



GOVERNMENT OF PAKISTAN

National AIDS Control Programme,

Ministry of National Health Services, Regulations & Coordination

AIDS EPIDEMIC MODELLING EXERCISE FOR PAKISTAN 2017

TECHNICAL NOTE ON AEM EXERCISE FOR PAKISTAN

March – April, 2017

Foreword

Pakistan is faced with a concentrated HIV epidemic that although driven by people who inject drugs is fast expanding in other key populations including men who have sex with men, hijra/transgender, male and female sex workers. The country has witnessed isolated episodes of HIV out breaks from time to time including the most recent outbreak of HIV in chronic renal failure patients undergoing dialysis. The fifth National Integrated Biological and Behavioural Surveillance, Round-5 (2016-17) has reported an estimated prevalence rate of less than 0.1% in the general population but an alarming well-established epidemic in the key populations that continues to escalate. This alarming situation calls for revisiting the National HIV response to develop and implement precision targeted high impact cost-effective interventions to scale-up testing, prevention and treatment services to the vulnerable and affected population.

The Ministry of National Health Services Regulation and Coordination (MoNHSR&C) coordinated the development of the AIDS epidemic model for Pakistan in March-April, 2017 with the support of Global Fund to fight AIDS, TB and Malaria (GFATM), UNAIDS Country team and the UNAIDS Regional Support team, Asia Pacific. The Country technical team comprising of technical experts from the National and Provincial AIDS Control Programme (NACP & PACP), UN partners, CSO, and other stakeholders with the assistance of technical resource persons from UNAIDS Regional support team (RST-AP) developed regional and national baseline models to demonstrate the geographical and population specific epidemic trends in the country. Based on country specific best practices intervention and impact analysis scenarios were constructed to identify high impact population specific HIV services packages with highest efficacy and cost efficiency.

The AEM is a powerful and constructive tool that assists policy makers, programmers, public health professionals and leaders to understand the HIV epidemic and guide decision-makers in making evidence based decisions for a robust HIV response to halt and reverse the spread of the epidemic and meet the AIDS related national and international targets.

Pakistan today needs to gear up its HIV response in light of available epidemiological and scientific evidence to implement effective prevention and treatment programmes in the country, and strategically invest in locations and populations where HIV epidemic is highly concentrated and create an enabling environment for HIV services uptake supported by effective legislation and strategic policy making to end the AIDS epidemic.



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Acknowledgements

HIV/AIDS is a growing public health threat endangering lives of millions of people around the world. HIV needs to be defeated through renewed and strong political commitments, sufficient resources, technical astuteness and programmatic innovations. With over 130,000 people living with HIV (PLHIV) in Pakistan, only an estimated 19,000 are registered in the treatment centers and less than 10,000 PLHIV are on antiretroviral therapy. This necessitates a vigorous and robust national response to curb and curtail the AIDS epidemic, scale-up HIV testing, expand HIV treatment coverage, intensify HIV prevention services to avert new HIV infections, eliminate mother-to-child transmission and cause an ultimate decline in HIV associated morbidity and mortality.

UNAIDS along with its partners has galvanized an international constellation for an accelerated response based on 90-90-90 approach for ending the AIDS epidemic by 2030. HIV responses need to be embedded in broader health and development programmes for a holistic and multi-sectoral approach for a radical decline in new HIV infections and HIV related deaths. A country specific and population centered process based on principles of human rights and health equity needs to be adopted to cause a reduction in HIV associated stigma and discrimination, facilitate empowerment of PLHIV and improve the health and well-being of all people living with HIV.

UNAIDS advocates an evidence based, focused, targeted high impact approach for combatting HIV/AIDS. The AIDS epidemic model is an effective tool based on epidemiological patterns characteristic of concentrated epidemics where a greater part of HIV transmission occurs among key populations and their sexual partners. The AEM exercises made good use of up-to-date epidemiological evidence to provide reliable population size estimates and projections, and country specific best practices based intervention and impact analysis scenarios to facilitate the national health governing bodies and program managers to give shape to the future epidemic response.

UNAIDS deeply acknowledges the patronage and ownership of the Ministry of National Health Service Regulation and Coordination in successfully conducting the AEM exercises in the country. UNAIDS appreciates the efforts and hard work of the Data Hub team (Regional support team, Asia Pacific) and Country technical team in completion of the AEM work.

UNAIDS hopes that the National AIDS control Program will tune its national response to meet the targets laid out in the National Strategic Plans, Sustainable Development Goals and other national and international commitments.



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HIV AIDS in Pakistan has silently and gradually shifted from a “*low prevalence, high risk*” to a “*concentrated epidemic*” in mid-2000s among key populations. Although the epidemic continues to be driven by People who Inject Drugs (PWID) yet considerable increase in HIV prevalence has been noted in the other key populations as reported in recently concluded Integrated Biological and Behavioural Surveillance round (2016-17) in the country. A comparative of IBBS data (2011 & 2016-17) shows that HIV prevalence has increased in all key populations: PWIDS (27.2% → 38.4%), H-TGSW (5.2% → 7.5%), MSW (1.6% → 3.2), FSW (0.6% → 2.2%). Men who have sex with men (MSM) were included in the survey for the first time (2016-17) and an HIV prevalence of 4.5% was found in this key population. Similarly the number of PLHIV has increased from an estimated 77,000 in 2011 to 130,000 in 2016.

The HIV response in the country has evolved over the years in the light of epidemiological and scientific evidence. The National AIDS Control Program (NACP) along with its provincial counterparts (PACPs), UN and development partners, civil society organizations, Association of people living with HIV (APLHIV) and community representatives has been spearheading the national response in the country. As Principal Recipient of the Global Fund (GFATM) grant for Pakistan NACP is mandated to provide prevention, care and support, and treatment services to the HIV infected and affected populations.

The AIDS Epidemic Modelling is a useful and practical exercise that enables HIV data experts to effectively use country specific up-to-date epidemiological evidence and real time data to develop reliable population size estimates and based on country specific best practices construct high impact prevention and treatment scenarios to optimize the program to maximize impact, identify and mitigate key data gaps and connect potential applications of the modelling approaches for strengthening the national HIV response. With the support of UNAIDS and the Global Fund, facilitated by technical experts from the UNAIDS RST-Asia Pacific the country technical team, program experts and relevant stakeholders developed AEM sub-national and national baseline workbooks that were used to develop high impact intervention scenarios for each of the key populations based on key population specific best practices intervention packages. Cities were prioritized based on epidemiological evidence, HIV prevalence of and size of each key population. For PWID 28, MSWs and H/TG-SWs 21 each and for FSWs 12 cities were prioritized for providing comprehensive combination HIV prevention intervention packages. A phased “Treatment for All” approach was recommended to allow the health system to cope with the increased patient turnover and provide effective treatment, prevention, care and support services to all infected and affected by HIV.

NACP believes that ending the AIDS epidemic needs front loading sustainable investments accelerated, well effective, coordinated HIV/AIDS response that needs perseverance, determination and innovative, yet focused targeted strategies to deliver comprehensive HIV prevention, testing, treatment and community led services for people most affected by and at risk of HIV. Every penny invested today in the fight against AIDS will pay great dividends in the future in terms of new infections averted, lives saved, increased productivity and economic prosperity of the country.



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INTRODUCTION

Early in 2017, the National AIDS Control Program of Pakistan, in collaboration with provincial AIDS control programs, UNAIDS, WHO, UNICEF, Global Fund project, INGOs, civil society, and its partners, conducted an estimate and projection exercise. The purpose of this work is to estimate and understand the HIV epidemics as well as the dynamics and impact of the epidemic at provincial and national level; and to estimate epidemiology and economic impact of responses such as - estimated infections averted and lives saved by HIV programs and to inform future programming by permitting assessment of impacts of alternative strategies and identifying gaps in data and monitoring and evaluation systems. This process will also help to build national analytic capacity and provide valuable inputs for policy and program planning appropriate to each province's unique situation.

The outcome of this work is to build an HIV baseline model, intervention scenarios, and impact assessment that can be used as advocacy tools to inform and advocate stakeholders and policy makers on costs of action and costs of inaction. This exercise requires collecting various forms of data:

- Details on the prevalence, distribution and time evolution of HIV in the country.
- Behavioural trends (both risk and preventive behaviours) over time in the various populations affected by the epidemic.
- Information on the coverage, effectiveness and costs of prevention and care responses in those affected populations.
- An understanding of the policy environment and the information needs of key decision makers.

The process of developing Pakistan's AEM work was led by the National AIDS Program starting in March 2017. A technical working group (TWG) was established to ensure appropriate levels of technical participation and policy guidance.

The TWG participated in two one-week intensive workshop. The first workshop was to review input data and develop AEM baseline for Punjab, Sindh, KPK & Baluchistan, and national AEM. Inputs were taken from a careful process of reviewing results from six rounds of IBBS, case reporting, program reports, NASA report in 2014, best practices of current intervention in the country, ad-hoc studies, as well as global best practice for effective interventions. The second workshop aimed to develop policy scenarios that provide picture of an HIV epidemic with different level of interventions and investments. The TWG was responsible for collecting and inputting unit cost, program coverage and program effectiveness, and discussed to develop different intervention scenarios based on their priorities for the response in future. Outcomes of the second workshop provide evidences for decision focusing on interventions that would achieve the greatest impacts on the HIV response and at the same time increase efficiency of these interventions.

SETTING UP BASELINE AEM WORKBOOK

1. Size estimate for key populations

We applied the same method - extrapolation and key populations size estimation based on the results from recent mapping exercises - as that was used in 2015 for FSW, PWID and TG; and updated

- Demographic Population in 2016 (source: Spectrum based on The World Population Prospects: 2015 Revision).
- Population size of FSW, PWID, and TG in the sites that have data in 2016 mapping exercise. Where mapping data is not available in the 2016-round, we use data from 2014-round .
- Extrapolated size estimate for cities without mapping data.

In regards to MSM, we developed a method of calculation as below:

- Estimated number MSW by using 2016-round mapping data and extrapolated size estimate for cities without mapping data.
- Calculated number of clients of MSW (considered as MSM1 with higher risk of infection) using the assumptions that
 - Each client buys sex from MSW every 14 days, and therefore number of times client buys sex from MSW per year is 26 times.
 - Number of months of activity (discounting for Ramadan) of MSW: 11 months
 - Number of total sex acts per year by MSW = number of MSWs x mean of clients per month (from IBBS 2016) x number of active months in sex work
 - Number of clients per year= number of total sex acts by MSW per year / number of times a client buys sex per year
- Calculating number of nonpaying MSM (considered as MSM2 with lower risk of infection) based on following assumptions
 - Consider that the number of nonpaying partners remains stable
 - Consider that these are long term partners, further multiplication is not required
 - Apply the same logic to all MSM mapped, including MSW
- To estimate population size of key population (KP) of other years, rather than 2016, we multiply the percentage of KP as total male or female 15-49 in 2016 with size of male or female 15-49 population in the specific year.

The 2016 population size estimate result is presented in the table below:

Table 1. 2016 population size estimate

Group	Size est. for Punjab	Size est. for Sindh	Size est. for KPK & Balochistan
Adults	72,656,116	28,811,908	22,916,674
PWID 15-49	45,645	42,831	8,872
FSW	99,356	50,918	21,975
MSW	24,744	22,513	8,082
MSM (including MSW)	322,592	371,873	137,749
TG (including HSW)	26,391	18,257	7,433
HSW	21,514	14,693	5,982

* Details size estimate for cities are included in Annex 12.

2. Behaviour data of the business as usual scenario

We used data from IBBS 2005, IBBS 2006-7, IBBS 2008, IBBS 2011, Punjab IBBS 2014, and IBBS 2016 to calculate behavior indicators for each key population in each city. Weighted average of behavior indicators for each province was calculated, using agreed population size. While IBBS 2014 was conducted in large cities in Punjab, IBBS 2016 was conducted in small cities in the province. Therefore the behavior data are not comparable to draw a trend. We decided to borrow 2014 data point to do weighted average for 2016 data points. Detail of weighted average calculation is presented in Annex 4 (Heterosexual), 5 (PWID), 6 (MSM), and 7 (TG).

Behavior data was compared with data input to the 2015-round AEM. The technical working group (TWG) discussed on data points that fluctuate or does not consistent with current intervention coverage. Below is data input updated for the 2017-AEM round.

Table 2. List of updated data for Punjab

Indicator	Value in 2016	Source/Assumption
FSW		
Number of clients per day	2.9%	IBBS-2014 Data was used. Keep same number for all years
Percent condom use with clients	64.6%	Weighted average of IBBS Rounds 4 & 5 (2014 & 2016). (Data from Punjab IBBS-2014 for Lahore, Faisalabad, Multan and Sargodha was used as these cities were not covered in National IBBS-2016).
STI prevalence	7.3%	IBBS 2016 Average of Urethral discharge, Genital ulcer and Genital warts
PWID		

Percent of male IDUs in high-risk networks	75%	Consensus from Country Team, based on IBBS-2016 data on % of PWID who inject drugs and share needles and are engaged in sexual activity in a group
Percent of male IDUs who share needles	36.7%	Weighted average of Punjab IBBS-2014 and National IBBS-2016 (25.3%) was taken as major Punjab cities (Lahore, Faisalabad, Multan, Sargodha, DG Khan, Gujranwala, Gujrat, Sialkot and Sheikhpura) were not included in the National IBBS-2016.
Percent of male IDUs visiting FSW	12%	Weighted average of Punjab IBBS-2014 and National IBBS-2016
Percent condom use with female sex worker	64.6%	Used the same percentage of FSW condom use with clients (Weighted average of IBBS 2014 & 2016)
MSM		
Percent of MSM1 visiting male sex workers	8%	Country Team Consensus to use the same data that was used in AEM 2015 round
Percent of MSM2 visiting male sex workers	3%	Country Team Consensus to use the same data that was used in AEM 2015 round
Percent condom use in anal sex with MSM1	31.8%	Country Team Consensus based on IBBS 2016 Average
Percent condom use in anal sex with MSW	24.1%	Weighted average IBBS 2016
Number of anal sex contacts last week	1	Country team consensus to use the same data that was used in AEM 2015 round
STI prevalence (MSW)	9.5%	IBBS-2016 Data. Average of Urethral Discharge, Genital Ulcer, Genital Warts from IBBS 2016 (Based on WHO guidelines of syndromic diagnosis of STIs)
STI prevalence (MSM1)	3%	Country Team Consensus to use the same data that was used in AEM 2015 round
STI prevalence (MSM2)	0.6%	Country Team Consensus to use the same data that was used in AEM 2015 round
TG		
Average duration selling sex (in years)	16.8	IBBS-2016 Data*1.5.
Number of anal sex contacts last week with clients	5	IBBS-2016 Data.
Percent condom use in anal sex with clients	34.7%	Weighted average IBBS-2016

Anal STI prevalence	9.8%	No STI Data available. Country team Consensus A decline in STI prevalence is set due to increase condom use. Based on previous trends it is assumed STI prevalence declines by 2/3.
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Table 3. List of updated data for Sindh

Indicator	Value in 2016	Source/Assumption
FSW		
Number of clients per day	3.1	Weighted average of IBBS R-5 data for 6 Sindh cities
Percent condom use with clients	51.5%	Weighted average IBBS-2016
STI prevalence among FSW	11.8%	Data is based on reported STI symptoms from IBBS 2016. It is based on the averages of reported genital warts, genital ulcers and genital discharge. Interpolate between 18% and 11.8% for a smooth trend that is in line with condom use
Average duration of selling sex	10.2	IBBS 2016 weighted average of 6 cities * 1.8 (based on age structure of FSW in IBBS 2016)
PWID		
Percent of male IDUs in high-risk networks	75%	Country team consensus based on IBBS R-2016 data that indicates the percentage of IDUs in high risk networks.
Percent of male IDUs who share needles	44.5	Weighted average of IBBS 2016
Number of injections per day	2.7	Weighted average of IBBS 2016 (6 cities)
Average duration of injecting behaviour		Weighted average of IBBS 2016 (6 cities)
Percent of male IDUs visiting FSW	19.5%	Weighted average of IBBS-2016 Data
Percent condom use with FSW	51.5%	Consensus based assumption that it would be the same level as FSW condom use with clients
Percent condom use with spouse or regular partner	22.9%	Weighted average of IBBS-2016 Data
MSM		
Percent of MSM1 visiting male sex workers	22.8%	IBBS-2016 Data excluding Karachi as it was considered an outlier due its very high visiting

		MSW
Percent of MSM2 visiting male sex workers	7.6%	Country team assumed that the proportion of MSM2 visiting MSW is equal to 1/3 of that among MSM1.
Percent condom use in anal sex with male sex workers (MSM visiting SW)	30.9%	Weighted average of 6 cities from IBBS 2016. This is the first available data from survey. Interpolated with default value with 1975.
Percent condom use in anal sex with MSM1	31.4%	Weighted average IBBS-2016 of 4 Sindh cities (Hyderabad, Larkana, Nawabshah & Mirpurkhas). Due to lack of data in earlier years, interpolate between the Asia default value of 15% in 1975 to IBBS-2016 data.
Percent condom use in anal sex with MSM2	31.4%	Set same condom use level as MSM1
Number of anal sex contacts last week MSM 1	2.1	IBBS-2016 Data.
Number of anal sex contacts last week MSM 2	0.53	The country team assumed to set the value at 25% of MSM1 data.
STI prevalence MSM 1	15%	Based on reported STI symptoms from IBBS 2016. It is based on the averages of reported genital warts, genital ulcers and anal discharge.
STI prevalence MSM 2	2.5%	Consensus assumption based on risk-levels
STI prevalence MSW	15%	Assumption: 1.5 times that of MSM Interpolated from beginning year
Average duration of selling sex among MSW	8.8	Set to be equal to previous years
MSW - number of anal sex contacts last week	7.13	Based on IBBS R-5 2016 data
TG		
Number of anal sex contacts last week with clients	7.9	IBBS-2016 Data.
Percent condom use in anal sex with clients	22.4%	Weighted average IBBS-2016.
Anal STI prevalence	12.2%	No STI Data available. Country team Consensus A decline in STI prevalence is set due to increase condom use. Based on previous trends it is assumed STI prevalence declines by 1/3.

Table 4. List of updated data for Khyber Pakhtunkhwa (KPK) & BALOCHISTAN

Indicator	Value in 2016	Source/Assumption
FSW		
Number of clients per day	1.5	Weighted average of 4 cities of IBBS 2016 Keep same number for all years
Percent condom use with clients	41.7%	Weighted average of IBBS 2016 was 81% which was too high in areas with small scale intervention. TWG decided to use IBBS 2011 data point.
PWID		
Percent of male IDUs in high-risk networks	75%	Consensus from country team, based on IBBS 2016 data on % of PWID who use drug in group
Percent of male IDUs who share needles	61.5%	Used data from IBBS 2011. IBBS 2016 data point is too low in comparison to IBBS 2011 while there is small scale intervention in KPK & BALOCHISTAN.
MSM		
Percent of MSM1 visiting male sex workers	24.7%	IBBS 2016 weighted average Interpolate data from 2000 – 2016
Percent condom use in anal sex with male sex workers	16.2%	IBBS 2016 weighted average Interpolate data from 1990 – 2016
Number of anal sex contacts last week among MSW	4.6	IBBS 2016 weighted average Keep the same number for all years
STI prevalence among MSW	6.6%	No data available. Assumption: keep the similar trend as STI prevalence trend among FSW
Other data for MSM1, MSM2 and MSW remain the same as the previous AEM round		
TG		
Number of anal sex contacts last week with clients among HSW	5.4	Average of average IBBS 2016 (2.8) and IBBS 2011 (7.9). IBBS 2016 data point is too low.
Percent condom use in anal sex with clients among HSW	44.8%	IBBS 2016 weighted average Interpolate data from 2011 – 2016
Anal STI prevalence among HSW	9.9%	% of condom use increases by 28% between 2011-2016. Assume STI prevalence declines by 2/3 of the % (18.67%).
Currently lower risk populations		

Males who are not now in at-risk populations	433	Calculated data from the treatment center register with assumption that 20% of those enrolled in treatment centres in sindh are migrants and 90% of migrants deported back to Pakistan (due to HIV + status) are registered at the treatment centers. Interpolate data from 2012-2016
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3. ART data

In 2016, Pakistan National AIDS Program conducted a validation of ART data. Updated ART data for the period 2011-2016 for each province is used for 2017-round AEM exercise.

The updated ART data for the period 2011-2016 is presented in the table below:

Table 5. Number of PLHIV who currently receiving ARV by year

	2011	2012	2013	2014	2015	2016
Punjab						
Male	402	873	816	1,578	1,982	2,754
Female	171	315	395	569	606	776
Sindh						
Male	384	578	818	1174	1614	2019
Female	112	149	192	264	305	438
KPK & BALOCHISTAN						
Male	701	807	932	1297	1482	1878
Female	240	346	332	366	595	689

* Details ART data is included in Annex 8.

4. Weighted average of HIV prevalence

We used data from IBBS 2005, IBBS 2006-7, IBBS 2008, IBBS 2011, IBBS 2014, and IBBS 2016 to calculate the HIV prevalence for each key populations in each city. The trend of HIV prevalence in each city was reviewed to identify illogical data points, such as sudden drop and then rapid increase in short period. Assumption for each illogical data point is presented in Annex 2.

While IBBS 2014 was conducted in large cities in Punjab, IBBS 2016 was conducted in small cities in the province. Therefore the HIV prevalence are not comparable to draw a trend. We decided to borrow 2014 data point to do weighted average for 2016 data points.

After the TWG agreed on the trend of HIV prevalence in each city, we calculated the weighted average

of HIV prevalence for each province, using agreed population size.

The trends of HIV prevalence by province used for fitting the AEM curve are as below:

Table 6. The trend of HIV prevalence used for fitting the AEM

	2005	2006	2008	2011	2014/6
Punjab					
FSW		0.00%		0.36%	0.60%
PWID	9.79%	12.67%	14.20%	42.89%	37.95%
MSW	0.00%	0.85%	1.17%	0.96%	3.19%
HSW	0.34%	0.33%	2.49%	3.64%	3.35%
Sindh					
FSW		0.03%		1.75%	2.75%
PWID	23.27%	28.82%	35.07%	39.08%	42.09%
MSW	2.89%	3.63%	2.41%	5.15%	7.69%
HSW	1.48%	1.39%	5.03%	11.47%	11.82%
KPK & BALOCHISTAN					
FSW		0.00%		0.36%	0.46%
PWID	2.31%	3.63%		11.17%	10.04%
MSW	0.00%	1.32%		1.01%	1.90%
HSW	0.67%	0.36%		1.68%	2.72%

** Detailed HIV prevalence data is included in Annex 2.*

SETTING UP INTERVENTION SCENARIO

To carry out an analysis of effective interventions in the future, the TWG agreed to set up four scenarios including:

- a. Business as Usual Scenario: Baseline intervention scenario assumes intervention coverage remains the same from 2016 onward;
- b. High Impact without OST: assumes a significant increase of intervention coverage targeting key populations and cities with high burden of HIV. Intervention coverage among other cities and populations will be maintained or gradually increased. The interventions will draw the programme effectiveness from experience of best practices in the country.
- c. High Impact with OST: assumes the same intervention expansion as in the High Impact without OST Scenario, adding an gradual increase of OST coverage for PWID.
- d. Fast-Track Scenario: assumes that quality and effective interventions are put to scale to end AIDS epidemic as a public threat and that includes context appropriate and adequate commodity provided to KP through community, quality peer education outreach with increased frequency and effectiveness, STI referral and treatment through community outreach, community capacity building and community based testing, linkage to care and adherence support.

Three key elements that inform the development of scenarios are:

- 1) **Target setting**, current programme coverage and key population specific intervention
- 2) **Unit costs** calculation based on the intensity, scale, and component of interventions
- 3) **Programme effectiveness parameters** adjustment for each intervention package ,

These parameters and assumptions were informed by available data in the country or study and experience from other countries, and presented in the section below.

1. Business as Usual Scenario

Coverage

We used data from IBBS 2016 and assumptions to estimate the current coverage in 2016. The TWG discussed and defined that FSW, MSW or HSW is covered by prevention intervention if they received condoms and being tested for HIV in the last 12 months. In case of PWID, a person is covered by prevention intervention if he received new needles/syringes and being tested for HIV in the last 12 months.

Baseline coverage is presented in the table below:

Table 7. Baseline coverage of HIV intervention by key population and by province

Provinces	PWID	FSW	MSW	HSW	MSM1	MSM2	Adult treatment
<i>(Source)</i>	<i>IBBS 2016</i>	<i>IBBS 2016</i>	<i>IBBS 2016</i>	<i>IBBS 2016</i>	<i>Assumption</i>	<i>Assumption</i>	<i>AEM output</i>
Punjab	30%	10.5%	13.6%	16.9%	1/3 of MSW	1/3 MSM1	8.1%
Sindh	7.5%	5.6%	20.9%	22.2%			6.6%
KPK& Baluchistan	2.5%	1%	1.5%	1.2%			36.1%
National	21.7%	7.8%	13.8%	16.6%			11.2%

See Annex B.1. for the detail calculation of coverage for PWID, FSW, MSW and HSW.

In the Business as Usual Scenario, we assume that the 2016 coverage will remain the same for the years after.

Cost of intervention (USD)

Table 8. Unit cost of intervention by key populations and provinces

Provinces	PWID	FSW	MSW	HSW	MSM1	MSM2	Adult treatment
Punjab	193	92	92	92	Use MSW unit cost	Use MSW unit cost	217 (Punjab, KPK & Balochistan) 202 (Sindh)
Sindh	193	62	69	69			
KPK & Baluchistan	197.5	97.5	107.5	107.5			

Assumption: All unit costs were added management cost (20% of total unit cost).

In Punjab:

- Unit cost for prevention for FSW, MSW and HSW was the sum of testing cost (4.2 USD/head/year – provided by Punjab PC1), cost for outreach. Unit cost for outreach was calculated based on the assumption that one outreach worker can reach approximately 50 clients and received a salary of 30,000 PKR/month.
- Unit cost for PWID was calculated by adding the cost for testing, cost for outreach workers (as estimated above for other KP in the province), cost for needles and syringes.

In Sindh, the unit cost was taken from the estimate conducted by Planning Commission, Health Department of Government of Sindh. The estimation was done for the phase II of the Scheme for FY 2016-2019 on enhancement of HIV/AIDS Control Program with the aim to halt new HIV infections and prevent the spread of HIV/AIDS among key populations as well as the general population in Sindh, increase access to treatment and improve treatment adherence, reduce HIV related morbidity & mortality and increase quality of life among PLHIV, and increase the sustainability of the response.

In KPK and Baluchistan, the unit cost was provided by the TWG members of the respective provinces and

it is similar to the unit cost used from the 2015 AEM round. We took the average unit cost of KPK and Baluchistan to estimate the unit cost for the AEM work for the combined region (KPK & BALUCHISTAN).

ART unit cost was estimated using unit cost by each treatment regimen, adding cost for CD4 count twice a year and viral load test once a year and OI diagnosis and prophylaxis, then weighted with number of patients receiving each regimen in 2016. Cost for OI treatment is included in other health program, not HIV; therefore it was not included in this business as usual scenario. These regimens include the 1st line, 2nd line and 3rd line treatment. It does not include treatment cost for children as AEM is using data input from adults only.

