467,607

Volume of Demand for ARVs (Person-Years) Country Target Projection

Drug	2014	2015	2016	2017	2018
d4T	417,706	354,321	256,771	346,843	514,176
AZT	5,618,073	6,765,904	7,627,195	8,414,748	9,953,223
TDF	7,009,959	10,749,871	14,714,164	18,404,327	21,297,599
ABC	370,998	526,835	653,229	947,115	1,188,191
ddl	151,383	203,903	267,104	345,502	406,217
3TC	10,726,553	13,981,447	16,994,470	18,818,440	18,863,628
FTC	2,273,743	2,792,083	3,027,544	4,525,714	7,459,400
NVP	5,605,944	6,271,031	6,315,233	6,819,577	8,044,394
EFV	6,663,683	9,900,290	12,971,096	15,711,239	17,815,699
LPV	649,604	833,553	934,426	1,287,044	1,526,709
ATV	163,025	287,829	422,480	406,763	496,057
RTV	826,696	1,161,188	1,495,958	1,888,264	2,316,446

Volume of Demand for ARVs (Person-Years)

CHAI Projection

Drug	2014	2015	2016	2017	2018
d4T	537,478	441,318	418,450	405,474	350,768
AZT	3,967,624	4,176,606	4,369,606	4,543,914	4,676,384
TDF	6,916,247	8,565,260	10,118,636	11,450,102	12,419,867
3TC	9,121,414	10,606,938	11,924,266	13,051,252	13,940,712
FTC	2,370,971	2,610,055	3,009,406	3,376,328	3,538,074
NVP	4,995,973	5,109,169	5,212,710	5,284,757	5,279,940
EFV	6,032,554	7,557,311	9,076,838	10,401,496	11,363,132
ATV/r	71,618	135,466	204,293	281,680	361,092
LPV/r	405,149	425,570	448,637	467,247	481,412

Volume of Demand for API (Metric Tons)

Linear Projection

<i>Drug</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>
d4T	8	6	4	5	7
ZDV	1,329	1,393	1,447	1,216	1,637
TDF	674	909	1,152	1,367	1,523
ABC	64	78	91	118	135
ddl	14	17	20	24	28
3TC	1,157	1,309	1,476	1,406	1,489
FTC	147	159	161	231	368
NVP	719	703	662	666	757
EFV	1,283	1,680	2,064	2,387	2,612
LPV	513	544	558	602	613
ATV	16	24	33	30	35
RTV	128	140	151	159	166

Volume of Demand for API (Metric Tons)

Country Target Projection

<i>Drug</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>
d4T	9	8	6	7	11
ZDV	1,445	1,696	1,881	1,818	2,366
TDF	757	1,161	1,589	1,988	2,300
ABC	80	114	141	205	257
ddl	16	22	29	37	44
3TC	1,274	1,627	1,952	2,033	2,145
FTC	164	201	218	326	537
NVP	813	909	915	982	1,164
EFV	1,439	2,138	2,802	3,394	3,848
LPV	495	553	581	672	727
ATV	18	31	46	44	54
RTV	122	140	156	172	188

Volume of Demand for API (Metric Tons)

CHAI Projection

<i>Drug</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>
d4T	12	10	9	9	8
ZDV	857	902	944	981	1,010
TDF	747	925	1,093	1,237	1,341
3TC	852	985	1,146	1,288	1,410
FTC	107	171	188	217	243
NVP	719	736	751	761	760
EFV	1,303	1,632	1,961	2,247	2,454
LPV	117	123	129	135	139
ATV	8	15	22	30	39