See Annex B.2. For the detail information on unit costs for Business as Usual Scenario.

2. High Impact Without OST Scenario

High priority and maintenance cities by key population

There are 106 cities in 4 provinces in Pakistan, with different burden of the HIV epidemic. The TWG discussed and agreed with the approach to give high priority for key population and cities with high burden of HIV, to make a high impact with cost-effective interventions.

In each province, we estimated number of PLHIV for each KP, based on population size and HIV prevalence (either from IBBS 2014/2016 if available, or estimated prevalence from provincial AEM workbook). We then selected cities with highest number of PLHIV among each KP that could help to reach the set target (see section 2.3 below for target setting).

The table below present number of cities in each province that should be given priority for rapid increase of prevention coverage. In non-selected cities, prevention coverage will remain at the same level, or gradually increase to 30% (in KPK and Baluchistan).

Table 9. Number of high priority cities for intervention among each KP

Province	High priority among FSW	High priority among PWID	High priority among HSW	High priority among MSW
Punjab	4	19	13	12
Sindh	5	4	5	4
KPK	2	3	2	4
Balochistan	1	2	1	1
Total	12	28	21	21

The list of high priority cities is presented in the Annex B.3.

Best practice - Description of intervention

During the second workshop in Lahore, the National AIDS Program invited representatives from NGOs who currently carry out intervention for PWID, MSW, HSW, and FSW to present and share their program

implementation experience, and achievements.

The TWG agreed on the intervention package for each KP, based on current experience in the country, is as below:

Table 10. Description of intervention package

Intervention Package for PWID
<ul style="list-style-type: none"> - NSEP Services: Provision of new syringes, needles, band-aids and alcohol swabs; collection of used syringes and needles; provision of condoms; provision of hygiene services; Behavior change communication messages on HIV, safe sexual practices, safe injecting practices and STIs - HIV Testing & Counseling for PWID and spouse. - Spouse Prevention Program: Provision of condoms, counseling on HIV and safer sexual practices, provision of living support package, referral to PPTCT centers. - Referral to ART and adherence support. - STI diagnosis and treatment. - Paramedic and Basic Medical Care: Antiseptic dressing for wounds and abscesses, Referral to private medical practitioners for basic medical care. - ART Adherence Unit: Residential care for 8 weeks for detoxification, Initiation and maintenance on ART and adherence support.
Intervention Package for MSW
<ul style="list-style-type: none"> - Behavioral change communication through outreach (includes Condom & Lubes, IEC material) - Drop In Center facility (for repeat BCC /Psycho social support & Counselling) - VCCT with pre & post counselling & psychological counselling (community-based HIV testing) - STI diagnosis & Treatment - Referral support to PLHIV clients with strong follow-up - Condoms & lubes distribution - Career counselling and family counselling in DIC
Intervention Package for HSW
<ul style="list-style-type: none"> - BCC - Behavioral change communication through outreach (includes Condom & Lubes, IEC material) - Drop In Center facility (for repeat BCC /Psycho social support & Counselling) - VCCT with pre & post counselling & psychological counselling (community-based HIV testing) - STI diagnosis & Treatment - Referral support to PLHIV clients with strong follow-up - Condoms & lubes distribution - Career counselling and family counselling in DIC
Intervention Package for FSW
<ul style="list-style-type: none"> - Establishment of Drop-In Centers (DIC) to deliver services to FSWs;

<ul style="list-style-type: none"> o Screening/testing of HIV, Hep-B, Hep-C, Syphilis and PAP Smear o Vaccination of Hep-B in case of non-reactive; o Syndromic Management of STIs; o Ensuring confidentiality, collection of client data and issuance of vaccination cards to clients for access to services <ul style="list-style-type: none"> - Community based outreach through peer educators for behavior change; - Establish condom distribution network to enhance safe sex practices - Promotion of an enabling environment in the project area; - Registration of FSWs through bio-metric registration system developed by PACP.
Treatment
<ul style="list-style-type: none"> - Treat all from 2018 with a phased approach (starting from select high priority cities/districts) - ARV - One CD4 count test at ART initiation - Annual viral load test - OI diagnosis and prophylaxis (cotrimoxazole and INH) - Link to care and adherence support

Coverage

To increase cost-effectiveness of the intervention, the TWG proposed to select high priority cities where there are high burden of HIV to implement intensive intervention. The rest of cities with lower burden of HIV will be provided with intervention at maintenance or gradually increased level. Coverage was set up for 2021 (as of the timeline of national strategic plan) and 2030. The list of cities with more intensive intervention coverage is presented in the Annex B.3. Table below presented coverage target, breakdown for cities with high impact intervention coverage and maintenance cities.

Table 11. Coverage target by 2021 by high priority and maintenance cities

	Group of cities	Number of KP	Level of coverage
PWID			
Punjab	High priority	38,735	85%
	Maintenance	14,446	30%
	All	53,181	70%
Sindh	High priority	31,604	70%
	Maintenance	18,299	10%
	All	49,903	48%
KPK & Baluchistan	High priority	3,823	85%
	Maintenance	6,514	30%

	All	10,337	50%
National	All	113,421	59%
FSW			
Punjab	High priority	46,085	90%
	Maintenance	54,468	10%
	All	100,553	47%
Sindh	High priority	39,207	70%
	Maintenance	11,711	10%
	All	50,918	56%
KPK & Baluchistan	High priority	7,880	85%
	Maintenance	14,095	30%
	All	26,861	49%
National	All	173,446	50%
MSW			
Punjab	High priority	19,608	85%
	Maintenance	5,136	14%
	All	24,744	70%
Sindh	High priority	17,940	70%
	Maintenance	4,573	21%
	All	22,513	60%
KPK & Baluchistan	High priority	2,924	85%
	Maintenance	5,158	30%
	All	8,082	50%
National	All	55,340	63%
HSW			
Punjab	High priority	16,630	85%
	Maintenance	4,884	17%
	All	21,514	70%
Sindh	High priority	10,126	70%
	Maintenance	4,567	22%
	All	14,693	55%

KPK & Baluchistan	High priority	2,121	85%
	Maintenance	3,861	30%
	All	5,982	50%
National	All	42,190	62%

From the table above, we calculated the weighted average target for each province, in 2021. Coverage for the year in between 2016 and 2021, and 2021 – 2030, was interpolated. Coverage target for 2030 was set to be 70% or 90%, depends on the level of risk of populations and set target coverage in 2021.

Calculation of coverage target for treatment: One of the issue that was brought up to the discussion is that we may set a high target for treatment but the program may not test enough people to send them for treatment. To develop a realistic target for treatment, we estimated number of KP infected with HIV who would be reached by prevention intervention, including HIV testing, and received ART among all KP infected with HIV in 2021 that was estimated from AEM baseline. These calculations informed the treatment target for 2021. Treatment target between 2016 and 2021 was interpolated. Treatment target for 2030 was set to be 80%. Treatment for all with phased approach (starting from select high priority cities/districts) is assumed to be provided starting from 2018. See detail calculation in the Annex B.3. on list of prioritized cities and prevention/treatment coverage target.

The table below presents the coverage for each KP and for treatment in both priority and maintenance cities, by year.

Table 12. Intervention coverage target for each KP and for treatment in both priority and maintenance cities, by year

	2016 (baseline)	2017	2018	2019	2020	2021	2030
Punjab							
FSW	10.5%	18%	25%	32%	40%	47%	70%
PWID	30%	38%	46%	54%	62%	70%	80%
MSW	13.6%	25%	36%	47%	59%	70%	80%
MSM clients	4.5%	18%	31%	44%	57%	70%	80%
Non-paying MSM	1.5%	8%	14%	20%	27%	33%	70%
HSW	16.9%	27%	38%	49%	59%	70%	80%
Treatment	8.1%	18%	27%	37%	46%	56%	80%
Sindh							
FSW	5.6%	16%	26%	36%	46%	56%	70%
PWID	18%	24%	30%	36%	42%	48%	80%

MSW	20.9%	29%	37%	44%	52%	60%	80%
MSM clients	7%	18%	28%	39%	49%	60%	80%
Non-paying MSM	2.3%	14%	25%	37%	48%	60%	70%
HSW	22.2%	29%	35%	42%	48%	55%	80%
Treatment	6.6%	13%	20%	27%	34%	41%	80%
KPK and Balochistan							
FSW	1%	11%	21%	30%	40%	50%	70%
PWID	2.5%	12%	21%	31%	40%	50%	70%
MSW	1.5%	11%	21%	31%	40%	50%	70%
MSM clients	0.5%	10.4%	20.3%	30.2%	40.1%	50%	70%
Non-paying MSM	0.17%	2.1%	4.1%	6.1%	8.0%	10%	10%
HSW	1.2%	11%	21%	30%	40%	50%	70%
Treatment	36%	39%	39%	39%	40%	41%	70%

Unit cost

Unit cost for PWID high impact scenario was taken from the actual unit cost of the PWID-intervention best practice in the country by Nai Zindagi Trust. Unit cost for MSW/HSW was taken from the MSW/HSW-intervention best practices conducted by Dostana organization, adding cost for testing, commodity, IEC, STI management. Unit cost for FSW is not available from the shared best practice carried out by Contech International, thus we applied fast-track unit cost for FSW and discounting 50% cost of lubricant. In regards to ART unit cost, we used unit cost of business as usual scenario, then excluding CD4 count test (keeping the one time initial CD4 test only), and adding cost for link to care and adherence support. See section 2.2 for description of intervention package that corresponding to the below unit costs.

Table 13. Unit costs for intervention for High Impact Scenario

Key population	Unit cost (USD)
FSW	131.1
PWID (NEP)	218
MSW, HSW, MSM	71.6
Treatment	247

See Annex B.4. for detail calculation.

Effectiveness Parameters

Assumptions for behavior change and STI reduction, as an impact of interventions were based on:

- FSW: Experience shared by Contech International and consensus with TWG
- PWID: IBBS results in Karachi where the best practice PWID intervention was conducted.
- MSW/HSW: M&E system from Dostana
- ART-related infectivity reduction: Apply AEM modelling built-in parameters

After considering about the current gaps of current intervention and possibility to improve performance, we adjusted the effectiveness parameter as the table below:

Table 14. Assumptions for effective parameter of High Impact Scenario

Program	Change in Behavior
NSEP	Percent IDUs sharing: <ul style="list-style-type: none"> - Punjab: Baseline → 16.6% - Sindh: Baseline → 17.1% - KPK&Bal.: Baseline → 21.9% Percent injections shared: 50% → 30% Number of injection per day: 2.7 → 2
FSW	Condom use w/Clients: Baseline → 80% Condom use w/IDU: Baseline → 80% Condom use w/MSM: Baseline → 80% STI prevalence: Reduced by 0.37 times from baseline
MSM	Frequency of Anal Sex: Reduce by 0.87 times of baseline Condom Use: Increased by 2.43 times of baseline or 85% STI Prevalence: <ul style="list-style-type: none"> - MSM clients: Reduced from 2.5% to 1.5% (Punjab), 9.5% to 4% (Sindh), 2% to 1% (KPK&Bal) - Non-paying MSM: Reduced by 0.84 times of baseline (Punjab), from 2.5% to 1.5% (Sindh), 0.5% to 0.3% (KPK&Bal) - MSW: Reduced from 10% to 4% (Punjab), from 15% to 5% (Sindh), 7% to 2% (KPK&Bal)
TGSW	Frequency of Anal Sex: no change Condom Use: Baseline → 80% - 85% STI Prevalence: Reduced from 9.8% to 4% (Punjab), 12.2% to 5% (Sindh), 9.2% to 3% (KPK&Bal)
ART-related infectivity reduction	90%, Treat all from 2018

See Annex B.5. for details.

3. High Impact with OST Scenario

This scenario used the same assumptions as that of High Impact Without OST Scenario. The only adding component is the OST coverage, unit cost and effectiveness.

Coverage

Table 15. Coverage target of NEP and OST for the High Impact Scenario

	2016 (baseline)	2017	2018	2019	2020	2021	2030
Punjab							
NEP	30%	35%	40%	45%	50%	55%	60%
OST	0%	3%	6%	9%	12%	15%	20%
Sindh							
NEP	18%	22%	25%	29%	32%	36%	60%
OST	0%	2%	5%	7%	10%	12%	20%
KPK & Baluchistan							
NEP	2.5%	10%	17%	25%	32%	40%	50%
OST	0%	2%	4%	6%	8%	10%	20%

Unit cost

We review unit costs for OST in Asian countries. Four studies in 2009 indicates that the unit cost for OST is 352 USD (average of 4 studies).

There is another study that indicate the OST unit cost in 2015 is 363 USD for Asia and the Pacific (Source: Stover J, Bollinger L, Izazola JA, Loures L, DeLay P, Ghys PD, et al. (2016) What Is Required to End the AIDS Epidemic as a Public Health Threat by 2030? The Cost and Impact of the Fast-Track Approach. PLoS ONE 11(5): e0154893. doi:10.1371/journal.pone.0154893)

The TWG decided to use the 2015 unit cost.

Effectiveness parameter for OST

Effective parameter was developed using results of the Evaluation of a pilot drug dependence treatment and care programme for people affected by heroin dependence among 210 PWID enrolled in the study in Rawalpindi in 2013. This is the only pilot program on OST implemented in Pakistan so far.

Table 16. Assumptions for effective parameter on OST for the High Impact Scenario

Province	Change in Behavior
Punjab	Best practice achieved: 21% Percent of sharing: Baseline → 3% Percent injections shared: Baseline → 3% Number of injection per day: 2.7 → 0.1
Sindh	Best practice achieved: 21% Percent of sharing: Baseline → 5% Percent injections shared: Baseline → 5% Number of injection per day: 2.7 → 0.1
KPK and Balochistan	Best practice achieved: 21% Percent of sharing: Baseline → 12% Percent injections shared: Baseline → 10% Number of injection per day: 2.7 → 0.1

4. Fast Track Scenario

Description of intervention and unit cost

The Fast track scenario assumes that quality and effective interventions are put to scale to end AIDS epidemic as a public threat and that includes context appropriate and adequate commodity provided to KP through community, quality peer education outreach with increased frequency and effectiveness, STI referral and treatment through community outreach, community capacity building and community based testing, linkage to care and adherence support. Detail intervention package and cost calculation is presented in Annex B.6. The table below summarize key unit costs for each province.

Table 17. Unit costs for intervention for the Fast Track Scenario

Key population	Punjab	Sindh	KPK & Balochistan
FSW	141.6	110.9	147.4
PWID (NEP)	218.3	218.3	223.2
PWID (OST)	363	363	363
MSM	124.9	100.6	144.7
MSW, HSW	146.4	123	167.2
Treatment ¹	247	247	247

¹ This unit cost already took into account unit cost for the first line, second line and third line treatment. We assume that 5% of patients received 2nd line treatment and 0.3% received 3rd line treatment.

Program coverage target by year

Fast Track Scenario was developed using assumption that the country will reach 90-90-90 target by 2020. Coverage for the year in between 2016 and 2021 was interpolated. Target from 2020-2030 remains at the same level except the treatment target will gradually reach from 81% in 2020 to 90% in 2030. Coverage of the prevention and treatment intervention in Fast Track scenario is presented as below:

Table 18. Coverage intervention target of the Fast Track Scenario

	2016 (baseline)	2017	2018	2019	2020	2021	2030
Punjab							
FSW	10.5%	30%	50%	70%	90%	90%	90%
PWID – NEP	30%	38%	45%	53%	60%	60%	60%
PWID - OST	0%	8%	15%	23%	30%	30%	30%
MSW	13.6%	33%	52%	71%	90%	90%	90%
MSM clients	4.5%	26%	48%	69%	90%	90%	90%
Non-paying MSM	1.5%	9%	16%	23%	30%	30%	30%
HSW	16.9%	35%	53%	72%	90%	90%	90%
Treatment*							
Men	8.1%	24%	43%	62%	81%	82%	90%
Women		25%	44%	62%	81%	82%	90%
Sindh							
FSW	5.6%	27%	48%	69%	90%	90%	90%
PWID - NEP	7.5%	21%	34%	47%	60%	60%	60%
PWID - OST	0%	8%	15%	23%	30%	30%	30%
MSW	20.9%	38%	55%	73%	90%	90%	90%
MSM clients	7%	26%	48%	69%	90%	90%	90%
Non-paying MSM	2.3%	8%	16%	23%	30%	30%	30%
HSW	22.2%	39%	56%	73%	90%	90%	90%
Treatment*							
Men	6.6%	23%	43%	62%	81%	82%	90%
Women		25%	44%	62%	81%	82%	90%
KPK and							

Balochistan							
FSW	1%	23%	46%	68%	90%	90%	90%
PWID – NEP	2.5%	17%	31%	46%	60%	60%	60%
PWID - OST	0%	8%	15%	23%	30%	30%	30%
MSW	1.5%	24%	46%	68%	90%	90%	90%
MSM clients	0.5%	24%	46%	68%	90%	90%	90%
Non-paying MSM	0.17%	9%	16%	23%	30%	30%	30%
HSW	1.2%	23%	46%	68%	90%	90%	90%
Treatment*							
Men	36.1%	39%	53%	67%	81%	82%	90%
Women		42%	55%	68%	81%	82%	90%

Effectiveness Parameters

Table 19. Assumptions for effectiveness parameter of the Fast Track Scenario

Program	Change in Behavior
NSEP	Best practice achieved: 50% Percent IDUs sharing: - Punjab: Baseline → 10% - Sindh: Baseline → 10% - KPK&Bal.: Baseline → 10% Percent injections shared: 50% → 10% Number of injection per day: 2.7 → 1
OST	Best practice achieved: 21% Percent of sharing: Baseline → 3% Percent injections shared: Baseline → 3% Number of injection per day: 2.7 → 0.1
FSW	Best practice achieved: 90% Condom use w/Clients: Baseline → 90% Condom use w/IDU: Baseline → 90% Condom use w/MSM: Baseline → 90% STI prevalence: Reduce to 1% in Punjab and KPK & Balochistan, 2% in Sindh
MSW	Best practice achieved: 90% Frequency of Anal Sex: no change Condom Use: 90% STI Prevalence: - Reduce from 10% to 2% (Punjab) 15% to 3% (Sindh), 7% to 2% (KPK&Bal)
MSM Clients	Best practice achieved: 90% Frequency of anal sex: No change

	Condom use: 90% STI Prevalence: 0.5% in Punjab, Sindh, KPK & Balochistan
Non paying MSM	Best practice Achieved: 55% in Punjab, 40% in Sindh and KPK & Balochistan Frequency of anal sex: No change Condom use: 53% in Punjab, 40% in Sindh, 50% in KPK & Balochistan STI Prevalence: 0.5% in Punjab, 2% in Sindh, 0.4% in KPK & Balochistan
TGSW	Best practice achieved: 90% Frequency of Anal Sex: No change Condom Use: Baseline → 80% (Punjab), 90% (Sindh, KPK & Balochistan) STI Prevalence: Reduce to 2% (Punjab and Sindh), 0.5% (KPK&Bal)
ART-related infectivity reduction	90%, Treat all from 2018

RESULTS

1. Baseline Model outputs

The session below presented key output of the baseline AEM model for each province.

Punjab – Baseline AEM output

Tables and figures below summarize the key outputs from Punjab baseline model in 2016 and estimation till 2030 if intervention remains at current level. According to the estimation, there are an estimated 68,750 adults living with HIV with an estimated 9,401 new infections and 4,322 deaths occurred among adults in Punjab in 2017. Number of current infections increased by 1.6 folds in 2021, in comparison to that of 2016. The HIV prevalence among adults is still low – around 0.1% during 2016-2021. The epidemic is concentrated among key populations including PWID, MSM, MSW, TGSW, and FSW. In 2016, PWID still accounts for high proportion of new HIV infections, but the trend of new infections tends to remain stable in the years after. The HIV epidemic is increasing substantially among MSM and MSW. The annual AIDS-related deaths will be almost doubled in 2021 as compared to 2016.

Table 20. Summary of Baseline AEM output for Punjab

Key indicators	2016	2017	2018	2019	2020	2021
Current PLHIVs	63,671	68,750	74,662	81,889	90,494	100,651
New HIV infections	9,199	9,401	10,774	12,287	14,081	16,304
Annual AIDS-related deaths	3,914	4,322	4,861	5,060	5,476	6,146
HIV prevalence among adults	0.09%	0.09%	0.1%	0.11%	0.11%	0.12%

Figure 1. HIV prevalence among adults in Punjab, 2016-2030, AEM Baseline model

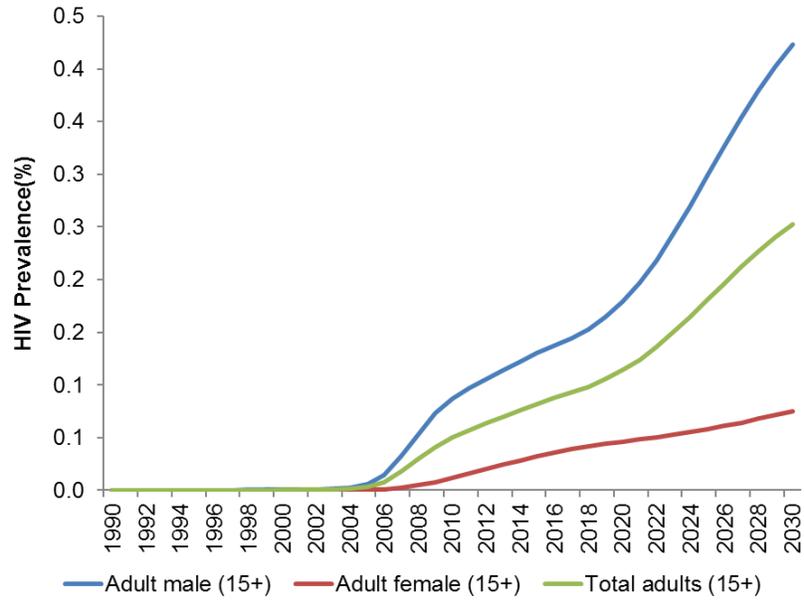


Figure 2. Annual new infection by risk populations in Punjab, 2016-2030, AEM Baseline model

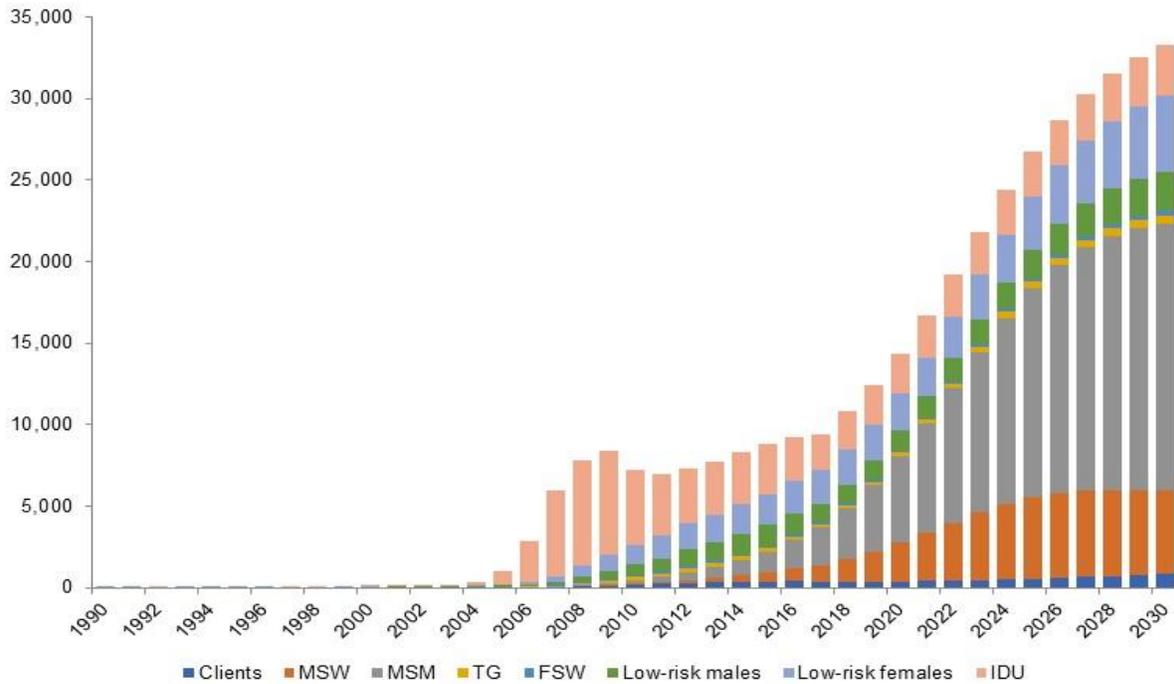


Figure 3. Distribution of new infection in 2016 in Pubjab, AEM Baseline model

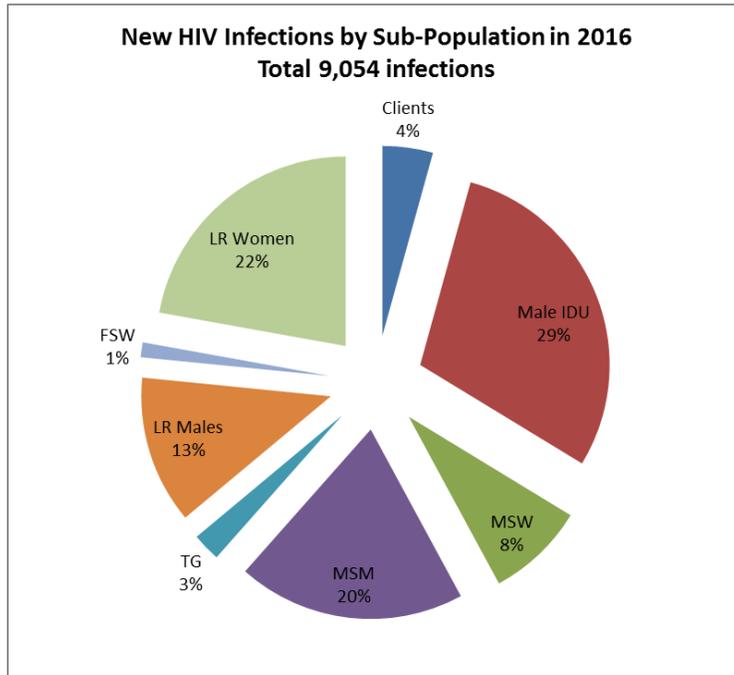


Figure 4. AIDS related deaths in Pubjab, 2016-2030, AEM Baseline model

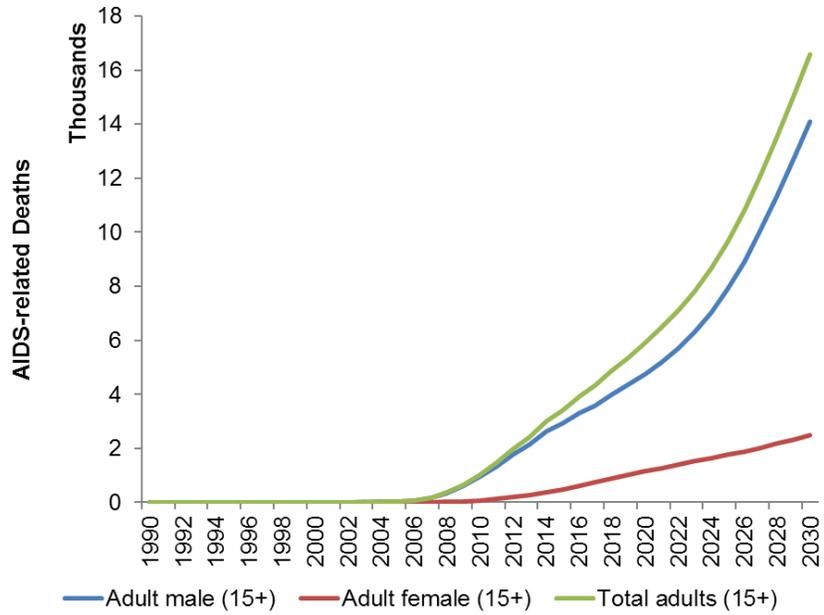
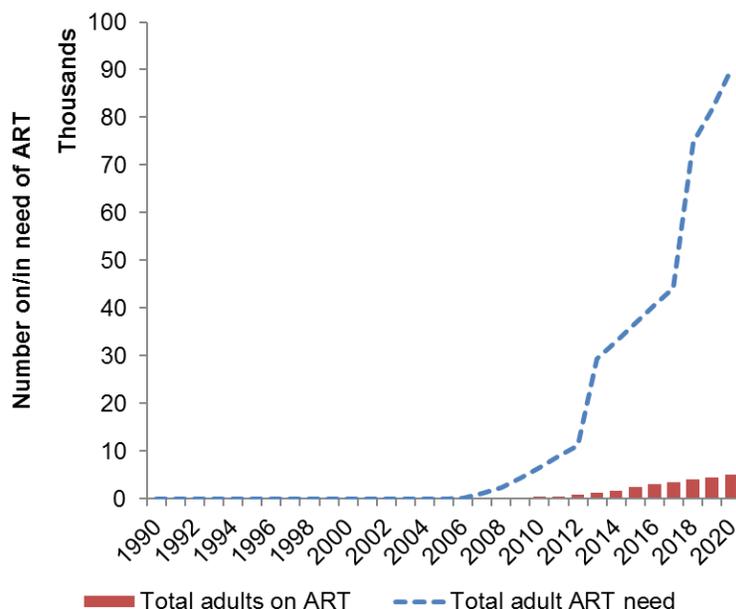


Figure 5. ART coverage versus needs among all adults in Punjab, 2016-2030, AEM Baseline model



Sindh – Baseline AEM output

Tables and figures below summarize the key outputs from Sindh baseline model in 2016 and estimation till 2030 if intervention remains at current level. According to the estimation, there are an estimated 58,634 adults living with HIV with an estimated 7,760 new infections and 4,017 deaths occurred among adults in Sindh in 2017. Number of current infection increased by 1.4 folds in 2021, in comparison to that of 2016. The HIV prevalence among adults is still low – around 0.2% during 2016-2021, but higher than that in Punjab. The epidemic is concentrated among key populations including PWID, MSM, MSW, TGSW, and FSW. In 2016, PWID still accounts for high proportion of new HIV infections, but the trend of new infections tends to remain stable in the years after. The HIV epidemic is increasing rapidly, particularly among MSM. AIDS-related deaths are also increasing.

Table 21. Summary of Baseline AEM output for Sindh

Key indicators	2016	2017	2018	2019	2020	2021
Current PLHIVs	54,891	58,634	62,444	66,375	70,441	74,666
New HIV infections	7,550	7,760	8,213	8,689	9,184	9,698
Annual AIDS-related deaths	3,680	4,017	4,402	4,758	5,117	5,474
HIV prevalence among adults	0.18%	0.19%	0.20%	0.21%	0.22%	0.23%

Figure 6. HIV prevalence among adults in Sindh, 2016-2030, AEM Baseline model

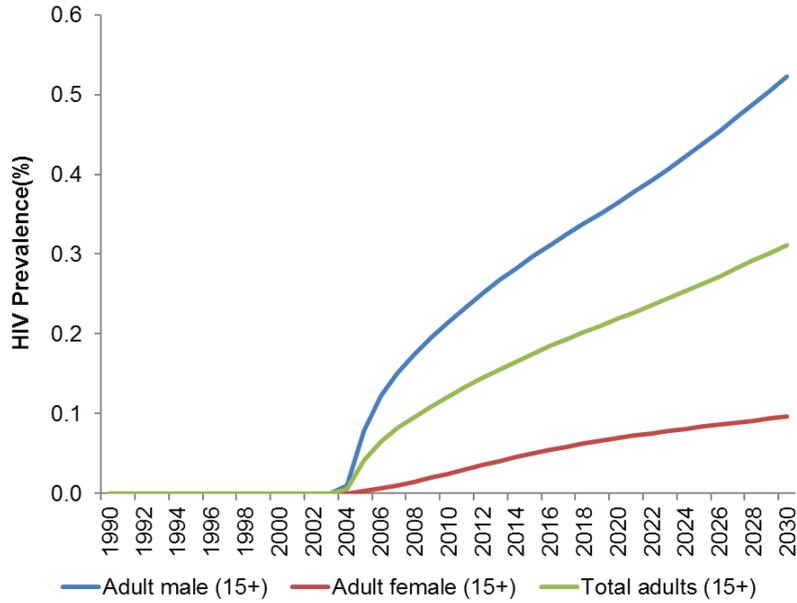


Figure 7. Annual new infections by risk populations in Sindh, 2016-2030, AEM Baseline model

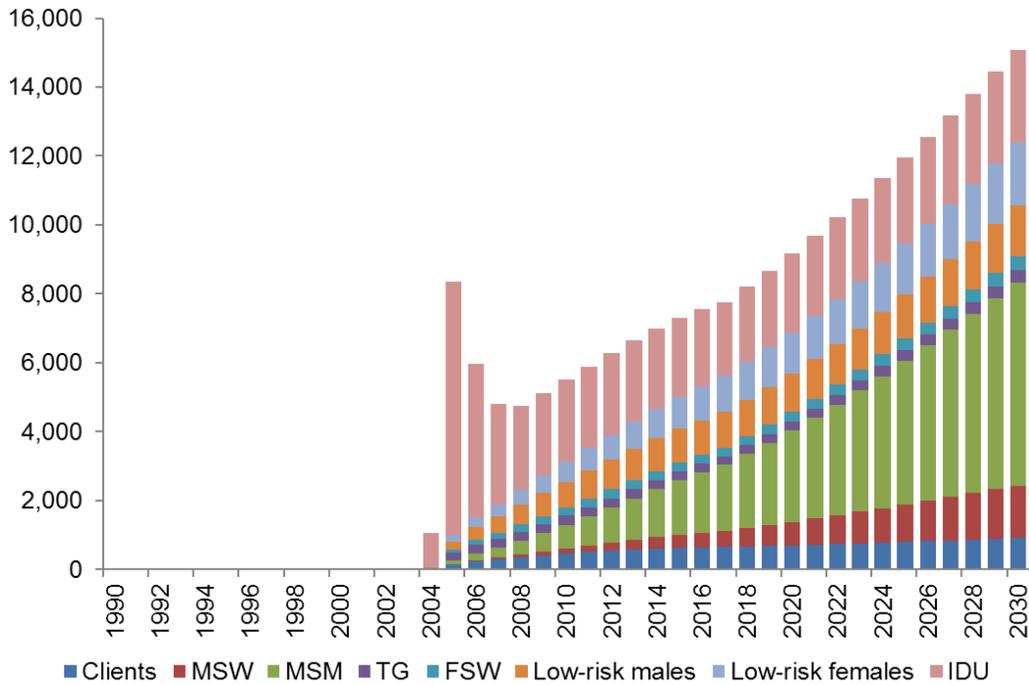


Figure 8. Distribution of new infections in 2016 in Sindh, AEM Baseline model

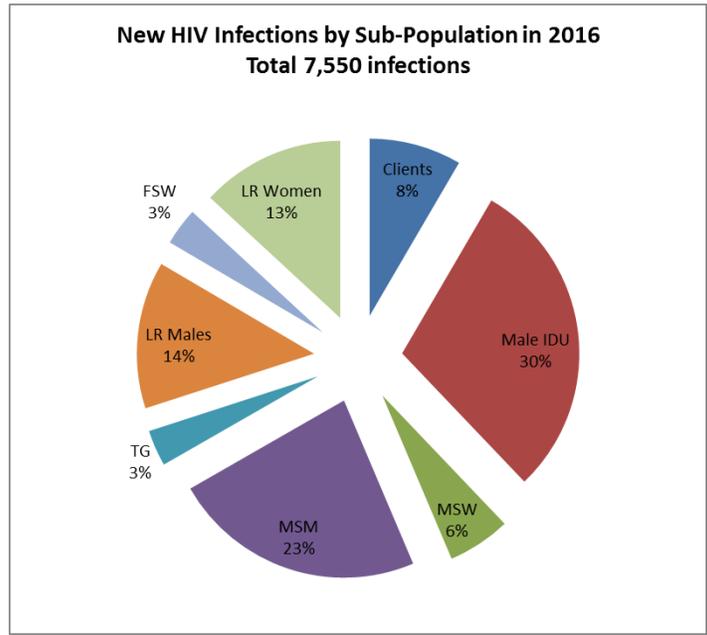


Figure 9. AIDS related deaths in Sindh, 2016-2030, AEM Baseline model

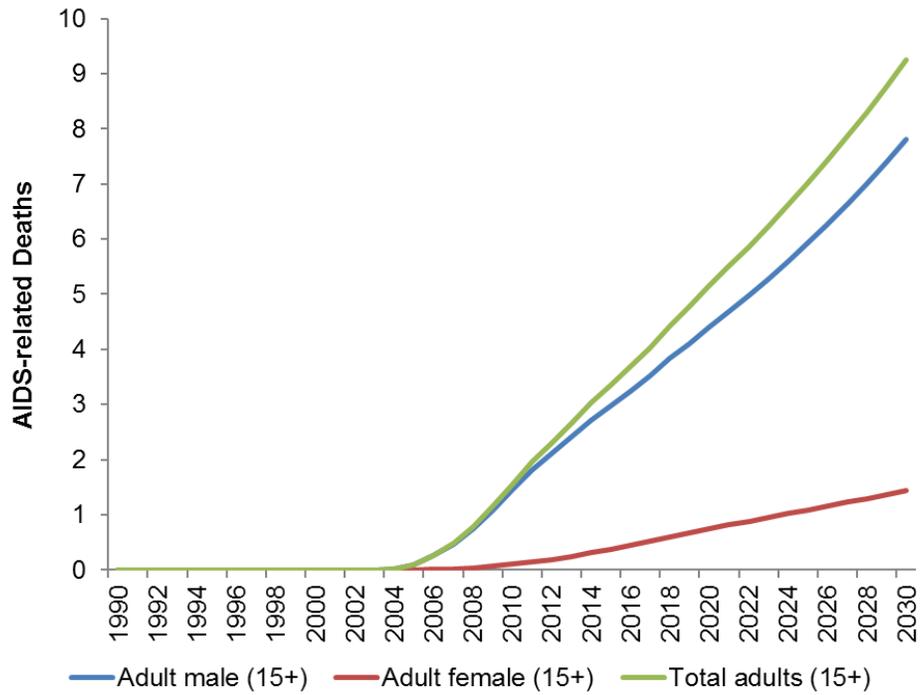
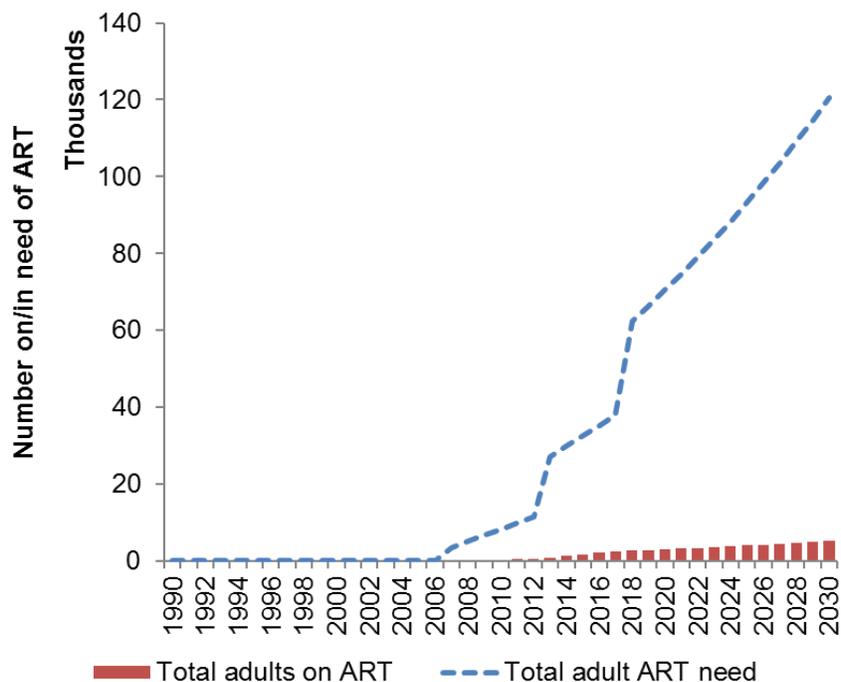


Figure 10. ART coverage versus needs among all adults in Sindh, 2016-2030, AEM Baseline model



KPK and Balochistan – Baseline AEM output

Tables and figures below summarize the key outputs from KPK and Baluchistan baseline model in 2016 and estimation till 2030 if intervention remains at current level. According to the estimation, there are an estimated 11,565 adults living with HIV with an estimated 1,984 new infections and 338 deaths occurred among adults in KPK and Baluchistan in 2017.. The HIV prevalence among adults is still low – around 0.04 - 0.08% during 2016-2021. The epidemic is concentrated key populations including PWID, MSM,MSW, TGSW, and FSW. In 2016, PWID still accounts for high proportion of new HIV infections, but the trend of new infections tends to remain stable in the years after. The HIV epidemic is increasing significantly, particularly among MSM. Annual AIDS-related deaths are increasing and HIV disease burden in KP and Baluchistan will be almost doubled in 2021 as compared to 2016.

Table 22. Summary of Baseline AEM output for KPK and Baluchistan

Key indicators	2016	2017	2018	2019	2020	2021
Current PLHIVs	9,919	11,565	13,345	15,214	17,165	19,233
New HIV infections	1,756	1,984	2,193	2,290	2,366	2,577
Annual AIDS-related deaths	282	338	412	421	414	509
HIV prevalence among adults	0.04%	0.05%	0.06%	0.06%	0.07%	0.08%

Figure 11. HIV prevalence among adults in KPK & Balochistan, 2016-2030, AEM Baseline model

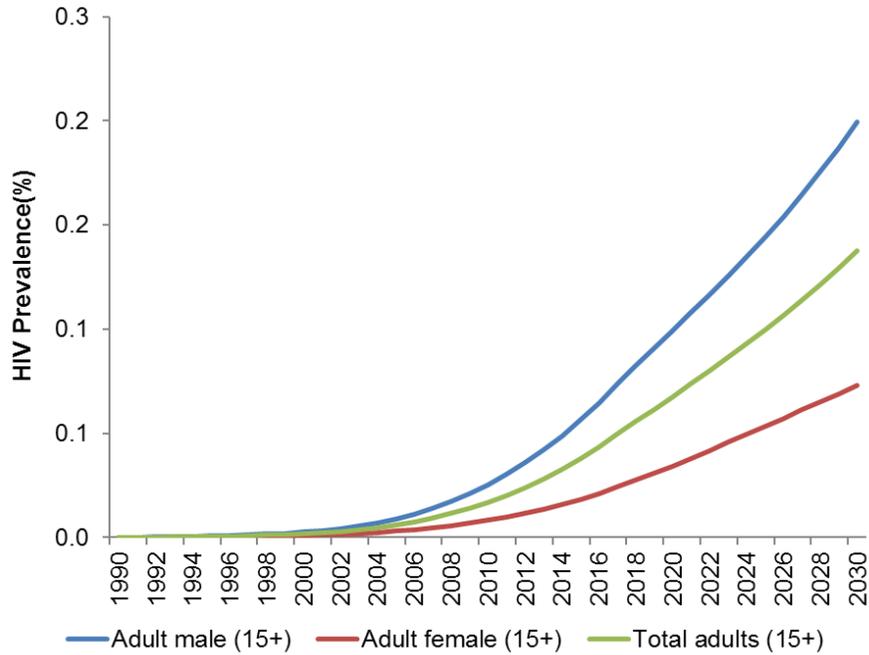


Figure 12. Annual new infections by risk populations in KPK & Balochistan 2016-2030, AEM Baseline model

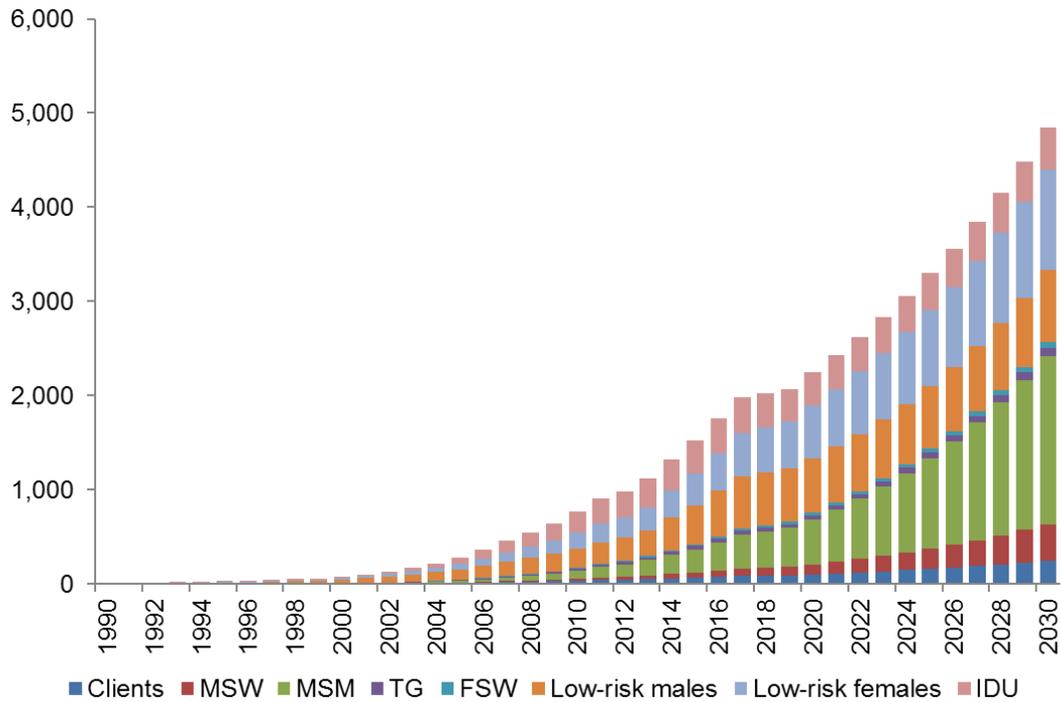


Figure 13. Distribution of new infections in 2016 in KPK & Balochistan, AEM Baseline model

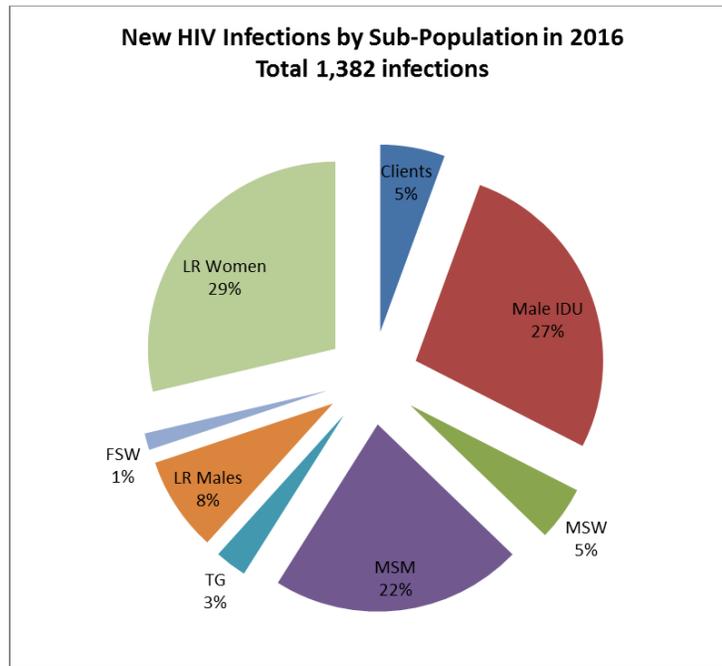


Figure 14. AIDS related deaths in KPK & Balochistan, 2016-2030, AEM Baseline model

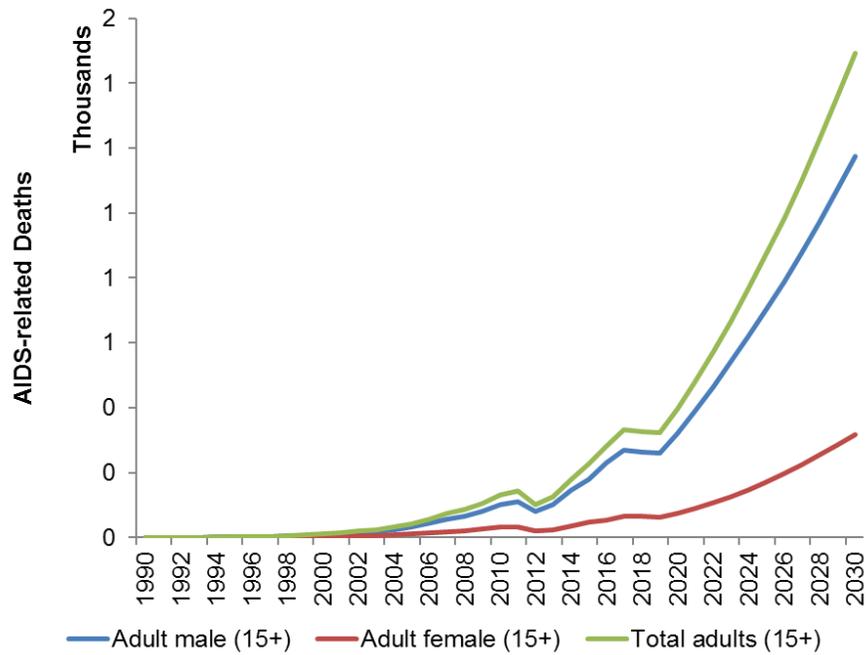
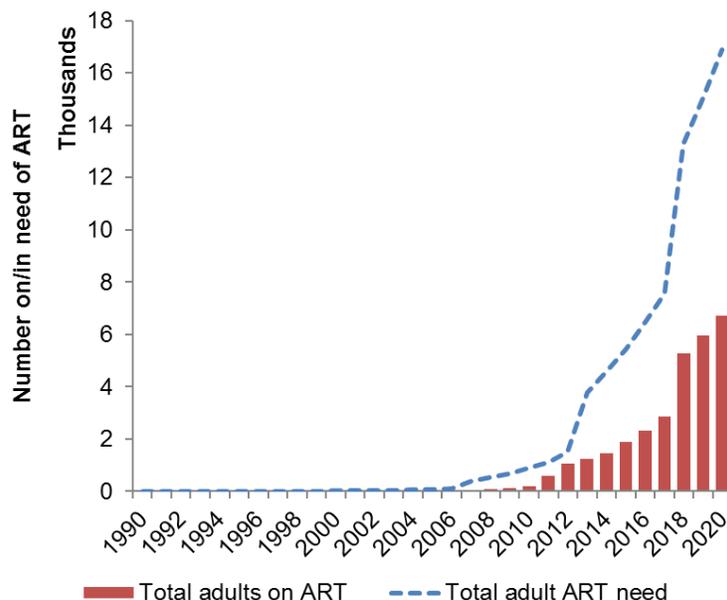


Figure 15. ART coverage versus need among all adults in KPK & Balochistan, 2016-2030, AEM Baseline model



Pakistan national level – Baseline AEM output

Tables and figures below summarize the key outputs from Pakistan national level baseline model in 2016 and estimation till 2030 if intervention remains at current level. According to the estimation, there are an estimated 139,000 adults living with HIV with an estimated 19,000 new infections and 8,700 deaths occurred among adults in Pakistan in 2017. Number of current infections increased by nearly 1.5 folds in 2021, in comparison to that of 2016. The HIV prevalence among adults is still low – around 0.1 - 0.14% during 2016-2021. The epidemic is concentrated among key populations including PWID, MSM, MSW, TGSW, and FSW. In 2016, PWID still accounts for high proportion of new HIV infections, but the new infections trend tends to remain stable in the years after. The HIV epidemic is increasing rapidly, particularly among MSM. Annual AIDS-related deaths are also increasing.

Table 23. Summary of Baseline AEM output for Pakistan – national level

Key indicators	2016	2017	2018	2019	2020	2021
Current PLHIVs	128,480	138,942	150,330	162,985	177,318	193,635
New HIV infections	18,504	19,151	21,015	23,122	25,775	28,767
Annual AIDS-related deaths	7,876	8,689	9,627	10,467	11,442	12,450
HIV prevalence among adults	0.1%	0.11%	0.12%	0.12%	0.13%	0.14%

Figure 16. HIV prevalence among adults in Pakistan – national level, 2016-2030, AEM Baseline model

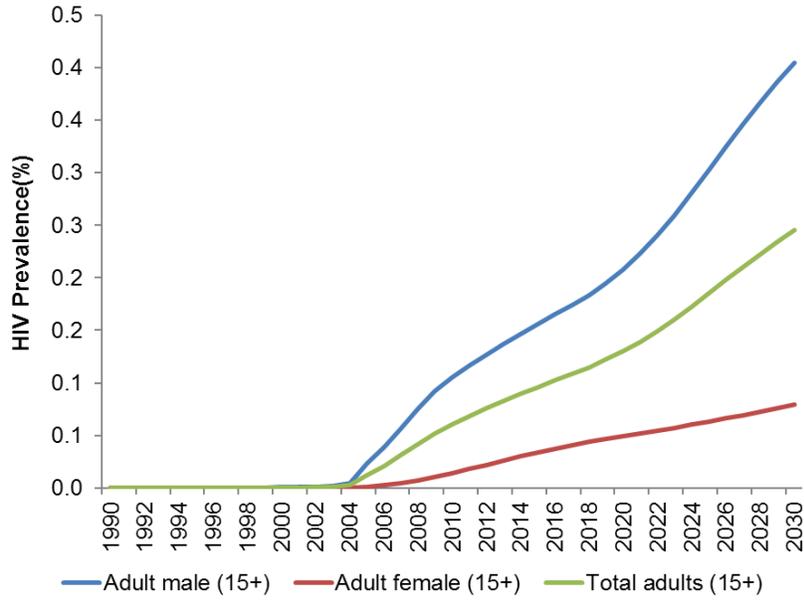


Figure 17. Annual new infections by risk populations in Pakistan 2016-2030, AEM Baseline model

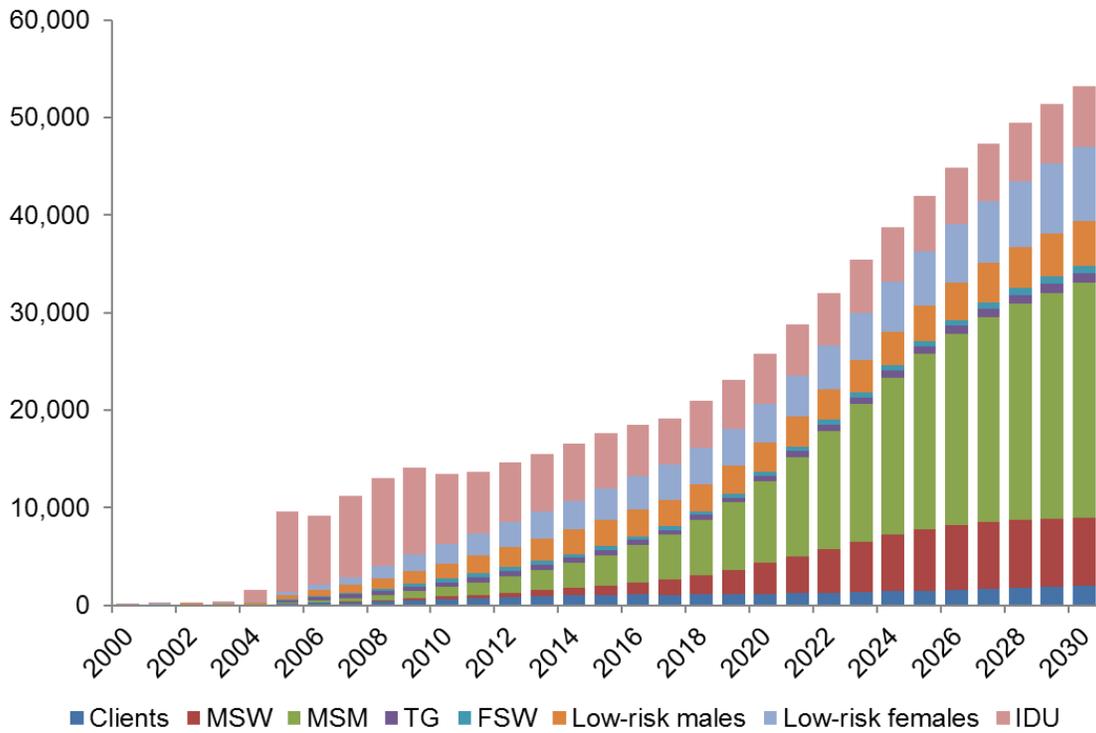


Figure 18. Distribution of new infections in 2016 in Pakistan, AEM Baseline model

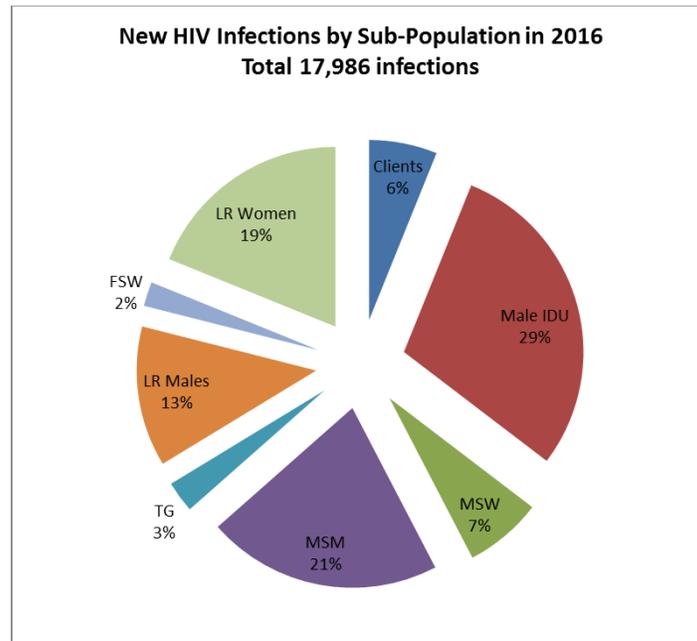


Figure 19. AIDS related deaths in Pakistan, 2016-2030, AEM Baseline model

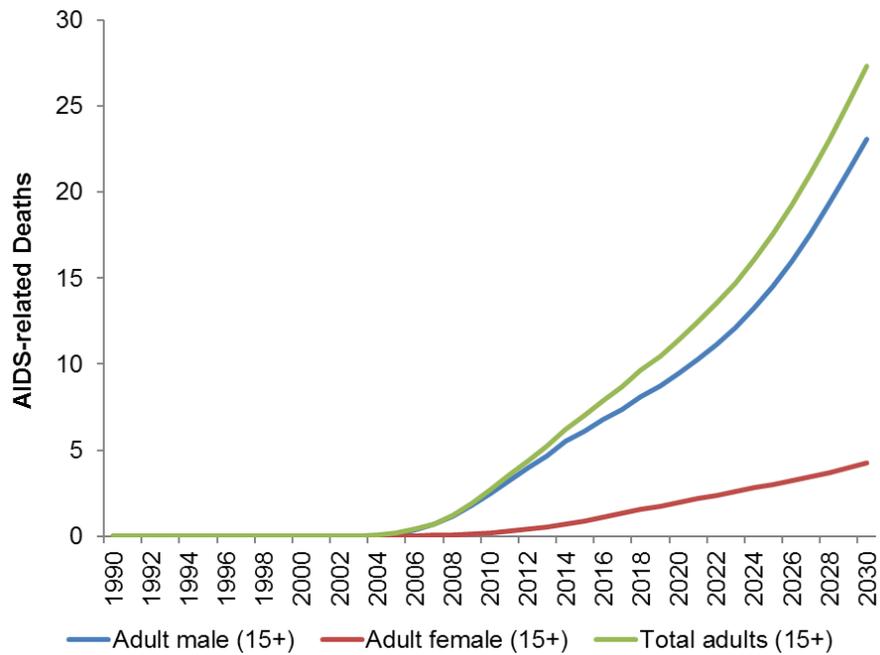
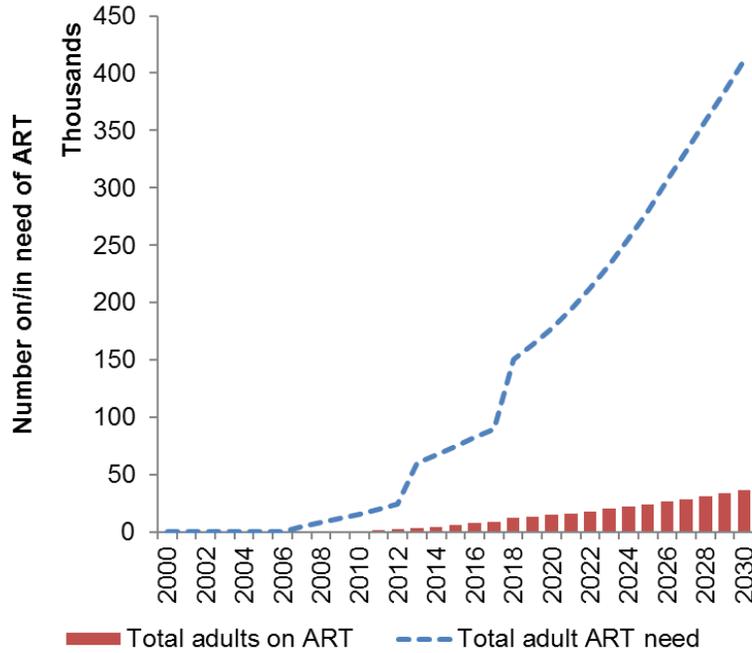


Figure 20. ART coverage versus need among all adults in Pakistan, 2016-2030, AEM Baseline model



2. Future intervention scenario analysis

This section presents the analysis of four intervention scenarios for each province. The four scenarios include: (1) Business as Usual Scenario, (2) High Impact without OST, (3) High impact with OST, and (4) Fast-Track Scenario.

The output of intervention scenario analysis suggests that Fast-Track scenario would lead to substantial decline in new HIV infections and achieve the ending AIDS vision. The other two scenarios on high impact with or without OST would also bring a significant reduction in new infections and total deaths.

Since OST is not likely to be supported and legalize in Pakistan in the near future, and the Fast Track scenario needs extensive frontloading of investment and thus it is not pragmatic with current Pakistan funding landscape. Hence, the TWG discussed and selected the High Impact Scenario (without OST) for the strategic plan of the HIV program in all provinces.

To implement this High Impact Scenario (without OST), it is required to allocate a total of 265 million USD during the period 2016-2021 (or 1.25 billion USD during 2016-2030) for the whole country. Among those, 127 million USD should be invested for Punjab (48%), 111 million USD should be invested for Sindh (42%), and 27 million USD should be invested for KPK and Balochistan. Targets for high impact scenario is presented in the section 2 above. At national level, total of 370,000 HIV infections will be averted and 145,400 life saved during 2016-2030, saving 6.9 million Disability-Adjusted Life Years (DALYs) or USD 10.7 billion in economic terms. Or in other words, if the country invest 1 USD today for HIV program to prevent new infection and death, the country will earn 8.6 USD in 2030.

Section below presents key data output of the policy scenarios analysis.

Punjab – comparison of four policy scenarios

Figure 21. New infections trend among all adults of 4 intervention scenarios in Punjab, 2016-2030

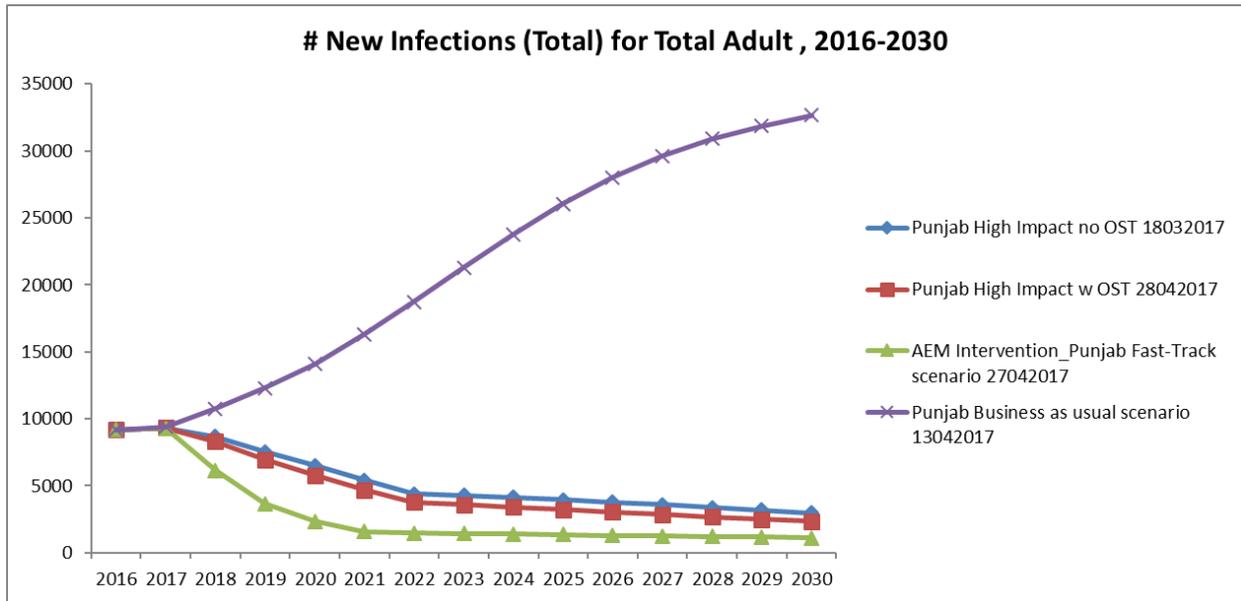


Figure 22. AIDS-related deaths among all adults of 4 intervention scenarios in Punjab, 2016-2030

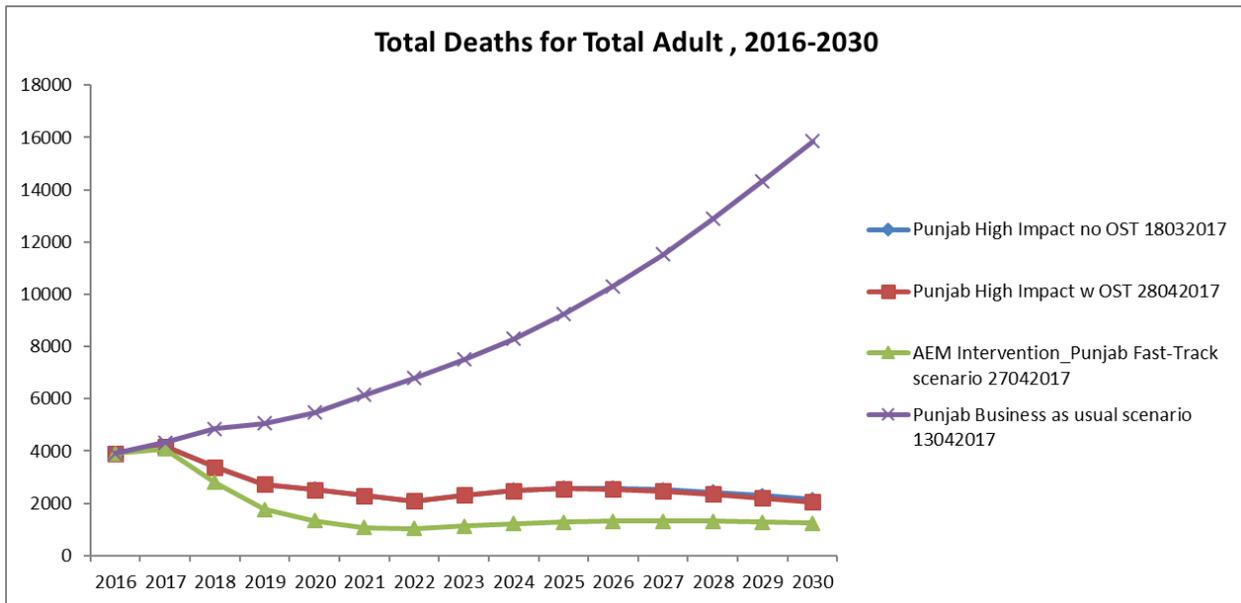


Figure 23. New HIV infections among male PWID in Punjab, 2016-2030, comparison of Business as Usual, High Impact with and without OST

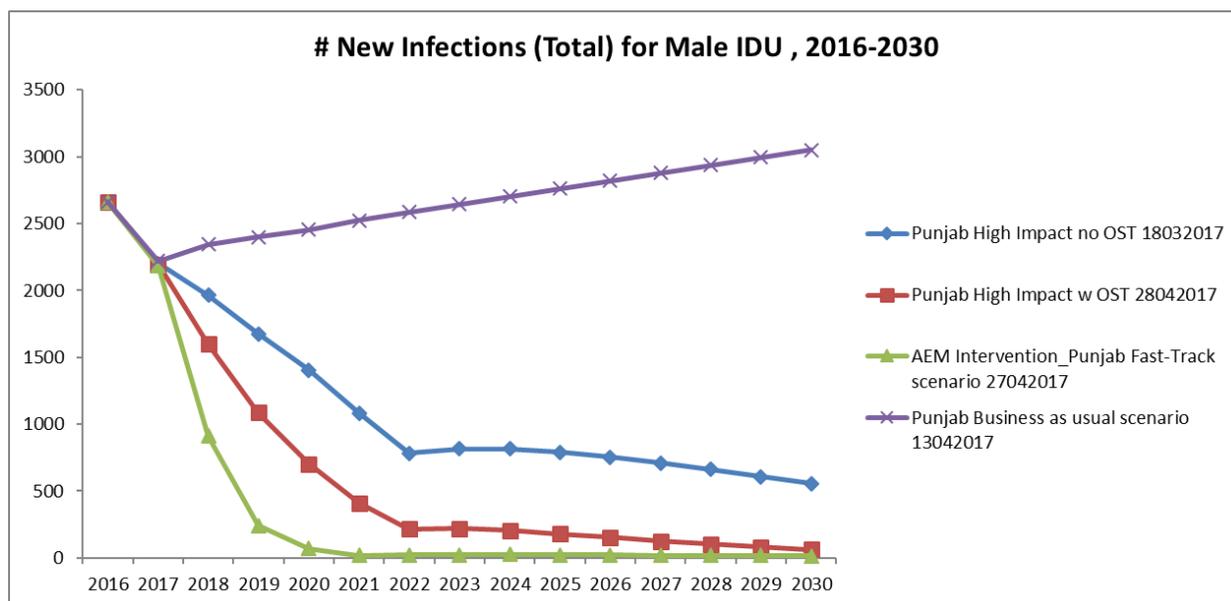


Table 24. Total resources, # of DALY saved, cost per DALY saved of 4 policy scenarios for Punjab (2016-2021)

	Baseline	High impact no OST	High impact with OST	Fast track
Resource Needs Required:				
Prevention Cost (thousands)	\$31,595	\$94,906	\$98,194	\$192,621
Treatment Cost (thousands)	\$7,204	\$31,968	\$31,375	\$46,676
Prevention Cost (thousands, discounted)	\$28,487	\$83,711	\$86,575	\$169,431
Treatment Cost (thousands, discounted)	\$6,386	\$27,875	\$27,368	\$40,669
Epidemiological Outcomes:				
Cumulative new HIV infections	72,045	46,694	44,204	32,220
Cumulative AIDS-related deaths	29,780	19,057	19,046	14,996
Marginal Resources Required:				
Additional Prevention Cost (thousands)		\$63,310	\$66,599	\$161,025
Additional Treatment Cost (thousands)		\$24,764	\$24,170	\$39,472
Additional Prevention Cost (thousands, discounted)		\$55,223	\$58,087	\$140,944
Additional Treatment Cost (thousands, discounted)		\$21,489	\$20,982	\$34,283
Epidemiological Impacts				

Total HIV Infections Averted	25,351	27,841	39,825
Total Lives Saved (Deaths Averted)	10,701	10,709	14,754
Total DALYs Saved (thousands)	502	505	708
Total DALYs Saved (thousands, discounted)	436	438	614
Cost-Effectiveness Analyses			
Cost per DALY saved (total cost)	\$252.63	\$256.80	\$338.10
Cost per DALY saved (marginal costs)	\$175.38	\$179.90	\$283.28
Cost per DALY saved (total cost, discounted)	\$256.20	\$260.40	\$341.91
Cost per DALY saved (marginal costs, discounted)	\$176.13	\$180.70	\$285.16
Total Savings in Treatment Costs (thousands)	-\$24,764	-\$24,170	-\$39,472
Total Savings in Treatment Costs ('000, discounted)	-\$21,489	-\$20,982	-\$34,283

Sindh – comparison of four policy scenarios

Figure 24. New infections trend among all adults of 4 intervention scenarios in Sindh, 2016-2030

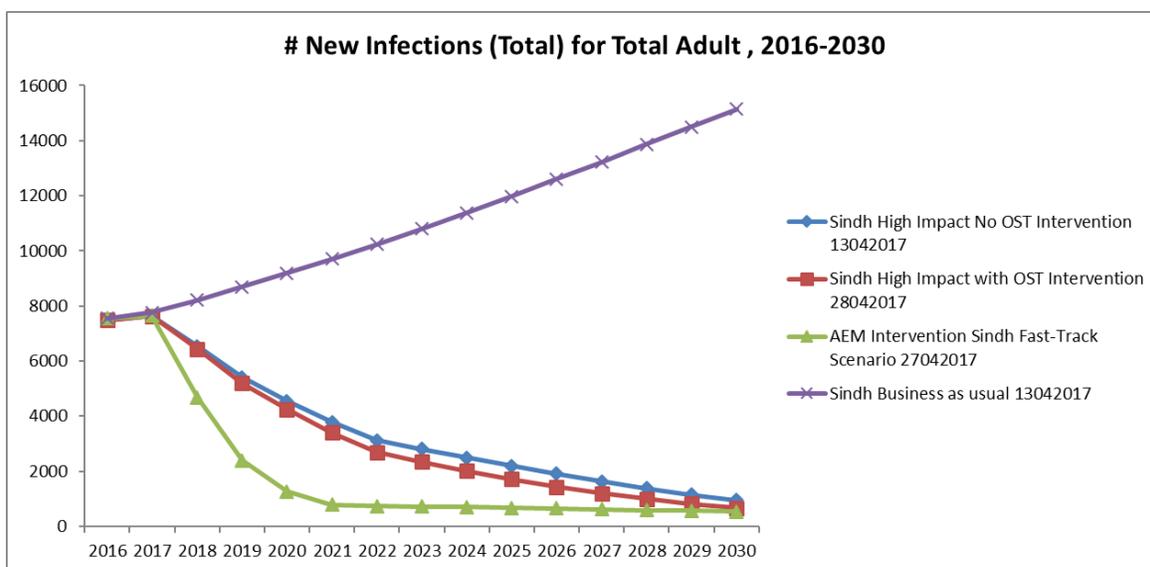


Figure 25. AIDS-related deaths among all adults of 4 intervention scenarios in Sindh, 2016-2030

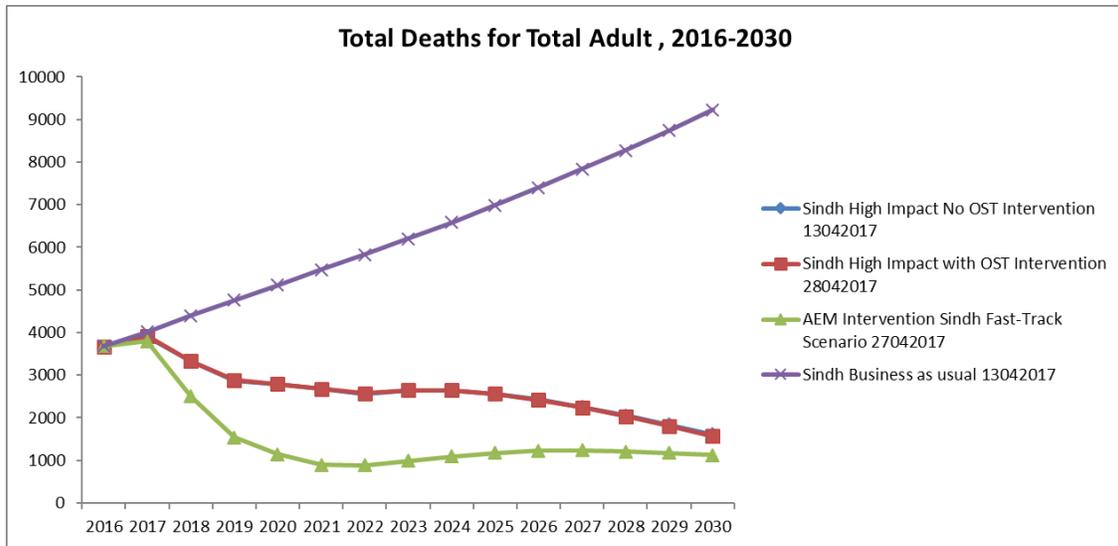


Figure 26. New infections among male PWID in Sindh, 2016-2030, comparison of Business as Usual, High Impact with and without OST

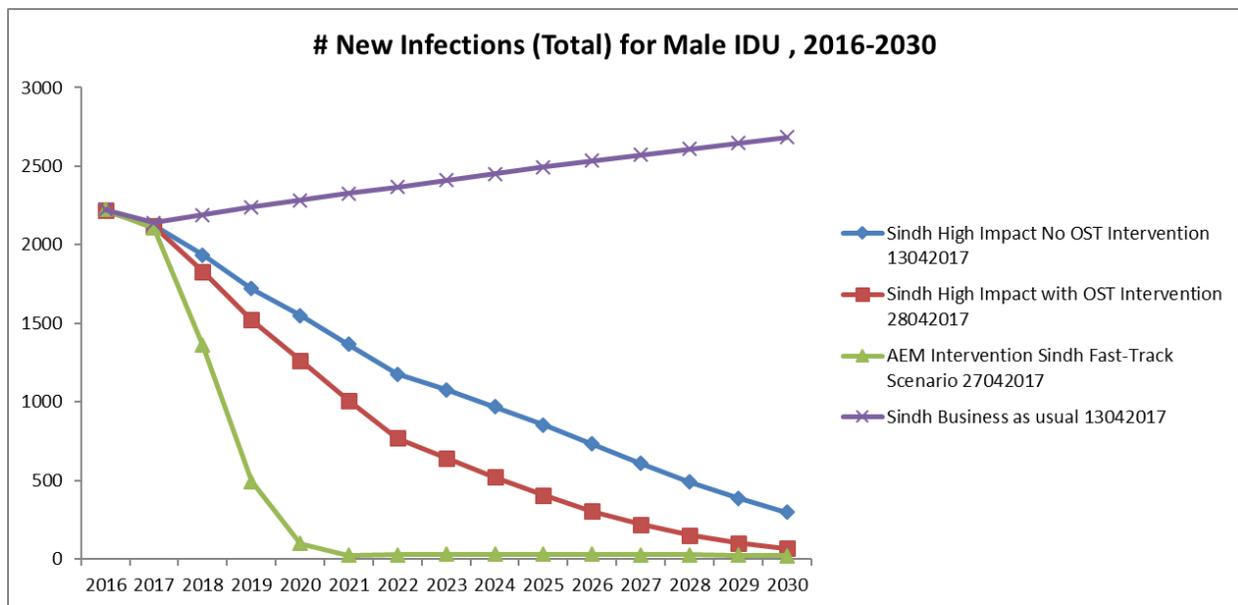


Table 25. Total resources, # of DALY saved, cost per DALY saved of 4 policy scenarios for Sindh (2016-2021)

	Baseline	High impact no OST	High impact with OST	Fast track
Resource Needs Required:				
Prevention Cost (thousands)	\$14,485	\$92,409	\$94,715	\$146,896
Treatment Cost (thousands)	\$3,361	\$19,067	\$18,903	\$38,306
Prevention Cost (thousands, discounted)	\$13,059	\$81,201	\$83,204	\$128,872
Treatment Cost (thousands, discounted)	\$3,015	\$16,658	\$16,518	\$33,370

discounted)				
<u>Epidemiological Outcomes:</u>				
Cumulative new HIV infections	51,093	35,407	34,416	24,343
Cumulative AIDS-related deaths	27,448	19,272	19,280	13,558
<u>Marginal Resources Required:</u>				
Additional Prevention Cost (thousands)		\$77,924	\$80,230	\$132,411
Additional Treatment Cost (thousands)		\$15,705	\$15,542	\$34,944
Additional Prevention Cost (thousands, discounted)		\$68,142	\$70,144	\$115,812
Additional Treatment Cost (thousands, discounted)		\$13,643	\$13,503	\$30,355
<u>Epidemiological Impacts</u>				
Total HIV Infections Averted		15,687	16,677	26,750
Total Lives Saved (Deaths Averted)		8,158	8,149	13,866
Total DALYs Saved (thousands)		369	369	640
Total DALYs Saved (thousands, discounted)		320	320	556
<u>Cost-Effectiveness Analyses</u>				
Cost per DALY saved (total cost)		\$302.43	\$307.79	\$289.18
Cost per DALY saved (marginal costs)		\$254.01	\$259.44	\$261.32
Cost per DALY saved (total cost, discounted)		\$305.89	\$311.26	\$291.58
Cost per DALY saved (marginal costs, discounted)		\$255.64	\$261.09	\$262.69
Total Savings in Treatment Costs (thousands)		-\$15,705	-\$15,542	-\$34,944
Total Savings in Treatment Costs (‘000, discounted)		-\$13,643	-\$13,503	-\$30,355

KPK and Balochistan – comparison of four policy scenarios

Figure 27. New infections trend of 4 intervention scenarios in KPK & Balochistan, 2016-2030

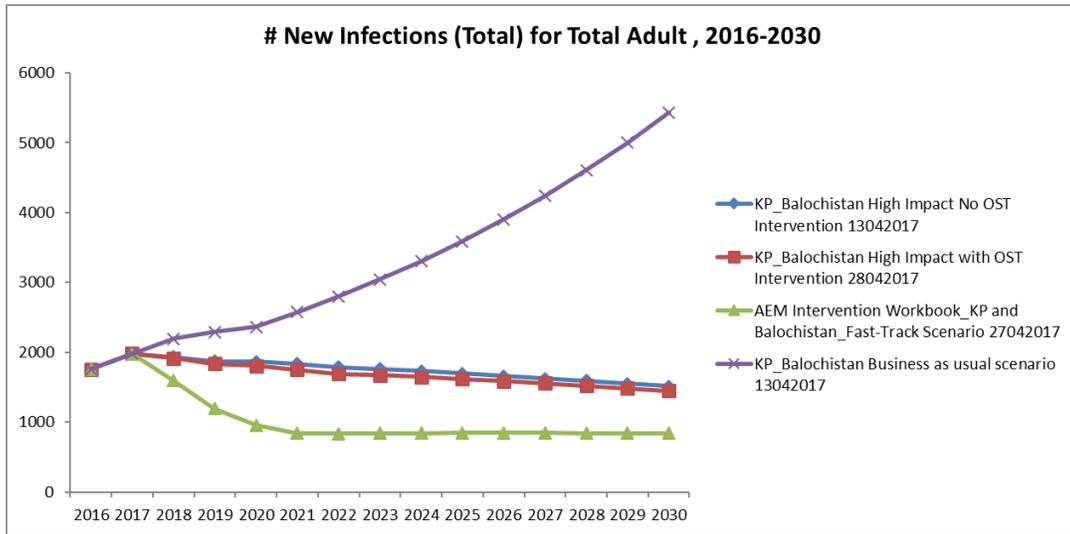


Figure 28. AIDS-related deaths among all adults of 4 intervention scenarios in KPK & Balochistan, 2016-2030

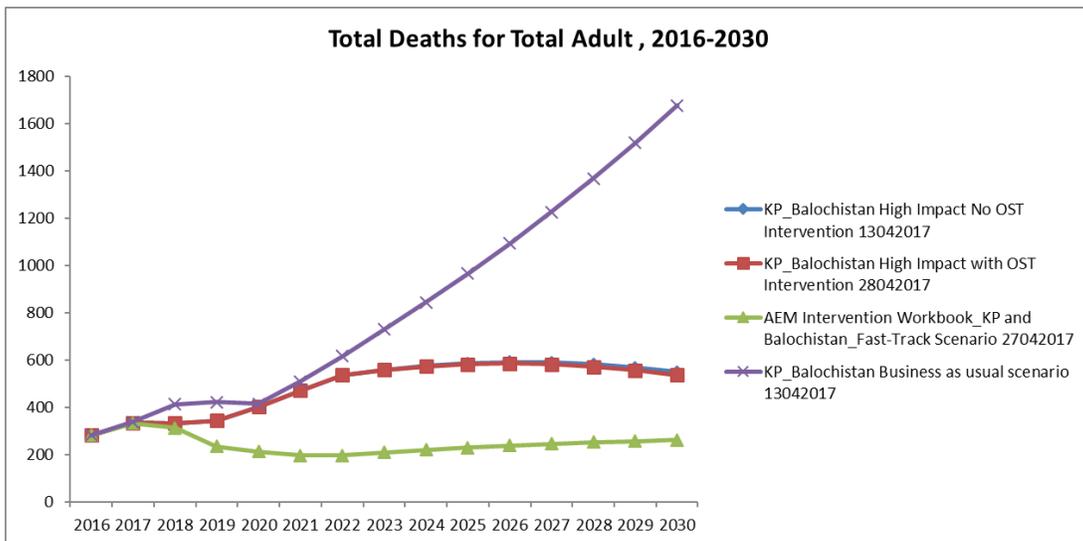


Figure 29. New HIV infections among male PWID in KPK & Balochistan, 2016-2030, comparison of Business as Usual, High Impact with and without OST

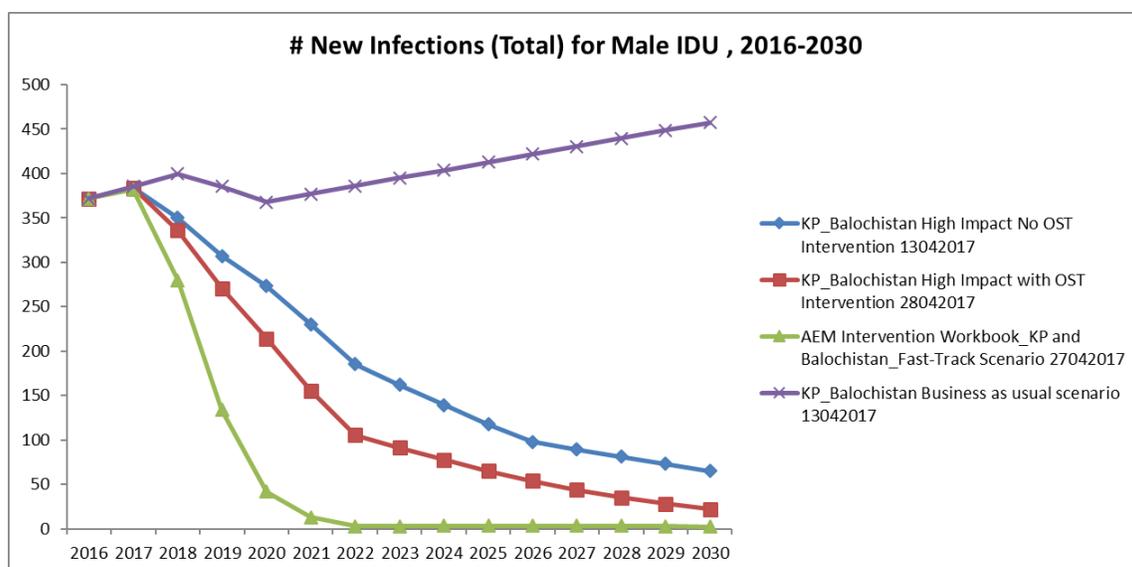


Table 26. Total resources, # of DALY saved, cost per DALY saved of 4 policy scenarios for KPK and Balochistan (2016-2021)

	Baseline	High impact no OST	High impact with OST	Fast track
Resource Needs Required:				
Prevention Cost (thousands)	\$855	\$19,825	\$20,239	\$74,059
Treatment Cost (thousands)	\$5,844	\$7,217	\$7,181	\$10,545
Prevention Cost (thousands, discounted)	\$771	\$17,290	\$17,651	\$64,753
Treatment Cost (thousands, discounted)	\$5,172	\$6,400	\$6,369	\$9,269
Epidemiological Outcomes:				
Cumulative new HIV infections	13,166	11,240	11,044	8,321
Cumulative AIDS-related deaths	2,378	2,164	2,164	1,569
Marginal Resources Required:				
Additional Prevention Cost (thousands)		\$18,970	\$19,384	\$73,204
Additional Treatment Cost (thousands)		\$1,373	\$1,337	\$4,702
Additional Prevention Cost (thousands, discounted)		\$16,520	\$16,881	\$63,983
Additional Treatment Cost (thousands, discounted)		\$1,229	\$1,198	\$4,098
Epidemiological Impacts				
Total HIV Infections Averted		1,926	2,121	4,844
Total Lives Saved (Deaths Averted)		212	211	804
Total DALYs Saved (thousands)		11	11	44
Total DALYs Saved (thousands, discounted)		10	10	38
Cost-Effectiveness Analyses				
Cost per DALY saved (total cost)		\$2,404.46	\$2,395.64	\$1,904.13
Cost per DALY saved (marginal costs)		\$1,808.82	\$1,810.38	\$1,753.36
Cost per DALY saved (total cost, discounted)		\$2,377.77	\$2,370.50	\$1,924.91
Cost per DALY saved (marginal costs, discounted)		\$1,781.34	\$1,784.06	\$1,770.38

Total Savings in Treatment Costs (thousands)	-\$1,373	-\$1,337	-\$4,702
Total Savings in Treatment Costs ('000, discounted)	-\$1,229	-\$1,198	-\$4,098

Pakistan (National level) – comparison of four policy scenarios

Figure 30. New infections trend of 4 intervention scenarios in Pakistan, 2016-2030

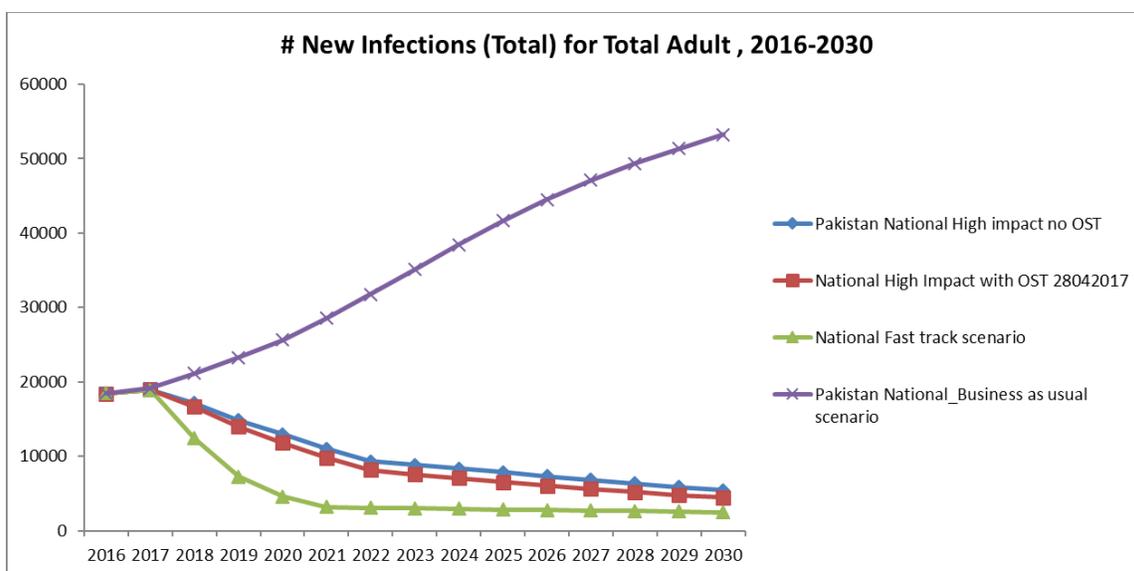


Figure 31. AIDS-related deaths among all adults of 4 intervention scenarios in Pakistan, 2016-2030

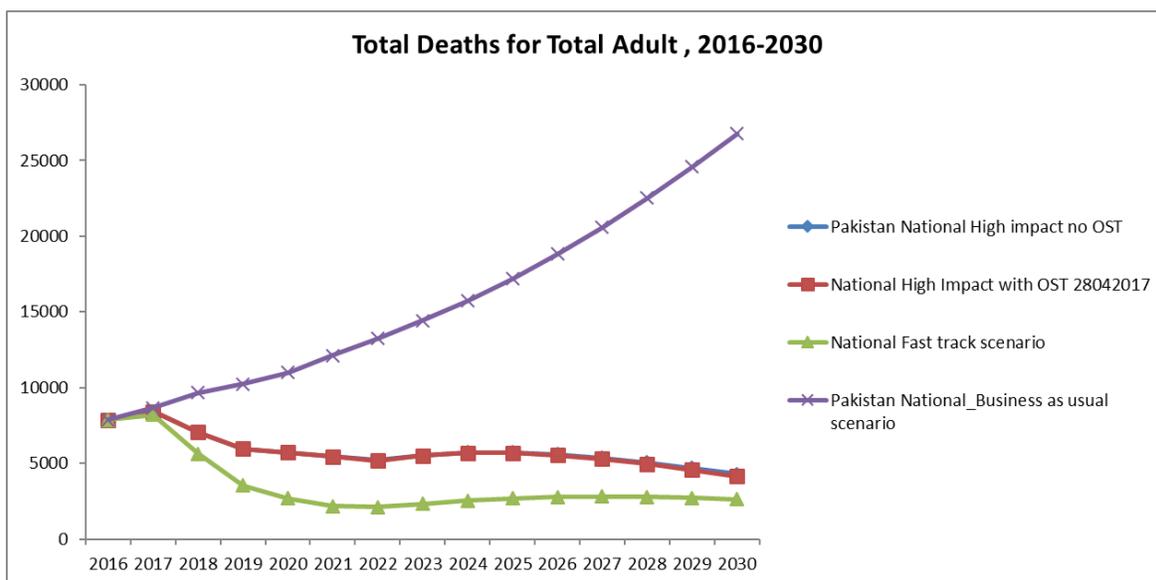


Figure 32. New HIV infections among male PWID in Pakistan, 2016-2030, comparison of Business as Usual, High Impact with and without OST

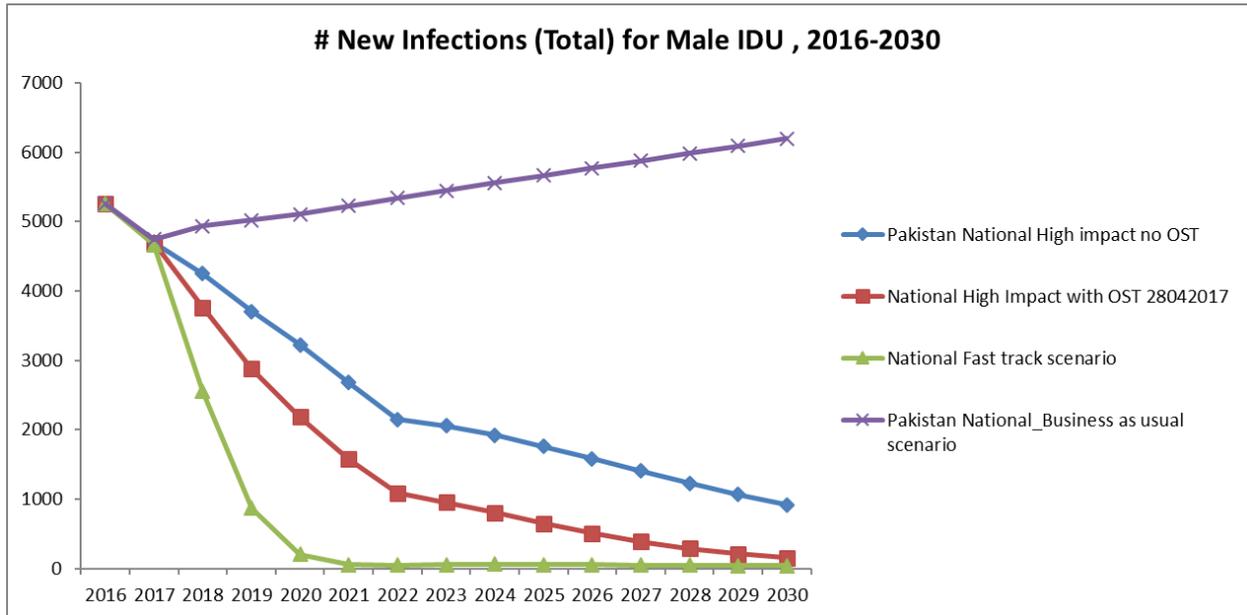


Table 27. Total resources, # of DALY saved, cost per DALY saved of 4 policy scenarios for Pakistan (2016-2021)

	Baseline	High impact no OST	High impact with OST	Fast track
Resource Needs Required:				
Prevention Cost (thousands)	\$46,936	\$207,140	\$213,148	\$413,576
Treatment Cost (thousands)	\$16,409	\$58,251	\$57,459	\$95,527
Prevention Cost (thousands, discounted)	\$42,317	\$182,202	\$187,430	\$363,056
Treatment Cost (thousands, discounted)	\$14,572	\$50,933	\$50,256	\$83,308
Epidemiological Outcomes:				
Cumulative new HIV infections	136,304	93,341	89,665	64,885
Cumulative AIDS-related deaths	59,605	40,493	40,490	30,123
Marginal Resources Required:				
Additional Prevention Cost (thousands)		\$160,204	\$166,213	\$366,641
Additional Treatment Cost (thousands)		\$41,842	\$41,050	\$79,118
Additional Prevention Cost (thousands, discounted)		\$139,885	\$145,112	\$320,738
Additional Treatment Cost (thousands, discounted)		\$36,361	\$35,683	\$68,736
Epidemiological Impacts				
Total HIV Infections Averted		42,963	46,639	71,419
Total Lives Saved (Deaths Averted)		19,071	19,070	29,424
Total DALYs Saved (thousands)		882	885	1,393
Total DALYs Saved (thousands, discounted)		765	768	1,209
Cost-Effectiveness Analyses				
Cost per DALY saved (total cost)		\$300.88	\$305.72	\$365.57
Cost per DALY saved (marginal costs)		\$229.06	\$234.16	\$320.08
Cost per DALY saved (total cost, discounted)		\$304.58	\$309.45	\$369.09
Cost per DALY saved (marginal costs, discounted)		\$230.26	\$235.38	\$322.05
Total Savings in Treatment Costs (thousands)		-\$41,842	-\$41,050	-\$79,118
Total Savings in Treatment Costs (thousands, discounted)		-\$36,361	-\$35,683	-\$68,736

ANNEXES of the report could be downloaded from this link

<https://www.dropbox.com/sh/onpyvp26ipsxs4h/AADV-XrhCf0ShTxzsvu5e3Rna?dl=0>

Population Data																
Population data by age/gender																
Year	Males							Ratio of 15-49 to 15+ population	Females							Ratio of 15-49 to 15+ population
	Males 15+	Males 15-49	Males 15 y/o	Males 15-24	Migration 15+	Migration 15-49		Females 15+	Females 15-49	Females 15 y/o	Females 15-24	Migration 15+	Migration 15-49			
1975	20,422,481	15,857,139	730,107	5,931,585	86	78	0.7765	17,740,883	14,229,458	692,936	5,647,580	85	76	0.8021		
1976	21,014,850	16,314,960	758,032	6,202,905	86	78	0.7764	18,336,032	14,706,945	718,863	5,905,260	85	76	0.8021		
1977	21,647,730	16,808,958	787,571	6,505,426	86	78	0.7765	18,971,692	15,218,724	746,481	6,187,960	85	76	0.8022		
1978	22,321,968	17,339,985	819,515	6,831,636	86	78	0.7768	19,648,708	15,765,496	776,661	6,490,510	85	76	0.8024		
1979	23,040,775	17,911,049	853,976	7,172,518	86	78	0.7774	20,370,367	16,350,043	809,425	6,807,050	85	76	0.8026		
1980	23,811,932	18,529,196	890,382	7,523,513	86	78	0.7781	21,144,429	16,979,161	844,057	7,135,268	85	76	0.8030		
1981	24,663,148	19,223,003	965,289	7,913,504	86	78	0.7794	21,994,233	17,676,961	912,916	7,500,355	85	76	0.8037		
1982	25,514,897	19,913,397	967,491	8,266,879	86	78	0.7805	22,846,286	18,370,577	915,098	7,832,218	85	76	0.8041		
1983	26,355,030	20,589,105	969,529	8,579,743	86	78	0.7812	23,688,221	19,049,098	917,091	8,126,603	85	76	0.8042		
1984	27,171,095	21,238,532	971,528	8,850,857	86	78	0.7817	24,507,607	19,701,720	919,096	8,381,637	85	76	0.8039		
1985	27,952,474	21,851,935	974,383	9,080,036	86	78	0.7818	25,292,040	20,317,656	921,712	8,595,654	85	76	0.8033		
1986	28,778,033	22,508,198	1,052,043	9,346,545	86	78	0.7821	26,116,525	20,971,942	992,750	8,842,474	85	76	0.8030		
1987	29,600,491	23,159,870	1,079,771	9,602,417	86	78	0.7824	26,938,777	21,621,945	1,018,627	9,078,880	85	76	0.8026		
1988	30,421,027	23,806,955	1,108,702	9,848,411	86	78	0.7826	27,759,847	22,267,483	1,045,775	9,305,681	85	76	0.8021		
1989	31,238,541	24,447,118	1,139,511	10,084,423	86	78	0.7826	28,578,064	22,905,421	1,074,660	9,522,641	85	76	0.8015		
1990	32,046,716	25,074,405	1,172,865	10,309,352	86	78	0.7824	29,389,592	23,531,645	1,106,042	9,729,836	85	76	0.8007		
1991	32,862,905	25,705,016	1,209,819	10,497,458	86	78	0.7822	30,209,750	24,159,794	1,140,874	9,904,647	85	76	0.7997		
1992	33,704,340	26,356,754	1,250,728	10,731,277	86	78	0.7820	31,054,816	24,806,109	1,179,435	10,122,626	85	76	0.7988		
1993	34,585,291	27,045,679	1,293,443	11,018,323	86	78	0.7820	31,938,491	25,485,883	1,219,804	10,390,900	85	76	0.7980		
1994	35,511,350	27,780,068	1,336,483	11,359,719	86	78	0.7823	32,866,289	26,207,924	1,260,614	10,710,865	85	76	0.7974		
1995	36,500,292	28,578,481	1,381,626	11,761,520	86	78	0.7830	33,853,805	26,989,096	1,303,461	11,087,994	85	76	0.7972		
1996	37,538,121	29,427,856	1,430,338	12,143,206	86	78	0.7839	34,888,863	27,818,685	1,349,688	11,449,148	85	76	0.7974		
1997	38,624,063	30,326,932	1,482,952	12,553,892	86	78	0.7852	35,970,314	28,694,951	1,399,590	11,838,447	85	76	0.7977		
1998	39,756,136	31,275,473	1,538,274	12,991,459	86	78	0.7867	37,097,272	29,617,538	1,452,115	12,254,163	85	76	0.7984		
1999	40,933,272	32,274,206	1,594,811	13,453,057	86	78	0.7885	38,270,626	30,587,289	1,505,971	12,694,376	85	76	0.7992		
2000	42,150,436	33,318,700	1,650,696	13,932,491	86	78	0.7905	39,487,142	31,600,518	1,559,413	13,153,688	85	76	0.8003		
2001	43,410,024	34,411,531	1,707,451	14,427,474	86	78	0.7927	40,749,183	32,659,605	1,613,660	13,629,806	85	76	0.8015		
2002	44,710,379	35,548,065	1,762,962	14,933,072	86	78	0.7951	42,054,760	33,760,632	1,666,584	14,117,618	85	76	0.8028		

2003	46,035,266	36,704,780	1,805,114	15,433,692	86	78	0.7973	43,389,521	34,883,897	1,706,695	14,602,447	85	76	0.8040
2004	47,364,739	37,852,272	1,830,976	15,912,165	86	78	0.7992	44,736,408	36,005,200	1,731,487	15,068,506	85	77	0.8048
2005	48,677,343	38,962,676	1,844,718	16,351,771	86	78	0.8004	46,081,572	37,105,516	1,745,625	15,502,938	85	77	0.8052
2006	49,979,971	40,038,862	1,854,531	16,751,342	86	78	0.8011	47,423,500	38,180,312	1,755,358	15,900,226	85	77	0.8051
2007	51,281,731	41,090,446	1,867,260	17,113,370	86	78	0.8013	48,766,549	39,234,260	1,767,969	16,260,923	85	76	0.8045
2008	52,594,611	42,129,167	1,882,853	17,442,328	86	78	0.8010	50,114,266	40,271,689	1,781,385	16,584,683	85	76	0.8036
2009	53,925,812	43,163,604	1,898,452	17,739,860	86	78	0.8004	51,466,030	41,294,135	1,791,718	16,867,887	85	76	0.8024
2010	55,282,316	44,202,706	1,913,097	18,008,128	86	78	0.7996	52,821,260	42,303,225	1,799,811	17,109,071	85	75	0.8009
2011	56,658,103	45,243,323	1,927,994	18,242,709	86	78	0.7985	54,177,693	43,298,111	1,806,051	17,305,163	84	75	0.7992
2012	58,044,031	46,278,947	1,938,939	18,437,590	86	78	0.7973	55,532,818	44,277,087	1,810,916	17,455,477	84	74	0.7973
2013	59,429,923	47,300,332	1,941,980	18,595,397	85	77	0.7959	56,879,451	45,232,703	1,808,583	17,565,002	84	74	0.7952
2014	60,808,807	48,299,337	1,936,524	18,722,416	84	76	0.7943	58,209,847	46,156,368	1,797,563	17,639,928	84	74	0.7929
2015	62,183,053	49,277,607	1,930,152	18,829,380	83	76	0.7925	59,525,861	47,049,362	1,786,103	17,690,541	84	74	0.7904
2016	63,552,922	50,202,364	1,930,664	18,924,138	82	74	0.7899	60,831,776	47,886,157	1,782,542	17,727,333	84	74	0.7872
2017	64,932,594	51,153,688	1,948,706	19,020,392	82	74	0.7878	62,144,953	48,745,312	1,797,855	17,765,531	84	74	0.7844
2018	66,336,337	52,146,109	1,984,629	19,133,037	81	73	0.7861	63,483,464	49,644,882	1,833,164	17,824,034	84	74	0.7820
2019	67,771,125	53,185,626	2,028,389	19,270,652	81	74	0.7848	64,856,299	50,592,994	1,878,148	17,915,756	84	73	0.7801
2020	69,239,268	54,272,728	2,077,848	19,439,745	81	74	0.7838	66,267,798	51,592,242	1,929,232	18,048,825	84	73	0.7785
2021	70,744,442	55,342,364	2,129,051	19,643,683	82	75	0.7823	67,719,512	52,580,237	1,981,192	18,226,739	84	73	0.7764
2022	72,285,447	56,437,573	2,179,404	19,885,854	82	75	0.7808	69,207,530	53,593,694	2,029,684	18,447,530	84	73	0.7744
2023	73,862,339	57,556,332	2,230,014	20,174,594	82	75	0.7792	70,729,624	54,628,449	2,076,323	18,716,603	84	73	0.7724
2024	75,475,939	58,697,133	2,281,772	20,519,692	82	75	0.7777	72,285,773	55,682,067	2,123,441	19,043,136	84	73	0.7703
2025	77,124,254	59,855,028	2,332,229	20,920,823	82	75	0.7761	73,874,130	56,749,589	2,169,352	19,426,361	84	73	0.7682
2026	78,802,822	61,022,145	2,378,089	21,366,842	82	74	0.7744	75,490,715	57,823,394	2,211,043	19,854,405	84	73	0.7660
2027	80,504,928	62,188,779	2,417,567	21,834,136	82	74	0.7725	77,129,920	58,894,583	2,247,037	20,302,956	84	73	0.7636
2028	82,222,235	63,346,019	2,448,811	22,296,867	82	74	0.7704	78,784,712	59,954,998	2,275,749	20,745,118	84	73	0.7610
2029	83,947,411	64,487,378	2,472,638	22,740,127	82	74	0.7682	80,448,350	60,998,170	2,297,533	21,164,512	83	73	0.7582
2030	85,674,210	65,606,130	2,489,883	23,152,011	82	74	0.7658	82,115,276	62,017,896	2,313,383	21,549,444	83	73	0.7553
2031	87,395,332	66,692,697	2,501,327	23,524,550	82	74	0.7631	83,778,811	63,005,358	2,323,995	21,893,457	83	73	0.7520
2032	89,105,966	67,739,211	2,509,098	23,854,704	81	74	0.7602	85,434,349	63,953,301	2,331,229	22,196,344	83	73	0.7486
2033	90,801,430	68,738,821	2,513,233	24,138,387	81	74	0.7570	87,077,300	64,855,539	2,335,136	22,456,481	83	72	0.7448
2034	92,476,546	69,685,357	2,513,119	24,370,236	81	74	0.7535	88,702,730	65,706,341	2,335,057	22,669,391	83	72	0.7407
2035	94,126,612	70,574,715	2,509,624	24,548,073	81	74	0.7498	90,306,132	66,502,176	2,331,666	22,832,808	83	72	0.7364
2036	95,748,421	71,402,766	2,503,469	24,673,958	81	74	0.7457	91,884,836	67,239,888	2,326,033	22,948,964	83	72	0.7318
2037	97,340,859	72,169,434	2,496,841	24,753,893	81	74	0.7414	93,437,506	67,919,752	2,319,755	23,022,823	83	72	0.7269

2038	98,901,675	72,884,481	2,488,518	24,794,399	81	74	0.7369	94,962,957	68,552,708	2,312,643	23,060,918	83	72	0.7219
2039	100,430,076	73,561,742	2,479,679	24,802,386	81	74	0.7325	96,461,162	69,153,167	2,305,943	23,070,472	83	72	0.7169
2040	101,927,180	74,213,031	2,472,188	24,785,825	81	73	0.7281	97,933,724	69,732,677	2,300,860	23,059,238	83	72	0.7120
2041	103,394,937	74,843,921	2,466,989	24,752,827	81	73	0.7239	99,382,038	70,296,662	2,297,432	23,034,065	83	72	0.7073
2042	104,835,755	75,454,657	2,464,419	24,709,603	81	73	0.7197	100,807,495	70,844,013	2,295,555	22,999,829	83	72	0.7028
2043	106,251,645	76,045,577	2,464,493	24,662,346	81	73	0.7157	102,211,745	71,375,928	2,295,454	22,961,665	83	72	0.6983
2044	107,644,957	76,620,322	2,467,254	24,617,994	81	73	0.7118	103,597,056	71,898,045	2,297,905	22,925,989	83	72	0.6940
2045	109,018,147	77,183,341	2,473,005	24,582,782	81	73	0.7080	104,965,930	72,415,479	2,303,144	22,898,824	83	72	0.6899
2046	110,374,021	77,738,273	2,481,488	24,562,153	81	73	0.7043	106,320,871	72,932,904	2,310,976	22,885,117	83	72	0.6860
2047	111,714,117	78,291,261	2,492,133	24,558,692	81	73	0.7008	107,663,072	73,453,864	2,320,706	22,887,390	83	72	0.6823
2048	113,041,752	78,851,510	2,504,353	24,575,790	81	73	0.6975	108,994,778	73,986,781	2,331,782	22,907,919	83	72	0.6788
2049	114,359,796	79,428,466	2,517,755	24,615,175	81	73	0.6945	110,317,846	74,541,357	2,343,934	22,947,310	83	72	0.6757
2050	115,662,828	80,022,260	2,531,965	24,675,892	81	73	0.6919	111,625,790	75,117,313	2,356,999	23,004,520	83	72	0.6729

Population Data

Population data by age/gender

Year	Males							Females							Ratio of 15-49 to 15+ population
	Males 15+	Males 15-49	Males 15 y/o	Males 15-24	Migration 15+	Migration 15-49	Ratio of 15-49 to 15+ population	Females 15+	Females 15-49	Females 15 y/o	Females 15-24	Migration 15+	Migration 15-49		
1975	11,929,266	9,262,539	426,473	3,464,783	86	78	0.7765	10,362,880	8,311,771	404,761	3,298,888	85	76	0.8021	
1976	12,275,283	9,529,963	442,785	3,623,267	86	78	0.7764	10,710,521	8,590,683	419,905	3,449,405	85	76	0.8021	
1977	12,644,964	9,818,520	460,039	3,799,977	86	78	0.7765	11,081,825	8,889,625	436,038	3,614,537	85	76	0.8022	
1978	13,038,802	10,128,705	478,699	3,990,524	86	78	0.7768	11,477,286	9,209,008	453,667	3,791,264	85	76	0.8024	
1979	13,458,675	10,462,278	498,828	4,189,642	86	78	0.7774	11,898,825	9,550,456	472,805	3,976,163	85	76	0.8026	
1980	13,909,126	10,823,352	520,094	4,394,666	86	78	0.7781	12,350,973	9,917,939	493,034	4,167,883	85	76	0.8030	
1981	14,406,342	11,228,622	563,849	4,622,469	86	78	0.7794	12,847,364	10,325,541	533,256	4,381,139	85	76	0.8037	
1982	14,903,870	11,631,898	565,135	4,828,884	86	78	0.7805	13,345,069	10,730,699	534,531	4,574,988	85	76	0.8041	
1983	15,394,612	12,026,595	566,325	5,011,636	86	78	0.7812	13,836,864	11,127,040	535,695	4,746,946	85	76	0.8042	
1984	15,871,295	12,405,941	567,493	5,170,000	86	78	0.7817	14,315,487	11,508,252	536,866	4,895,917	85	76	0.8039	
1985	16,327,717	12,764,245	569,161	5,303,869	86	78	0.7818	14,773,693	11,868,035	538,394	5,020,930	85	76	0.8033	
1986	16,809,946	13,147,584	614,524	5,459,543	86	78	0.7821	15,255,295	12,250,219	579,889	5,165,103	85	76	0.8030	
1987	17,290,364	13,528,241	630,720	5,609,004	86	78	0.7824	15,735,592	12,629,902	595,005	5,303,194	85	76	0.8026	

1988	17,769,659	13,906,219	647,620	5,752,695	86	78	0.7826	16,215,199	13,006,976	610,863	5,435,674	85	76	0.8021
1989	18,247,189	14,280,154	665,616	5,890,556	86	78	0.7826	16,693,140	13,379,611	627,735	5,562,405	85	76	0.8015
1990	18,719,263	14,646,568	685,099	6,021,942	86	78	0.7824	17,167,173	13,745,404	646,066	5,683,433	85	76	0.8007
1991	19,196,019	15,014,923	706,685	6,131,820	86	78	0.7822	17,646,247	14,112,321	666,412	5,785,544	85	76	0.7997
1992	19,687,522	15,395,619	730,581	6,268,399	86	78	0.7820	18,139,870	14,489,849	688,937	5,912,871	85	76	0.7988
1993	20,202,106	15,798,036	755,531	6,436,069	86	78	0.7820	18,656,046	14,886,922	712,517	6,069,576	85	76	0.7980
1994	20,743,040	16,227,011	780,672	6,635,487	86	78	0.7823	19,197,996	15,308,683	736,355	6,256,476	85	76	0.7974
1995	21,320,705	16,693,383	807,041	6,870,189	86	78	0.7830	19,774,828	15,764,985	761,383	6,476,766	85	76	0.7972
1996	21,926,926	17,189,524	835,495	7,093,141	86	78	0.7839	20,379,430	16,249,568	788,385	6,687,725	85	76	0.7974
1997	22,561,251	17,714,696	866,228	7,333,033	86	78	0.7852	21,011,132	16,761,416	817,534	6,915,124	85	76	0.7977
1998	23,222,522	18,268,762	898,543	7,588,626	86	78	0.7867	21,669,415	17,300,322	848,216	7,157,954	85	76	0.7984
1999	23,910,116	18,852,146	931,568	7,858,257	86	78	0.7885	22,354,800	17,866,777	879,674	7,415,093	85	76	0.7992
2000	24,621,091	19,462,260	964,212	8,138,306	86	78	0.7905	23,065,396	18,458,628	910,891	7,683,388	85	76	0.8003
2001	25,356,847	20,100,609	997,364	8,427,437	86	78	0.7927	23,802,585	19,077,267	942,578	7,961,500	85	76	0.8015
2002	26,116,416	20,764,486	1,029,789	8,722,769	86	78	0.7951	24,565,204	19,720,403	973,492	8,246,443	85	76	0.8028
2003	26,890,314	21,440,151	1,054,411	9,015,193	86	78	0.7973	25,344,871	20,376,529	996,922	8,529,643	85	76	0.8040
2004	27,666,892	22,110,429	1,069,517	9,294,681	86	78	0.7992	26,131,620	21,031,510	1,011,404	8,801,879	85	77	0.8048
2005	28,433,616	22,759,043	1,077,544	9,551,466	86	78	0.8004	26,917,363	21,674,231	1,019,662	9,055,642	85	77	0.8052
2006	29,194,512	23,387,669	1,083,276	9,784,865	86	78	0.8011	27,701,215	22,302,045	1,025,347	9,287,707	85	77	0.8051
2007	29,954,902	24,001,925	1,090,712	9,996,334	86	78	0.8013	28,485,723	22,917,682	1,032,714	9,498,399	85	76	0.8045
2008	30,721,787	24,608,667	1,099,820	10,188,486	86	78	0.8010	29,272,957	23,523,669	1,040,550	9,687,515	85	76	0.8036
2009	31,499,373	25,212,907	1,108,932	10,362,282	86	78	0.8004	30,062,555	24,120,905	1,046,586	9,852,942	85	76	0.8024
2010	32,291,740	25,819,872	1,117,486	10,518,984	86	78	0.7996	30,854,178	24,710,339	1,051,313	9,993,823	85	75	0.8009
2011	33,095,371	26,427,721	1,126,188	10,656,008	86	78	0.7985	31,646,503	25,291,476	1,054,958	10,108,365	84	75	0.7992
2012	33,904,925	27,032,654	1,132,581	10,769,843	86	78	0.7973	32,438,065	25,863,319	1,057,800	10,196,167	84	74	0.7973
2013	34,714,458	27,629,270	1,134,358	10,862,022	85	77	0.7959	33,224,666	26,421,518	1,056,437	10,260,143	84	74	0.7952
2014	35,519,898	28,212,813	1,131,171	10,936,217	84	76	0.7943	34,001,782	26,961,053	1,050,000	10,303,909	84	74	0.7929
2015	36,322,628	28,784,244	1,127,449	10,998,697	83	76	0.7925	34,770,498	27,482,672	1,043,306	10,333,474	84	74	0.7904
2016	37,122,802	29,324,417	1,127,748	11,054,048	82	74	0.7899	35,533,314	27,971,465	1,041,226	10,354,965	84	74	0.7872
2017	37,928,701	29,880,109	1,138,286	11,110,272	82	74	0.7878	36,300,373	28,473,318	1,050,171	10,377,277	84	74	0.7844
2018	38,748,662	30,459,806	1,159,270	11,176,071	81	73	0.7861	37,082,230	28,998,778	1,070,796	10,411,450	84	74	0.7820
2019	39,586,756	31,067,013	1,184,831	11,256,455	81	74	0.7848	37,884,136	29,552,594	1,097,072	10,465,027	84	73	0.7801
2020	40,444,334	31,702,015	1,213,721	11,355,226	81	74	0.7838	38,708,627	30,136,279	1,126,911	10,542,756	84	73	0.7785

2021	41,323,543	32,326,816	1,243,630	11,474,351	82	75	0.7823	39,556,608	30,713,390	1,157,262	10,646,680	84	73	0.7764
2022	42,223,681	32,966,554	1,273,043	11,615,809	82	75	0.7808	40,425,795	31,305,375	1,185,588	10,775,649	84	73	0.7744
2023	43,144,782	33,620,048	1,302,605	11,784,469	82	75	0.7792	41,314,887	31,909,801	1,212,831	10,932,821	84	73	0.7724
2024	44,087,325	34,286,418	1,332,838	11,986,049	82	75	0.7777	42,223,872	32,525,245	1,240,353	11,123,557	84	73	0.7703
2025	45,050,146	34,962,772	1,362,311	12,220,360	82	75	0.7761	43,151,669	33,148,810	1,267,171	11,347,408	84	73	0.7682
2026	46,030,638	35,644,513	1,389,099	12,480,890	82	74	0.7744	44,095,956	33,776,046	1,291,524	11,597,439	84	73	0.7660
2027	47,024,879	36,325,973	1,412,159	12,753,848	82	74	0.7725	45,053,455	34,401,753	1,312,549	11,859,449	84	73	0.7636
2028	48,028,000	37,001,945	1,430,410	13,024,140	82	74	0.7704	46,020,059	35,021,167	1,329,320	12,117,726	84	73	0.7610
2029	49,035,717	37,668,640	1,444,328	13,283,059	82	74	0.7682	46,991,831	35,630,509	1,342,045	12,362,704	83	73	0.7582
2030	50,044,382	38,322,130	1,454,401	13,523,651	82	74	0.7658	47,965,522	36,226,156	1,351,303	12,587,552	83	73	0.7553
2031	51,049,731	38,956,820	1,461,086	13,741,260	82	74	0.7631	48,937,233	36,802,956	1,357,502	12,788,499	83	73	0.7520
2032	52,048,954	39,568,114	1,465,625	13,934,111	81	74	0.7602	49,904,273	37,356,673	1,361,727	12,965,422	83	73	0.7486
2033	53,039,315	40,152,011	1,468,040	14,099,817	81	74	0.7570	50,863,961	37,883,692	1,364,010	13,117,375	83	72	0.7448
2034	54,017,791	40,704,906	1,467,974	14,235,245	81	74	0.7535	51,813,414	38,380,666	1,363,963	13,241,741	83	72	0.7407
2035	54,981,635	41,224,401	1,465,932	14,339,124	81	74	0.7498	52,750,000	38,845,532	1,361,983	13,337,196	83	72	0.7364
2036	55,928,973	41,708,086	1,462,337	14,412,657	81	74	0.7457	53,672,159	39,276,448	1,358,692	13,405,046	83	72	0.7318
2037	56,859,154	42,155,915	1,458,465	14,459,349	81	74	0.7414	54,579,111	39,673,573	1,355,025	13,448,189	83	72	0.7269
2038	57,770,865	42,573,591	1,453,604	14,483,009	81	74	0.7369	55,470,164	40,043,298	1,350,871	13,470,441	83	72	0.7219
2039	58,663,641	42,969,196	1,448,441	14,487,675	81	74	0.7325	56,345,302	40,394,040	1,346,957	13,476,022	83	72	0.7169
2040	59,538,136	43,349,630	1,444,065	14,478,001	81	73	0.7281	57,205,461	40,732,546	1,343,988	13,469,460	83	72	0.7120
2041	60,395,488	43,718,148	1,441,028	14,458,726	81	73	0.7239	58,051,456	41,061,984	1,341,986	13,454,755	83	72	0.7073
2042	61,237,105	44,074,893	1,439,527	14,433,478	81	73	0.7197	58,884,100	41,381,705	1,340,889	13,434,757	83	72	0.7028
2043	62,064,160	44,420,064	1,439,570	14,405,874	81	73	0.7157	59,704,357	41,692,409	1,340,830	13,412,465	83	72	0.6983
2044	62,878,028	44,755,787	1,441,183	14,379,967	81	73	0.7118	60,513,551	41,997,390	1,342,262	13,391,626	83	72	0.6940
2045	63,680,141	45,084,660	1,444,542	14,359,399	81	73	0.7080	61,313,143	42,299,636	1,345,322	13,375,758	83	72	0.6899
2046	64,472,140	45,408,809	1,449,497	14,347,349	81	73	0.7043	62,104,597	42,601,876	1,349,897	13,367,751	83	72	0.6860
2047	65,254,923	45,731,823	1,455,715	14,345,327	81	73	0.7008	62,888,609	42,906,182	1,355,581	13,369,079	83	72	0.6823
2048	66,030,426	46,059,078	1,462,853	14,355,314	81	73	0.6975	63,666,491	43,217,472	1,362,050	13,381,071	83	72	0.6788
2049	66,800,328	46,396,092	1,470,682	14,378,320	81	73	0.6945	64,439,327	43,541,413	1,369,149	13,404,080	83	72	0.6757
2050	67,561,460	46,742,941	1,478,982	14,413,786	81	73	0.6919	65,203,329	43,877,843	1,376,780	13,437,498	83	72	0.6729

Population Data														
Population data by age/gender														
Year	Males							Ratio of 15-49 to 15+ population						Ratio of 15-49 to 15+ population
	Males 15+	Males 15-49	Males 15 y/o	Males 15-24	Migration 15+	Migratin 15-49	15+ population	Females 15+	Females 15-49	Females 15 y/o	Females 15-24	Migration 15+	Migration 15-49	
1975	4,730,571	3,673,076	169,119	1,373,965	86	78	0.7765	4,109,418	3,296,047	160,509	1,308,180	85	76	0.8021
1976	4,867,785	3,779,123	175,587	1,436,813	86	78	0.7764	4,247,275	3,406,650	166,514	1,367,868	85	76	0.8021
1977	5,014,382	3,893,551	182,429	1,506,887	86	78	0.7765	4,394,517	3,525,196	172,911	1,433,351	85	76	0.8022
1978	5,170,560	4,016,556	189,829	1,582,449	86	78	0.7768	4,551,338	3,651,848	179,902	1,503,432	85	76	0.8024
1979	5,337,061	4,148,834	197,811	1,661,410	86	78	0.7774	4,718,500	3,787,250	187,492	1,576,754	85	76	0.8026
1980	5,515,688	4,292,019	206,244	1,742,712	86	78	0.7781	4,897,800	3,932,976	195,514	1,652,781	85	76	0.8030
1981	5,712,860	4,452,729	223,595	1,833,048	86	78	0.7794	5,094,645	4,094,611	211,464	1,737,348	85	76	0.8037
1982	5,910,155	4,612,649	224,105	1,914,902	86	78	0.7805	5,292,010	4,255,277	211,969	1,814,220	85	76	0.8041
1983	6,104,760	4,769,167	224,577	1,987,373	86	78	0.7812	5,487,032	4,412,447	212,431	1,882,410	85	76	0.8042
1984	6,293,789	4,919,597	225,040	2,050,172	86	78	0.7817	5,676,831	4,563,617	212,895	1,941,484	85	76	0.8039
1985	6,474,784	5,061,683	225,702	2,103,258	86	78	0.7818	5,858,534	4,706,290	213,501	1,991,058	85	76	0.8033
1986	6,666,013	5,213,697	243,690	2,164,991	86	78	0.7821	6,049,514	4,857,846	229,956	2,048,231	85	76	0.8030
1987	6,856,524	5,364,647	250,113	2,224,260	86	78	0.7824	6,239,976	5,008,409	235,950	2,102,991	85	76	0.8026
1988	7,046,589	5,514,535	256,815	2,281,241	86	78	0.7826	6,430,165	5,157,939	242,239	2,155,526	85	76	0.8021
1989	7,235,954	5,662,820	263,951	2,335,910	86	78	0.7826	6,619,693	5,305,708	248,929	2,205,781	85	76	0.8015
1990	7,423,156	5,808,122	271,677	2,388,012	86	78	0.7824	6,807,672	5,450,764	256,199	2,253,775	85	76	0.8007
1991	7,612,214	5,954,193	280,237	2,431,584	86	78	0.7822	6,997,650	5,596,265	264,267	2,294,268	85	76	0.7997
1992	7,807,121	6,105,159	289,713	2,485,744	86	78	0.7820	7,193,397	5,745,975	273,199	2,344,759	85	76	0.7988
1993	8,011,180	6,264,739	299,607	2,552,234	86	78	0.7820	7,398,087	5,903,435	282,550	2,406,901	85	76	0.7980
1994	8,225,688	6,434,849	309,577	2,631,314	86	78	0.7823	7,612,998	6,070,685	292,003	2,481,016	85	76	0.7974
1995	8,454,762	6,619,790	320,034	2,724,385	86	78	0.7830	7,841,742	6,251,632	301,928	2,568,373	85	76	0.7972
1996	8,695,160	6,816,535	331,317	2,812,797	86	78	0.7839	8,081,498	6,443,794	312,636	2,652,029	85	76	0.7974
1997	8,946,703	7,024,793	343,504	2,907,927	86	78	0.7852	8,332,001	6,646,768	324,195	2,742,204	85	76	0.7977
1998	9,208,931	7,244,509	356,319	3,009,283	86	78	0.7867	8,593,044	6,860,472	336,361	2,838,499	85	76	0.7984
1999	9,481,598	7,475,851	369,415	3,116,205	86	78	0.7885	8,864,834	7,085,101	348,836	2,940,468	85	76	0.7992
2000	9,763,536	7,717,793	382,360	3,227,259	86	78	0.7905	9,146,623	7,319,801	361,215	3,046,861	85	76	0.8003

2001	10,055,301	7,970,931	395,506	3,341,915	86	78	0.7927	9,438,956	7,565,123	373,781	3,157,147	85	76	0.8015
2002	10,356,510	8,234,193	408,365	3,459,029	86	78	0.7951	9,741,374	7,820,160	386,040	3,270,141	85	76	0.8028
2003	10,663,401	8,502,129	418,128	3,574,991	86	78	0.7973	10,050,552	8,080,348	395,331	3,382,445	85	76	0.8040
2004	10,971,354	8,767,929	424,119	3,685,822	86	78	0.7992	10,362,539	8,340,081	401,074	3,490,400	85	77	0.8048
2005	11,275,399	9,025,138	427,302	3,787,650	86	78	0.8004	10,674,127	8,594,954	404,349	3,591,030	85	77	0.8052
2006	11,577,134	9,274,421	429,575	3,880,205	86	78	0.8011	10,984,965	8,843,915	406,603	3,683,056	85	77	0.8051
2007	11,878,668	9,518,005	432,524	3,964,064	86	78	0.8013	11,296,063	9,088,046	409,524	3,766,607	85	76	0.8045
2008	12,182,777	9,758,609	436,136	4,040,262	86	78	0.8010	11,608,242	9,328,352	412,632	3,841,601	85	76	0.8036
2009	12,491,131	9,998,222	439,749	4,109,181	86	78	0.8004	11,921,358	9,565,186	415,025	3,907,201	85	76	0.8024
2010	12,805,345	10,238,915	443,141	4,171,321	86	78	0.7996	12,235,277	9,798,927	416,900	3,963,068	85	75	0.8009
2011	13,124,026	10,479,958	446,592	4,225,658	86	78	0.7985	12,549,475	10,029,378	418,345	4,008,490	84	75	0.7992
2012	13,445,056	10,719,846	449,127	4,270,800	86	78	0.7973	12,863,370	10,256,144	419,472	4,043,308	84	74	0.7973
2013	13,766,078	10,956,435	449,831	4,307,354	85	77	0.7959	13,175,298	10,477,498	418,932	4,068,678	84	74	0.7952
2014	14,085,477	11,187,840	448,568	4,336,776	84	76	0.7943	13,483,465	10,691,452	416,379	4,086,033	84	74	0.7929
2015	14,403,801	11,414,442	447,092	4,361,552	83	76	0.7925	13,788,301	10,898,301	413,725	4,097,757	84	74	0.7904
2016	14,721,111	11,628,648	447,210	4,383,502	82	74	0.7899	14,090,797	11,092,133	412,900	4,106,279	84	74	0.7872
2017	15,040,692	11,849,009	451,389	4,405,797	82	74	0.7878	14,394,975	11,291,143	416,447	4,115,127	84	74	0.7844
2018	15,365,849	12,078,889	459,710	4,431,890	81	73	0.7861	14,705,022	11,499,516	424,626	4,128,679	84	74	0.7820
2019	15,698,196	12,319,678	469,847	4,463,767	81	74	0.7848	15,023,019	11,719,132	435,046	4,149,925	84	73	0.7801
2020	16,038,270	12,571,489	481,303	4,502,934	81	74	0.7838	15,349,973	11,950,593	446,879	4,180,748	84	73	0.7785
2021	16,386,922	12,819,255	493,164	4,550,174	82	75	0.7823	15,686,241	12,179,448	458,914	4,221,959	84	73	0.7764
2022	16,743,874	13,072,944	504,827	4,606,269	82	75	0.7808	16,030,919	12,414,201	470,147	4,273,102	84	73	0.7744
2023	17,109,138	13,332,088	516,550	4,673,152	82	75	0.7792	16,383,490	12,653,886	480,950	4,335,429	84	73	0.7724
2024	17,482,905	13,596,338	528,539	4,753,089	82	75	0.7777	16,743,949	12,897,942	491,864	4,411,066	84	73	0.7703
2025	17,864,713	13,864,548	540,227	4,846,005	82	75	0.7761	17,111,869	13,145,218	502,499	4,499,834	84	73	0.7682
2026	18,253,529	14,134,893	550,850	4,949,319	82	74	0.7744	17,486,327	13,393,949	512,156	4,598,984	84	73	0.7660
2027	18,647,797	14,405,127	559,994	5,057,560	82	74	0.7725	17,866,025	13,642,074	520,493	4,702,885	84	73	0.7636
2028	19,045,586	14,673,185	567,231	5,164,745	82	74	0.7704	18,249,334	13,887,704	527,144	4,805,305	84	73	0.7610
2029	19,445,198	14,937,564	572,751	5,267,420	82	74	0.7682	18,634,691	14,129,340	532,190	4,902,452	83	73	0.7582
2030	19,845,186	15,196,707	576,745	5,362,827	82	74	0.7658	19,020,811	14,365,545	535,862	4,991,616	83	73	0.7553
2031	20,243,859	15,448,394	579,396	5,449,120	82	74	0.7631	19,406,144	14,594,276	538,320	5,071,301	83	73	0.7520
2032	20,640,102	15,690,804	581,196	5,525,596	81	74	0.7602	19,789,626	14,813,853	539,995	5,141,461	83	73	0.7486
2033	21,032,832	15,922,349	582,154	5,591,307	81	74	0.7570	20,170,191	15,022,843	540,900	5,201,718	83	72	0.7448
2034	21,420,848	16,141,600	582,128	5,645,011	81	74	0.7535	20,546,699	15,219,919	540,882	5,251,035	83	72	0.7407

2035	21,803,062	16,347,607	581,318	5,686,204	81	74	0.7498	20,918,103	15,404,263	540,097	5,288,888	83	72	0.7364
2036	22,178,731	16,539,413	579,892	5,715,364	81	74	0.7457	21,283,787	15,575,143	538,792	5,315,794	83	72	0.7318
2037	22,547,596	16,717,001	578,357	5,733,880	81	74	0.7414	21,643,441	15,732,624	537,338	5,332,902	83	72	0.7269
2038	22,909,136	16,882,631	576,429	5,743,262	81	74	0.7369	21,996,789	15,879,239	535,690	5,341,727	83	72	0.7219
2039	23,263,168	17,039,509	574,382	5,745,112	81	74	0.7325	22,343,827	16,018,326	534,138	5,343,940	83	72	0.7169
2040	23,609,950	17,190,370	572,646	5,741,276	81	73	0.7281	22,684,924	16,152,561	532,961	5,341,337	83	72	0.7120
2041	23,949,935	17,336,507	571,442	5,733,633	81	73	0.7239	23,020,405	16,283,200	532,167	5,335,506	83	72	0.7073
2042	24,283,679	17,477,975	570,847	5,723,621	81	73	0.7197	23,350,592	16,409,986	531,732	5,327,576	83	72	0.7028
2043	24,611,650	17,614,853	570,864	5,712,674	81	73	0.7157	23,675,866	16,533,197	531,709	5,318,736	83	72	0.6983
2044	24,934,390	17,747,984	571,504	5,702,401	81	73	0.7118	23,996,753	16,654,137	532,276	5,310,472	83	72	0.6940
2045	25,252,470	17,878,400	572,836	5,694,244	81	73	0.7080	24,313,833	16,773,994	533,490	5,304,180	83	72	0.6899
2046	25,566,538	18,006,941	574,801	5,689,466	81	73	0.7043	24,627,685	16,893,848	535,304	5,301,005	83	72	0.6860
2047	25,876,952	18,135,033	577,266	5,688,664	81	73	0.7008	24,938,586	17,014,520	537,558	5,301,531	83	72	0.6823
2048	26,184,479	18,264,807	580,097	5,692,625	81	73	0.6975	25,247,057	17,137,963	540,123	5,306,287	83	72	0.6788
2049	26,489,785	18,398,450	583,201	5,701,748	81	73	0.6945	25,553,526	17,266,422	542,938	5,315,411	83	72	0.6757
2050	26,791,614	18,535,994	586,493	5,715,812	81	73	0.6919	25,856,492	17,399,834	545,965	5,328,663	83	72	0.6729

Population Data														
Population data by age/gender														
Year	Males						Ratio of 15-49 to 15+ population	Females						Ratio of 15-49 to 15+ population
	Males 15+	Males 15-49	Males 15 y/o	Males 15-24	Migration 15+	Migration 15-49		Females 15+	Females 15-49	Females 15 y/o	Females 15-24	Migration 15+	Migration 15-49	
1975	3,762,644	2,921,524	134,515	1,092,837	86	78	0.7765	3,268,586	2,621,640	127,667	1,040,512	85	76	0.8021
1976	3,871,782	3,005,873	139,660	1,142,825	86	78	0.7764	3,378,236	2,709,612	132,444	1,087,987	85	76	0.8021
1977	3,988,384	3,096,887	145,102	1,198,562	86	78	0.7765	3,495,350	2,803,902	137,532	1,140,072	85	76	0.8022
1978	4,112,606	3,194,724	150,988	1,258,663	86	78	0.7768	3,620,084	2,904,640	143,092	1,195,814	85	76	0.8024
1979	4,245,039	3,299,937	157,337	1,321,467	86	78	0.7774	3,753,043	3,012,337	149,129	1,254,133	85	76	0.8026
1980	4,387,117	3,413,825	164,044	1,386,134	86	78	0.7781	3,895,656	3,128,246	155,509	1,314,604	85	76	0.8030
1981	4,543,946	3,541,652	177,845	1,457,986	86	78	0.7794	4,052,224	3,256,809	168,196	1,381,868	85	76	0.8037
1982	4,700,872	3,668,850	178,251	1,523,092	86	78	0.7805	4,209,207	3,384,601	168,598	1,443,010	85	76	0.8041
1983	4,855,659	3,793,343	178,626	1,580,734	86	78	0.7812	4,364,325	3,509,612	168,965	1,497,248	85	76	0.8042

1984	5,006,011	3,912,993	178,995	1,630,685	86	78	0.7817	4,515,289	3,629,851	169,335	1,544,235	85	76	0.8039
1985	5,149,972	4,026,007	179,521	1,672,909	86	78	0.7818	4,659,813	3,743,331	169,816	1,583,666	85	76	0.8033
1986	5,302,073	4,146,917	193,829	1,722,010	86	78	0.7821	4,811,716	3,863,877	182,905	1,629,140	85	76	0.8030
1987	5,453,603	4,266,981	198,937	1,769,152	86	78	0.7824	4,963,208	3,983,634	187,672	1,672,696	85	76	0.8026
1988	5,604,779	4,386,201	204,268	1,814,474	86	78	0.7826	5,114,483	4,102,568	192,674	1,714,481	85	76	0.8021
1989	5,755,398	4,504,144	209,944	1,857,957	86	78	0.7826	5,265,231	4,220,102	197,996	1,754,454	85	76	0.8015
1990	5,904,297	4,619,716	216,089	1,899,398	86	78	0.7824	5,414,747	4,335,477	203,778	1,792,628	85	76	0.8007
1991	6,054,671	4,735,900	222,897	1,934,055	86	78	0.7822	5,565,853	4,451,208	210,195	1,824,835	85	76	0.7997
1992	6,209,698	4,855,976	230,435	1,977,134	86	78	0.7820	5,721,549	4,570,285	217,299	1,864,996	85	76	0.7988
1993	6,372,004	4,982,904	238,304	2,030,019	86	78	0.7820	5,884,357	4,695,527	224,737	1,914,423	85	76	0.7980
1994	6,542,622	5,118,208	246,234	2,092,918	86	78	0.7823	6,055,295	4,828,556	232,256	1,973,373	85	76	0.7974
1995	6,724,825	5,265,308	254,551	2,166,946	86	78	0.7830	6,237,235	4,972,479	240,150	2,042,855	85	76	0.7972
1996	6,916,035	5,421,797	263,526	2,237,268	86	78	0.7839	6,427,935	5,125,323	248,667	2,109,394	85	76	0.7974
1997	7,116,109	5,587,443	273,220	2,312,933	86	78	0.7852	6,627,181	5,286,766	257,861	2,181,119	85	76	0.7977
1998	7,324,682	5,762,202	283,412	2,393,550	86	78	0.7867	6,834,812	5,456,744	267,538	2,257,711	85	76	0.7984
1999	7,541,558	5,946,209	293,828	2,478,595	86	78	0.7885	7,050,992	5,635,411	277,461	2,338,816	85	76	0.7992
2000	7,765,809	6,138,647	304,125	2,566,926	86	78	0.7905	7,275,123	5,822,089	287,307	2,423,439	85	76	0.8003
2001	7,997,876	6,339,991	314,581	2,658,122	86	78	0.7927	7,507,642	6,017,215	297,301	2,511,160	85	76	0.8015
2002	8,237,454	6,549,386	324,809	2,751,274	86	78	0.7951	7,748,182	6,220,069	307,052	2,601,034	85	76	0.8028
2003	8,481,551	6,762,500	332,575	2,843,508	86	78	0.7973	7,994,098	6,427,020	314,442	2,690,359	85	76	0.8040
2004	8,726,494	6,973,914	337,340	2,931,662	86	78	0.7992	8,242,249	6,633,609	319,010	2,776,226	85	77	0.8048
2005	8,968,328	7,178,495	339,871	3,012,655	86	78	0.8004	8,490,083	6,836,331	321,614	2,856,266	85	77	0.8052
2006	9,208,325	7,376,772	341,679	3,086,272	86	78	0.8011	8,737,320	7,034,352	323,408	2,929,462	85	77	0.8051
2007	9,448,161	7,570,516	344,025	3,152,972	86	78	0.8013	8,984,764	7,228,532	325,731	2,995,917	85	76	0.8045
2008	9,690,047	7,761,890	346,897	3,213,580	86	78	0.8010	9,233,067	7,419,668	328,203	3,055,567	85	76	0.8036
2009	9,935,308	7,952,475	349,771	3,268,397	86	78	0.8004	9,482,117	7,608,044	330,107	3,107,745	85	76	0.8024
2010	10,185,230	8,143,920	352,470	3,317,823	86	78	0.7996	9,731,805	7,793,959	331,598	3,152,180	85	75	0.8009
2011	10,438,706	8,335,643	355,214	3,361,042	86	78	0.7985	9,981,714	7,977,257	332,747	3,188,308	84	75	0.7992
2012	10,694,050	8,526,447	357,231	3,396,947	86	78	0.7973	10,231,383	8,157,624	333,644	3,216,002	84	74	0.7973
2013	10,949,387	8,714,627	357,791	3,426,022	85	77	0.7959	10,479,487	8,333,687	333,214	3,236,181	84	74	0.7952
2014	11,203,433	8,898,684	356,786	3,449,424	84	76	0.7943	10,724,600	8,503,863	331,184	3,249,986	84	74	0.7929
2015	11,456,624	9,078,921	355,612	3,469,131	83	76	0.7925	10,967,062	8,668,389	329,072	3,259,311	84	74	0.7904
2016	11,709,009	9,249,299	355,706	3,486,589	82	74	0.7899	11,207,665	8,822,560	328,416	3,266,089	84	74	0.7872

2017	11,963,201	9,424,571	359,030	3,504,323	82	74	0.7878	11,449,605	8,980,851	331,237	3,273,127	84	74	0.7844
2018	12,221,827	9,607,415	365,649	3,525,076	81	73	0.7861	11,696,212	9,146,588	337,743	3,283,905	84	74	0.7820
2019	12,486,172	9,798,936	373,711	3,550,431	81	74	0.7848	11,949,144	9,321,268	346,031	3,300,804	84	73	0.7801
2020	12,756,663	9,999,224	382,823	3,581,584	81	74	0.7838	12,209,199	9,505,370	355,442	3,325,321	84	73	0.7785
2021	13,033,977	10,196,294	392,257	3,619,158	82	75	0.7823	12,476,663	9,687,399	365,015	3,358,100	84	73	0.7764
2022	13,317,892	10,398,075	401,534	3,663,776	82	75	0.7808	12,750,816	9,874,118	373,950	3,398,778	84	73	0.7744
2023	13,608,419	10,604,196	410,858	3,716,973	82	75	0.7792	13,031,247	10,064,762	382,542	3,448,353	84	73	0.7724
2024	13,905,710	10,814,377	420,394	3,780,554	82	75	0.7777	13,317,952	10,258,881	391,223	3,508,513	84	73	0.7703
2025	14,209,396	11,027,708	429,691	3,854,459	82	75	0.7761	13,610,592	10,455,561	399,682	3,579,119	84	73	0.7682
2026	14,518,655	11,242,738	438,140	3,936,633	82	74	0.7744	13,908,432	10,653,399	407,363	3,657,982	84	73	0.7660
2027	14,832,252	11,457,679	445,413	4,022,728	82	74	0.7725	14,210,440	10,850,756	413,995	3,740,623	84	73	0.7636
2028	15,148,649	11,670,889	451,170	4,107,981	82	74	0.7704	14,515,319	11,046,127	419,285	3,822,087	84	73	0.7610
2029	15,466,496	11,881,174	455,560	4,189,648	82	74	0.7682	14,821,828	11,238,321	423,298	3,899,356	83	73	0.7582
2030	15,784,642	12,087,293	458,737	4,265,533	82	74	0.7658	15,128,943	11,426,196	426,218	3,970,276	83	73	0.7553
2031	16,101,742	12,287,482	460,845	4,334,170	82	74	0.7631	15,435,433	11,608,126	428,174	4,033,657	83	73	0.7520
2032	16,416,910	12,480,292	462,277	4,394,998	81	74	0.7602	15,740,450	11,782,775	429,506	4,089,461	83	73	0.7486
2033	16,729,283	12,664,461	463,039	4,447,264	81	74	0.7570	16,043,148	11,949,004	430,226	4,137,389	83	72	0.7448
2034	17,037,906	12,838,851	463,018	4,489,980	81	74	0.7535	16,342,618	12,105,756	430,212	4,176,615	83	72	0.7407
2035	17,341,915	13,002,707	462,374	4,522,744	81	74	0.7498	16,638,029	12,252,381	429,587	4,206,723	83	72	0.7364
2036	17,640,718	13,155,267	461,240	4,545,937	81	74	0.7457	16,928,890	12,388,297	428,549	4,228,124	83	72	0.7318
2037	17,934,109	13,296,518	460,019	4,560,665	81	74	0.7414	17,214,954	12,513,555	427,392	4,241,732	83	72	0.7269
2038	18,221,674	13,428,259	458,485	4,568,127	81	74	0.7369	17,496,004	12,630,171	426,082	4,248,750	83	72	0.7219
2039	18,503,267	13,553,037	456,857	4,569,599	81	74	0.7325	17,772,033	12,740,800	424,848	4,250,511	83	72	0.7169
2040	18,779,094	13,673,031	455,477	4,566,548	81	73	0.7281	18,043,339	12,847,569	423,911	4,248,441	83	72	0.7120
2041	19,049,514	13,789,266	454,519	4,560,468	81	73	0.7239	18,310,176	12,951,478	423,280	4,243,803	83	72	0.7073
2042	19,314,971	13,901,789	454,045	4,552,505	81	73	0.7197	18,572,803	13,052,322	422,934	4,237,495	83	72	0.7028
2043	19,575,835	14,010,660	454,059	4,543,798	81	73	0.7157	18,831,522	13,150,322	422,915	4,230,464	83	72	0.6983
2044	19,832,539	14,116,551	454,568	4,535,627	81	73	0.7118	19,086,753	13,246,517	423,367	4,223,891	83	72	0.6940
2045	20,085,536	14,220,282	455,627	4,529,139	81	73	0.7080	19,338,954	13,341,850	424,332	4,218,886	83	72	0.6899
2046	20,335,343	14,322,523	457,190	4,525,338	81	73	0.7043	19,588,589	13,437,180	425,775	4,216,361	83	72	0.6860
2047	20,582,242	14,424,405	459,151	4,524,701	81	73	0.7008	19,835,877	13,533,162	427,568	4,216,780	83	72	0.6823
2048	20,826,846	14,527,626	461,403	4,527,851	81	73	0.6975	20,081,230	13,631,347	429,608	4,220,562	83	72	0.6788
2049	21,069,683	14,633,924	463,872	4,535,107	81	73	0.6945	20,324,993	13,733,522	431,847	4,227,819	83	72	0.6757
2050	21,309,754	14,743,325	466,490	4,546,294	81	73	0.6919	20,565,969	13,839,636	434,254	4,238,360	83	72	0.6729

Total population 15+ from 2015 AEM in 2011		
Punjab	66,673,882	58.4%
Sindh	26,439,643	23.2%
ROC	21,029,800	18.4%
Check	0	

HIV prevalence_weighted 22032017_manipulated

Region	FSW	PWID 15-49	PWID 15-64	MSM	MSW	MSM1	MSM2	TG	TG SW
PAKISTAN	173,446	97,349	113,421	443,082	68,063	112,506	262,513	52,424	42,190
ISLAMABAD	1,196	667	777	3,206	493	814	1,900	343	276
PUNJAB	-	-	-	-	-	-	-	-	-
PUNJAB ATTOCK	975	390	455	4,204	646	1,068	2,491	201	162
PUNJAB BAHAWALNAGAR	1,518	654	763	7,053	1,083	1,791	4,179	337	271
PUNJAB BAHAWALPUR	6,210	2,755	3,210	8,447	1,298	2,145	5,005	1,578	1,270
PUNJAB BHAKKAR	775	333	388	3,591	552	912	2,127	172	138
PUNJAB CHAKWAL	864	318	370	3,424	526	869	2,029	164	132
PUNJAB DERA GHAZI KHAN	1,349	724	844	3,424	526	869	2,029	156	126
PUNJAB FAISALABAD	7,556	10,389	12,104	18,676	2,869	4,742	11,065	2,737	2,203
PUNJAB GUJRANWALA	4,069	3,210	3,740	11,697	1,797	2,970	6,930	598	481
PUNJAB GUJRAT	317	557	649	6,782	1,042	1,722	4,018	103	83
PUNJAB HAFIZABAD	610	266	309	2,862	440	727	1,695	137	110
PUNJAB JHANG	2,078	904	1,053	9,739	1,496	2,473	5,770	466	375

PUNJAB	JHELUM	1,258	339	395	3,095	475	786	1,833	403	324
PUNJAB	KASUR	1,739	715	833	8,216	1,262	2,086	4,868	506	407
PUNJAB	KHANEWAL	1,521	658	766	7,087	1,089	1,799	4,199	339	273
PUNJAB	KHUSHAB	694	277	322	2,983	458	757	1,767	143	115
PUNJAB	LAHORE	25,716	3,774	4,397	21,990	3,378	5,584	13,028	3,936	3,168
PUNJAB	LAYYAH	828	355	413	3,825	588	971	2,266	183	147
PUNJAB	LODHRAN	1,509	747	870	4,025	618	1,022	2,385	385	310
PUNJAB	MANDI BAHAUDDIN	865	1,040	1,212	3,925	603	997	2,325	750	604
PUNJAB	MIANWALI	1,411	1,300	1,515	3,503	538	889	2,075	670	539
PUNJAB	MULTAN	6,561	1,386	1,615	10,806	1,660	2,744	6,402	3,130	2,519
PUNJAB	MUZAFARGHAR	3,388	1,684	1,962	9,073	1,394	2,304	5,375	867	698
PUNJAB	NAROWAL	961	390	454	4,204	646	1,067	2,491	201	162
PUNJAB	OKARA	1,627	716	834	7,712	1,185	1,958	4,569	737	593
PUNJAB	PAKPATTAN	944	487	567	4,414	678	1,121	2,615	211	170
PUNJAB	RAHIM YAR KHAN	4,035	426	496	10,815	1,661	2,746	6,407	2,068	1,664
PUNJAB	RAJANPUR	799	356	415	3,839	590	975	2,274	183	148
PUNJAB	RAWALPINDI	2,465	1,308	1,524	11,381	1,748	2,890	6,743	1,580	1,272
PUNJAB	SAHIWAL	1,359	585	681	6,300	968	1,600	3,733	301	242
PUNJAB	SARGODHA	4,327	1,873	2,182	9,071	1,393	2,303	5,374	1,213	976
PUNJAB	SHEIKHUPURA	6,252	1,966	2,291	11,423	1,755	2,901	6,768	800	644
PUNJAB	SIALKOT	2,031	2,923	3,406	9,227	1,417	2,343	5,467	532	428
PUNJAB	TOBA TEK SINGH	1,538	665	774	7,163	1,100	1,819	4,244	342	276
PUNJAB	VEHARI	1,207	510	594	5,495	844	1,395	3,256	263	211
	SINDH	-	-	-	-	-	-	-	-	-
SINDH	BADIN	1,251	999	1,164	3,947	606	1,002	2,339	466	375
SINDH	DADU	926	470	548	5,868	901	1,490	3,477	693	558
SINDH	GHOTKI	534	427	497	3,372	518	856	1,998	199	160
SINDH	HYDERABAD	4,426	3,857	4,494	10,047	1,543	2,551	5,953	1,062	855
SINDH	JACCOBABAD	1,558	2,507	2,921	4,953	761	1,258	2,935	1,170	942
SINDH	KARACHI (CENTRAL)	25,191	24,036	28,004	7,915	1,216	2,010	4,689	9,123	7,342

SINDH	KARACHI (EAST)	-	-	-	9,542	1,466	2,423	5,653	-	-
SINDH	KARACHI (MALIR)	-	-	-	3,410	524	866	2,020	-	-
SINDH	KARACHI (SOUTH)	-	-	-	6,063	931	1,540	3,592	-	-
SINDH	KARACHI (WEST)	-	-	-	7,317	1,124	1,858	4,335	-	-
SINDH	KHAIRPUR	846	680	792	5,374	826	1,365	3,184	317	255
SINDH	LARKANA	4,593	1,204	1,403	6,696	1,029	1,700	3,967	1,130	909
SINDH	MIRPURKHAS	2,084	1,229	1,432	3,148	484	799	1,865	435	350
SINDH	NAUSHAHRO FEROZE	593	478	557	3,779	581	960	2,239	223	180
SINDH	NAWABSHAH	1,690	1,865	2,173	3,723	572	945	2,206	383	308
SINDH	SANGHAR	796	639	744	5,049	776	1,282	2,991	298	240
SINDH	SHIKARPUR	477	387	451	3,059	470	777	1,813	181	145
SINDH	SUKKUR	3,307	1,979	2,306	3,156	485	801	1,870	1,609	1,295
SINDH	THARPARKAR	1,047	804	937	3,177	488	807	1,882	375	302
SINDH	THATTA	1,234	979	1,140	3,868	594	982	2,292	457	368
SINDH	UMERKOT	365	292	340	2,304	354	585	1,365	136	109
	NWFP (Khyber Pakhtunkhwa - KPK)	-	-	-	-	-	-	-	-	-
KPK	ABBOTTABAD	956	374	436	3,023	464	768	1,791	153	123
KPK	BANNU	192	146	170	2,325	357	590	1,378	38	31
KPK	BATAGRAM	172	65	76	1,055	162	268	625	53	43
KPK	BUNER	274	107	125	1,737	267	441	1,029	44	35
KPK	CHARSADA	576	217	253	3,510	539	891	2,079	89	71
KPK	CHITRAL	176	135	158	1,094	168	278	648	55	45
KPK	DERA ISMAIL KHAN	974	362	422	2,928	450	744	1,735	148	119
KPK	HANGU	167	67	78	1,080	166	274	640	27	22
KPK	HARIPUR	2,994	493	574	2,376	365	603	1,408	644	518
KPK	KARAK	229	91	107	1,479	227	376	876	37	30
KPK	KOHAT	613	239	278	1,932	297	490	1,144	196	157
KPK	KOHISTAN	284	100	117	1,622	249	412	961	41	33
KPK	LAKKI MARWAT	271	104	121	1,682	258	427	997	43	34
KPK	LOWER DIR	386	152	178	2,464	378	626	1,460	62	50

KPK	MALAKAND	253	96	112	1,553	239	394	920	39	32
KPK	MANSEHRA	620	245	285	3,958	608	1,005	2,345	100	81
KPK	MARDAN	817	620	723	5,012	770	1,273	2,970	254	204
KPK	NOWSEHRA	494	186	216	3,002	461	762	1,778	76	61
KPK	PESHAWAR	765	1,850	2,155	6,931	1,065	1,760	4,107	567	456
KPK	SHANGLA	243	92	108	1,492	229	379	884	38	30
KPK	SWABI	560	218	254	3,525	541	895	2,088	89	72
KPK	SWAT	1,405	534	622	4,317	663	1,096	2,558	219	176
KPK	TANK	135	51	59	818	126	208	485	21	17
KPK	UPPER DIR	316	122	142	1,977	304	502	1,171	50	40
	BALUCHISTAN	-	-	-	-	-	-	-	-	-
BALUCHISTAN	AWARAN	75	24	28	427	66	109	253	40	32
BALUCHISTAN	BARKHAN	65	21	25	374	58	95	222	35	28
BALUCHISTAN	BOLAN	187	59	68	1,042	160	264	617	97	78
BALUCHISTAN	CHAGHI	131	41	48	732	113	186	434	68	55
BALUCHISTAN	DERA BHUGHTI	117	37	43	656	101	166	388	61	49
BALUCHISTAN	GAWADAR	119	75	88	671	103	170	397	124	100
BALUCHISTAN	JAFARABAD	270	88	103	1,565	240	397	927	145	117
BALUCHISTAN	JHALMAGSI	71	22	26	398	61	101	236	37	30
BALUCHISTAN	KALAT	148	48	56	860	132	218	510	80	64
BALUCHISTAN	KECH/Turbat	523	316	368	1,494	230	379	885	82	66
BALUCHISTAN	KHARAN	129	42	49	748	115	190	443	69	56
BALUCHISTAN	KHUZDAR	264	170	198	1,510	232	383	894	560	451
BALUCHISTAN	KILLA ADULLAH	244	75	88	1,339	206	340	793	124	100
BALUCHISTAN	KILLA SAIFULLAH	126	39	46	700	108	178	415	65	52
BALUCHISTAN	KOHLU	66	20	24	361	55	92	214	34	27
BALUCHISTAN	LASBELA	201	64	74	1,131	174	287	670	105	84
BALUCHISTAN	LORALAI	190	61	70	1,076	165	273	637	100	80
BALUCHISTAN	MASTUNG	105	33	39	595	91	151	353	55	44
BALUCHISTAN	MUSAKHAIL	89	27	32	485	74	123	287	45	36

BALUCHISTAN	NASIRABAD	155	50	58	889	137	226	527	83	66
BALUCHISTAN	PISHIN	236	149	174	1,328	204	337	787	246	198
BALUCHISTAN	PUNJGUR	151	95	111	846	130	215	501	314	253
BALUCHISTAN	QUETTA	4,121	503	586	2,748	422	698	1,628	1,425	1,147
BALUCHISTAN	SIBI	117	73	85	652	100	166	386	242	195
BALUCHISTAN	ZHOB	180	56	65	995	153	253	589	92	74
BALUCHISTAN	ZIARAT	21	14	16	121	19	31	71	22	18
SIZE EST BY REGION										
	PUNJAB	100,933	45,785	53,345	250,125	39,909	63,065	147,151	26,846	21,605
	SINDH	51,033	42,929	50,016	104,701	16,706	26,398	61,596	18,311	14,736
	NWFP (Khyber Pakhtunkhwa - KPK)	13,992	6,718	7,828	60,276	9,618	15,198	35,461	3,104	2,498
	BALUCHISTAN	8,143	2,220	2,587	23,502	3,750	5,926	13,827	4,385	3,529
	National data	174,101	97,653	113,776	438,604	69,983	110,586	258,035	52,646	42,368
	Check	-	-	-	-	-	-	-	-	-
Population growth										
	2005-2016	24%								
	Annual between 2005-2016	2.2%								
	2011-2016	9%								

Faisalabad	13.25%	13.25%	12.25%	52.47%	49.93%	data in 2016 = average of data in 2011 and 2016 (actually the prevalence is from IBBS 2014)
Sargodha	51.25%	45.90%	40.55%	45.90%		data in 2008 = average of data in 2006 and 2011
Gujrawala	1.00%			30.97%		
DG Khan		18.55%	49.59%	44.90%		data in 2016 = average of data in 2011 and 2016 (actually the prevalence is from IBBS 2014)
Gujrat			46.15%	42.82%		data in 2016 = average of data in 2011 and 2016 (actually the prevalence is from IBBS 2014)
Sialkot				31.94%		
Sheikhpura				17.40%		
Mandi Bahaudin				51.57%		
Pakpattan						
Rahimyar Khan			3.29%			
Sindh	23.27%	28.82%	35.07%	39.08%	42.09%	
Karachi	30.08%	36.13%	42.19%	48.68%		data in 2008 = average of data in 2006 and 2011
Hyderabad	25.38%	29.75%	30.48%			Exclude 2016 data point
Sukkur	19.15%	19.17%	19.18%	16.84%		data in 2006 = average of data in 2005 and 2011
Larkana	16.54%	28.53%	18.63%	16.23%		
Nawabshah				13.25%		
Mirpurkhas				23.18%		
Dadu				15.98%		
Khyber Pakhtunkhwa	2.16%		17.41%	9.46%		
Peshawar	0.35%	2.22%	12.99%	20.00%	9.93%	
Bannu	1.39%			3.42%		
Haripur				7.69%		
Balochistan			12.62%	11.47%		
Quetta	9.52%	9.47%	7.12%	8.28%		
Turbat			21.37%	16.56%		
ROC	2.31%	3.63%	16.17%	10.04%		

HIV Prevalence		Study 5		Weighted for population size					
MSM	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Prevalence	Numerator	Denominator	Size of MSM 2016 (take from the "Pop size" sheet)	Weighted average	
Punjab	IBBS	2016	Lahore	5.1	2	39	21989.78193	1127.68112	4.94%
	IBBS	2016	Faislabad	0	0	19	18676.39193	0	
	IBBS	2016	Sargodha	0	0	3	9071.287554	0	
	IBBS	2016	Gujranwala	1.9	2	103	11696.88871	227.124053	
	IBBS	2016	DGK	0	0	13	3424.299661	0	
	IBBS	2016	Gujrat	25	1	4	6782.194258	1695.54856	
	IBBS	2016	Sialkot	0	0	82	9226.750009	0	
	IBBS	2016	Sheikhupura	7.6	15	197	11423.31799	869.795786	
	IBBS	2016	Rawalpindi	10.5	2	19	11380.67616	1197.96591	
	IBBS	2016	Bhahwalpur	1	1	99	8447.445504	85.3277324	
Sindh	IBBS	2016	Kasur	9.1	7	77	8216.30107	746.936461	
	IBBS	2016	Karachi	0	0	10	34247.82334	0	5.3%
	IBBS	2016	Hyderabad	27.3	3	11	10047.07541	2740.11148	
	IBBS	2016	Sukkur	11.1	1	9	3156.330592	350.703399	
	IBBS	2016	Larkana	0	0	24	6695.99093	0	
	IBBS	2016	Nawabshah	2.6	2	76	3723.263889	97.9806286	
Khyber Pakhtunkhwa	IBBS	2016	Mirpurkhas	2.2	1	46	3147.859255	68.4317229	
	IBBS	2016	Peshawar	0	0	2	6931.464065	0	0.30%
	IBBS	2016	Bannu	1.2	1	85	2325.27245	27.3561465	
Balochistan	IBBS	2016	Quetta	1.9	1	54	2747.929947	50.8875916	1.88%
	IBBS	2016	Turbat	1.9	1	52	1494.136579	28.7333957	

MSW Prevalence	Study 1					Study 2					Study 3					Study 4					Study 5					Weighted for population size										
	Year of data collection	Study site (please add row to enter data by site)	Prevalence	Numerator	Denominator	Year of data collection	Study site (please add row to enter data by site)	Prevalence	Numerator	Denominator	Year of data collection	Study site (please add row to enter data by site)	Prevalence	Numerator	Denominator	Year of data collection	Study site (please add row to enter data by site)	Prevalence	Numerator	Denominator	Year of data collection	Study site (please add row to enter data by site)	Prevalence	Numerator	Denominator	Year of data collection	Study site (please add row to enter data by site)	Prevalence	Numerator	Denominator	2008 Size from the "Top 100" Cities	Weighted average				
Male Sex Workers	2005	Lahore	0%	0	200	2005-07	Lahore	0.00%	0	200	2008	Lahore	1.00%	2	201	2011	Lahore	1.70%	6	360	2011	Lahore	0.00%	0	200	2011	Lahore	0.00%	0	200	1177.912446	119.862119	1.19%			
	2005	Multan	0%	0	200	2006-07	Multan	0.30%	1	200	2008	Multan	1.00%	7	360	2011	Multan	1.90%	7	360	2011	Multan	0.00%	0	200	2011	Multan	0.00%	0	200	1518.409633	29.5282027	18.9708119			
	2005	Faisalabad	0%	0	200	2006-07	Faisalabad	2.20%	3	200	2008	Faisalabad	1.99%	0	201	2011	Faisalabad	0.20%	1	200	2011	Faisalabad	0.00%	0	200	2011	Faisalabad	0.00%	0	200	2624.622906	11.1126078	41.197617			
						2006-07	Sargodha	1.00%	2	200	2008	Sargodha	1.00%	0	360	2011	Sargodha	0.00%	0	360	2011	Sargodha	0.00%	0	360	2011	Sargodha	0.00%	0	360	1274.828703	0	0	347	1393.473232	0
						2006-07	Gujranwala	0.00%	0	200																										
Belong to Punjab or Sindh	2005	Karachi	4.00%	8	200	2006-07	Karachi	5.20%	15	291	2008	Karachi	3.10%	6	197	2011	Karachi	5.90%	21	360	2011	Karachi	0.00%	0	200	2011	Karachi	0.00%	0	200	4811.99228	280.75701	5.13%	7.69%		
	2005	Hyderabad	0%	0	200	2006-07	Hyderabad	0.00%	0	199	2008	Hyderabad	0.00%	0	199	2011	Hyderabad	0.00%	0	199	2011	Hyderabad	0.00%	0	199	2011	Hyderabad	0.00%	0	199	4131.781881	112.65427	2.41%			
	2005	Sukkur	0%	0	167	2006-07	Sukkur	0.00%	0	200	2008	Sukkur	2.20%	8	360	2011	Sukkur	2.20%	8	360	2011	Sukkur	2.20%	8	360	2011	Sukkur	2.20%	8	360	441.572506	0.8571888				
						2006-07	Larkana	1.30%	3	200	2008	Larkana	1.78%	1	200	2011	Larkana	1.30%	11	360	2011	Larkana	1.30%	11	360	2011	Larkana	1.30%	11	360	943.038142	18.7932711				
Khyber Pakhtunkhwa	2005	Peshawar	0%	0	400	2006-07	Peshawar	0.90%	2	212	2008	Peshawar	0.00%	0	200	2011	Peshawar	0.00%	0	352	2011	Peshawar	0.00%	0	352	2011	Peshawar	0.00%	0	352	974.1081874	0	0.99%	2.67%		
						2006-07	Bannu	4.00%	4	100																										
Balochistan	2005	Quetta	0%	0	209	2006-07	Quetta	0.00%	0	177																										

MSW	2005	2006	2008	2011	2016	
Punjab	0.00%	0.85%	1.17%	0.96%	3.19%	
ahore	0.00%	0.00%	0.99%	1.67%	3.55%	
Multan	0.00%	0.50%	1.94%	1.14%		
Faisalabad	0.00%	2.50%	1.39%	0.28%	1.51%	data in 2008 = average of data in 2006 and 2011
Sargodha		1.00%		0.00%	0.00%	
Gujranwala		0.00%			0.96%	
DGK					4.17%	
Gujrat					4.67%	
Sialkot						-> Small sample size, eclude
Sheikhupura					7.69%	
Rawalpindi				0.56%	3.77%	
Bhahwalpur					0.41%	
Kasur					9.63%	
Sindh	2.89%	3.63%	2.41%	5.15%	7.69%	
Karachi	4.00%	5.25%	3.05%	5.83%	9.41%	data in 2006 = average of data in 2006 and 2008
Hyderabad	0.00%	0.00%	0.00%		5.01%	
Sukkur	0.00%	0.00%		2.22%	4.99%	
Larkana		2.50%	2.78%	3.06%	5.30%	data in 2008 = average of data in 2006 and 2011
Nawabshah					8.82%	

Sheikhupura					3.30%
Rawalpindi			4.23%		5.80%
Bhahwalpur					3.50%
Jhelum					0.00%
DGK					9.20%
Kasur					0.00%
Sindh	1.48%	1.39%	5.03%	11.47%	11.82%
Karachi	1.51%	0.00%	3.60%	11.98%	12.90%
Hyderabad	1.01%	2.00%	0.00%		10.00%
Sukkur	1.62%	0.00%		6.16%	9.50%
Larkana		14.00%	21.28%	14.93%	18.30%
Nawabshah					10.70%
Mirpurkhas					9.00%
Khyber Pakhtunkhwa		1.20%		0.53%	2.19%
Peshawar	1.01%	0.90%	1.24%	1.14%	1.30%
Bannu		5.71%			15.40%
Haripur				0.00%	
Balochistan					2.93%
Quetta	0.53%	0.00%		2.66%	3.00%
Turbat					1.80%
ROC	0.67%	0.36%		1.68%	2.72%

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Sl. No.	Population	KAP	Year	Location	Study method	Sample size	STI prevalence	IAEM 2015 round	HIV prevalence	Condom use	Note	Source	
1	Patients attending STI clinics	STI clinic patients	1999	4 provinces	Unclear	465	STI prev. 27.2% gonorrhoea 31.4% syphilis 17.2% chancroid 18.3% herpes 5.2% chlamydial infections Syphilis: 0.3% Gonorrhoea: 0.6% Chlamydia: 0.3%			0.2%		Rehan N. Profile of men suffering from sexually transmitted infections in Pakistan. J Pak Med Assoc. 2006 Jan;56(1 Suppl 1):560-5.	
2	Urban women 15-49	Women	2001-2002	Rawalpindi	Household survey	311 tested of 508 selected	2.30% Syphilis: 0.3% Gonorrhoea: 0.6% Chlamydia: 0.3%					RRTIS 2001-2002 (Durr-e-Nayab. Reproductive Tract Infections among Women in Pakistan: An urban case study)	
3	FSW 17-35	FSW	2003	Hyderabad	Sindh	Cross sectional (RDS sampling method)	730	18.5% Syphilis: 44% Pseudomonas 4.3% N gonorrhoeae 7.5% C trachomatis 7.7% T vaginalis 5.1%		0.7% 65% always used condoms	Small sample size	Bibi L. Frequency of syphilis in female sex workers at red light area of Hyderabad, Pakistan. J Pak Med Assoc. 2010 May;60(5):353-6. Mohsin Saeed Khan. HIV, STI prevalence and risk behaviours among women selling sex in Lahore, Pakistan. BMC Infectious Diseases. 2011; 11:119	
4	MSW	MSW			RDS	400	Syphilis: 3.6% in Karachi, 16% (Lahore) Genital gonorrhoea: 9.8% (Karachi), 12.3% (Lahore) Genital chlamydia: 5.2% (Karachi), 11% (Lahore)			12% in Punjab 10.5% in Sindh		N Rehan. National Study of Reproductive Tract Infections Among HI	
5	Eunuchs	TG	2004	Karachi, Lahore	Cluster sampling	200	Syphilis: 60.2% (Karachi), 35.9% (Lahore) Genital gonorrhoea: 3% (Karachi), 4% (Lahore) Anal gonorrhoea: 29.4% (Karachi) Genital chlamydia: 0% (Karachi), 1.5% (Lahore) Anal chlamydia: 18.4% (Karachi)			11.5% in Punjab 18.4% in Sindh			
6	IDU	IDU			Time location	400	Syphilis: 18.2% (Karachi), 13.55% (Lahore) Genital gonorrhoea: 1.8% (Karachi), 1% (Lahore) Genital chlamydia: 0.5% (Karachi), 0.2% (Lahore)			2%			
7	Truck drivers	Truck drivers			Randomly selected	400	Syphilis: 4% (Karachi), 6.8% (Lahore) Genital gonorrhoea: 3.5% (Karachi), 0.8% (Lahore) Genital chlamydia: 1% (Karachi), 0.8% (Lahore)						
8	Migrant men	Migrant men	2004-2005	Lahore	Cross sectional	590	3.2% Syphilis: 0.8% (Lahore)		2%	10% with FSW 0% with MSW	13% had sex with non-marital partner(s) last year 6.8% has sex with FSW last year 3.7% has sex with a man	Arjumand and Associates & Center for Population Studies. Sexual behaviours and prevalence of STIs among migrant men in Lahore, Pakistan. 2005	
9	IDU	IDU	2005	Karachi	Cross sectional study	426	Syphilis in Karachi: 18.2%, Lahore: 3.9% Syphilis: 1.2% Bantha: 4.6%, Khotki: 9.6%, Khusha: 48.8% Rectal Gonorrhoea: Bantha: 12.4%, Khotki: 4.7%, Khusha: 20.2%				10.7% in Punjab 8.9% in Punjab	0% Khotki: 0% Khusha: 2.4%	National study of reproductive tract and sexually transmitted infections. Survey of High Risk Groups in Lahore and Karachi NACP, Ministry of Health, Government of Pakistan. 2005: 1-50
10	FSW MSW	FSW MSW	2007	Rawalpindi	Punjab	813	Syphilis: 7.6% Syphilis: 2.8% Syphilis: 5.6% Rectal Gonorrhoea: 9.8%						London School of Hygiene and Tropical Medicine. Sexually Transmitted Infections and HIV Among People With High Risk Behaviours: Results of Behavioural and Biological Surveys in Rawalpindi and Abbottabad, Pakistan
11	IDU	IDU		Abbottabad	KPK	302	Syphilis: 7.6%				2.7%		
12	FSW MSW	FSW MSW				107	Syphilis: 2.8%				0%		
13	MSW	MSW				104	Syphilis: 5.6%				9.4%		
14	IDU	IDU				102	Rectal Gonorrhoea: 9.8%				0%		
15	Male TG	TG	Not clear (earlier than 2008)	Karachi Lahore	Punjab (Lahore) Sindh (Karachi)	Cross sectional study	409 (2008) 58% in both (77% in Karachi, 40% in Lahore)	Syphilis: 50% (62% in Karachi, 37% in Lahore) Gonorrhoea: 18% (31% in Karachi, 4% in Lahore)		1% (2% in Karachi, 1% in Lahore)	42% never use condom 18% & 13% use condoms at last sex with a one-time client & a regular client	84% sold sex 38% had multiple STIs	AA Khan et al. Correlates and prevalence of HIV and sexually transmitted infections among Hijras (male transgenders) in Pakistan. International Journal of STD & AIDS 2008; 19: 817-820
16	Patients attending STI clinics	STI clinic patients	2006-2009	Faisalabad	Cross sectional study. Convenience sampling method	1532 (83.3% are M)	Syphilis: 29.5% Gonorrhoea: 13% HIV 2: 3.2% Chlamydia: 4.7% Chancroid: 1.3% Syphilis: 25.0%					Muhammad Arif Maan. Sexually transmitted infections in Pakistan. Ann Saudi Med. 2011 May-Jun; 31(3): 263-269.	
17	IDU (15-50)	IDU	Not clear (later than 2007)	Lahore	Cross sectional study. Not clear how IDUs were selected.	197						It could be that study participants were selected from hospital. Sample may not be representative.	
18	IDU	IDU	Not clear, about 2008	Rawalpindi and Abbottabad	Cross-sectional surveys among community, recruited IDUs		<2% has gonorrhoea or Chlamydia <3% with active syphilis			2.6% in Rawalpindi, 0% in Abbottabad		Platt L. Prevalence of HIV, HCV and sexually transmitted infections among injecting drug users in Rawalpindi and Abbottabad, Pakistan: evidence for an emerging injection-related HIV epidemic. Sex Transm Infect. 2009 Apr;83 Suppl 2:ii1	
19	Urban men (16-45)	Men	2007	6 cities (Karachi, Lahore, Quetta, Peshawar, Rawalpindi and Faisalabad)	Punjab (Lahore, Rawalpindi, Faisalabad) Sindh (Karachi) BALUCHISTAN Rawalpindi and KPK (Peshawar)	Cross sectional (multistage systematic sampling method)	2400 4.4% Karachi: 8.5% Lahore: 5.3% Faisalabad: 4% Quetta: 4.3% Rawalpindi: 2.5% Peshawar: 2%			2% national wide		Ali M. Mir. STI prevalence and associated factors among urban men in Pakistan. Sexually Transmitted Infections. 2009; 85(3): 199-200	
20	TG 18-40	TG	2014	Faisalabad			Syphilis: 76.9% (oral STI)			23% Condom use last sex: 10%			
21	FSW 18-35	FSW	2014				Syphilis: 20%			0% Condom use last sex: 70%			
22	MSW 18-35	MSW	2014				Syphilis: 27.3%			0% Condom use last sex: 8%			
23	IDU 18-60	IDU	2014	Rawalpindi	Punjab	126 all together	Syphilis: 16.0%			33.3% Condom use last sex: 23%	Very small sample size	Muhammad Hashim Raza. HIV/AIDS and Syphilis Screening Among I	
24	Long run truck drivers 18-50	Truck drivers	2014				Syphilis: 3.12%			2% in adult population in Punjab			
25	H/TG SWs	TG				401	Syphilis: 45.7% Gonorrhoea: 12% Chlamydia: 12% Syphilis: 12.7% Gonorrhoea: 11.2% Chlamydia: 3.72%					Study shared by Pasha Prevalence of Sexually Transmitted Infections (STIs), among Men w	
26	MSM	MSM	Unclear	Karachi	Cross sectional study	401	46.7%						

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Region	FSW	PWID 15-49	PWID 15-64	MSM	MSW	MSM1	MSM2	TG	TG SW
PAKISTAN	173,446	97,349	113,421	443,082	68,063	112,506	262,513	52,424	42,190
ISLAMABAD	1,196	667	777	3,206	493	814	1,900	343	276
PUNJAB	-	-	-	-	-	-	-	-	-
PUNJAB ATTOCK	975	390	455	4,204	646	1,068	2,491	201	162
PUNJAB BAHAWALNAGAR	1,518	654	763	7,053	1,083	1,791	4,179	337	271
PUNJAB BAHAWALPUR	6,210	2,755	3,210	8,447	1,298	2,145	5,005	1,578	1,270
PUNJAB BHAKKAR	775	333	388	3,591	552	912	2,127	172	138
PUNJAB CHAKWAL	864	318	370	3,424	526	869	2,029	164	132
PUNJAB DERA GHAZI KHAN	1,349	724	844	3,424	526	869	2,029	156	126
PUNJAB FAISALABAD	7,556	10,389	12,104	18,676	2,869	4,742	11,065	2,737	2,203
PUNJAB GUJRANWALA	4,069	3,210	3,740	11,697	1,797	2,970	6,930	598	481
PUNJAB GUJRAT	317	557	649	6,782	1,042	1,722	4,018	103	83
PUNJAB HAFIZABAD	610	266	309	2,862	440	727	1,695	137	110
PUNJAB JHANG	2,078	904	1,053	9,739	1,496	2,473	5,770	466	375
PUNJAB JHELUM	1,258	339	395	3,095	475	786	1,833	403	324
PUNJAB KASUR	1,739	715	833	8,216	1,262	2,086	4,868	506	407
PUNJAB KHANEWAL	1,521	658	766	7,087	1,089	1,799	4,199	339	273
PUNJAB KHUSHAB	694	277	322	2,983	458	757	1,767	143	115
PUNJAB LAHORE	25,716	3,774	4,397	21,990	3,378	5,584	13,028	3,936	3,168
PUNJAB LAYYAH	828	355	413	3,825	588	971	2,266	183	147
PUNJAB LODHRAN	1,509	747	870	4,025	618	1,022	2,385	385	310
PUNJAB MANDI BAHAUDDIN	865	1,040	1,212	3,925	603	997	2,325	750	604
PUNJAB MIANWALI	1,411	1,300	1,515	3,503	538	889	2,075	670	539
PUNJAB MULTAN	6,561	1,386	1,615	10,806	1,660	2,744	6,402	3,130	2,519
PUNJAB MUZAFARGHAR	3,388	1,684	1,962	9,073	1,394	2,304	5,375	867	698
PUNJAB NAROWAL	961	390	454	4,204	646	1,067	2,491	201	162

PUNJAB	OKARA	1,627	716	834	7,712	1,185	1,958	4,569	737	593
PUNJAB	PAKPATTAN	944	487	567	4,414	678	1,121	2,615	211	170
PUNJAB	RAHIM YAR KHAN	4,035	426	496	10,815	1,661	2,746	6,407	2,068	1,664
PUNJAB	RAJANPUR	799	356	415	3,839	590	975	2,274	183	148
PUNJAB	RAWALPINDI	2,465	1,308	1,524	11,381	1,748	2,890	6,743	1,580	1,272
PUNJAB	SAHIWAL	1,359	585	681	6,300	968	1,600	3,733	301	242
PUNJAB	SARGODHA	4,327	1,873	2,182	9,071	1,393	2,303	5,374	1,213	976
PUNJAB	SHEIKHUPURA	6,252	1,966	2,291	11,423	1,755	2,901	6,768	800	644
PUNJAB	SIALKOT	2,031	2,923	3,406	9,227	1,417	2,343	5,467	532	428
PUNJAB	TOBA TEK SINGH	1,538	665	774	7,163	1,100	1,819	4,244	342	276
PUNJAB	VEHARI	1,207	510	594	5,495	844	1,395	3,256	263	211
	SINDH	-	-	-	-	-	-	-	-	-
SINDH	BADIN	1,251	999	1,164	3,947	606	1,002	2,339	466	375
SINDH	DADU	926	470	548	5,868	901	1,490	3,477	693	558
SINDH	GHOTKI	534	427	497	3,372	518	856	1,998	199	160
SINDH	HYDERABAD	4,426	3,857	4,494	10,047	1,543	2,551	5,953	1,062	855
SINDH	JACCOBABAD	1,558	2,507	2,921	4,953	761	1,258	2,935	1,170	942
SINDH	KARACHI (CENTRAL)	25,191	24,036	28,004	7,915	1,216	2,010	4,689	9,123	7,342
SINDH	KARACHI (EAST)	-	-	-	9,542	1,466	2,423	5,653	-	-
SINDH	KARACHI (MALIR)	-	-	-	3,410	524	866	2,020	-	-
SINDH	KARACHI (SOUTH)	-	-	-	6,063	931	1,540	3,592	-	-
SINDH	KARACHI (WEST)	-	-	-	7,317	1,124	1,858	4,335	-	-
SINDH	KHAIRPUR	846	680	792	5,374	826	1,365	3,184	317	255
SINDH	LARKANA	4,593	1,204	1,403	6,696	1,029	1,700	3,967	1,130	909
SINDH	MIRPURKHAS	2,084	1,229	1,432	3,148	484	799	1,865	435	350
SINDH	NAUSHAHRO FEROZE	593	478	557	3,779	581	960	2,239	223	180
SINDH	NAWABSHAH	1,690	1,865	2,173	3,723	572	945	2,206	383	308
SINDH	SANGHAR	796	639	744	5,049	776	1,282	2,991	298	240
SINDH	SHIKARPUR	477	387	451	3,059	470	777	1,813	181	145

SINDH	SUKKUR	3,307	1,979	2,306	3,156	485	801	1,870	1,609	1,295
SINDH	THARPARKAR	1,047	804	937	3,177	488	807	1,882	375	302
SINDH	THATTA	1,234	979	1,140	3,868	594	982	2,292	457	368
SINDH	UMERKOT	365	292	340	2,304	354	585	1,365	136	109
	NWFP (Khyber Pakhtunkhwa - KPK)	-	-	-	-	-	-	-	-	-
KPK	ABBOTTABAD	956	374	436	3,023	464	768	1,791	153	123
KPK	BANNU	192	146	170	2,325	357	590	1,378	38	31
KPK	BATAGRAM	172	65	76	1,055	162	268	625	53	43
KPK	BUNER	274	107	125	1,737	267	441	1,029	44	35
KPK	CHARSADA	576	217	253	3,510	539	891	2,079	89	71
KPK	CHITRAL	176	135	158	1,094	168	278	648	55	45
KPK	DERA ISMAIL KHAN	974	362	422	2,928	450	744	1,735	148	119
KPK	HANGU	167	67	78	1,080	166	274	640	27	22
KPK	HARIPUR	2,994	493	574	2,376	365	603	1,408	644	518
KPK	KARAK	229	91	107	1,479	227	376	876	37	30
KPK	KOHAT	613	239	278	1,932	297	490	1,144	196	157
KPK	KOHISTAN	284	100	117	1,622	249	412	961	41	33
KPK	LAKKI MARWAT	271	104	121	1,682	258	427	997	43	34
KPK	LOWER DIR	386	152	178	2,464	378	626	1,460	62	50
KPK	MALAKAND	253	96	112	1,553	239	394	920	39	32
KPK	MANSEHRA	620	245	285	3,958	608	1,005	2,345	100	81
KPK	MARDAN	817	620	723	5,012	770	1,273	2,970	254	204
KPK	NOWSEHRA	494	186	216	3,002	461	762	1,778	76	61
KPK	PESHAWAR	765	1,850	2,155	6,931	1,065	1,760	4,107	567	456
KPK	SHANGLA	243	92	108	1,492	229	379	884	38	30
KPK	SWABI	560	218	254	3,525	541	895	2,088	89	72
KPK	SWAT	1,405	534	622	4,317	663	1,096	2,558	219	176
KPK	TANK	135	51	59	818	126	208	485	21	17
KPK	UPPER DIR	316	122	142	1,977	304	502	1,171	50	40

BALUCHISTAN		-	-	-	-	-	-	-	-	-
BALUCHISTAN	AWARAN	75	24	28	427	66	109	253	40	32
BALUCHISTAN	BARKHAN	65	21	25	374	58	95	222	35	28
BALUCHISTAN	BOLAN	187	59	68	1,042	160	264	617	97	78
BALUCHISTAN	CHAGHI	131	41	48	732	113	186	434	68	55
BALUCHISTAN	DERA BHUGHTI	117	37	43	656	101	166	388	61	49
BALUCHISTAN	GAWADAR	119	75	88	671	103	170	397	124	100
BALUCHISTAN	JAFARABAD	270	88	103	1,565	240	397	927	145	117
BALUCHISTAN	JHALMAGSI	71	22	26	398	61	101	236	37	30
BALUCHISTAN	KALAT	148	48	56	860	132	218	510	80	64
BALUCHISTAN	KECH/Turbat	523	316	368	1,494	230	379	885	82	66
BALUCHISTAN	KHARAN	129	42	49	748	115	190	443	69	56
BALUCHISTAN	KHUZDAR	264	170	198	1,510	232	383	894	560	451
BALUCHISTAN	KILLA ADULLAH	244	75	88	1,339	206	340	793	124	100
BALUCHISTAN	KILLA SAIFULLAH	126	39	46	700	108	178	415	65	52
BALUCHISTAN	KOHLU	66	20	24	361	55	92	214	34	27
BALUCHISTAN	LASBELA	201	64	74	1,131	174	287	670	105	84
BALUCHISTAN	LORALAI	190	61	70	1,076	165	273	637	100	80
BALUCHISTAN	MASTUNG	105	33	39	595	91	151	353	55	44
BALUCHISTAN	MUSAKHAIL	89	27	32	485	74	123	287	45	36
BALUCHISTAN	NASIRABAD	155	50	58	889	137	226	527	83	66
BALUCHISTAN	PISHIN	236	149	174	1,328	204	337	787	246	198
BALUCHISTAN	PUNJGUR	151	95	111	846	130	215	501	314	253
BALUCHISTAN	QUETTA	4,121	503	586	2,748	422	698	1,628	1,425	1,147
BALUCHISTAN	SIBI	117	73	85	652	100	166	386	242	195
BALUCHISTAN	ZHOB	180	56	65	995	153	253	589	92	74
BALUCHISTAN	ZIARAT	21	14	16	121	19	31	71	22	18
SIZE EST BY REGION										

PUNJAB	100,553	45,645	53,181	252,678	38,815	64,159	149,704	26,734	21,514
SINDH	50,918	42,831	49,903	105,770	16,248	26,857	62,665	18,257	14,693
NWFP (Khyber Pakhtunkhwa - KPK)	13,874	6,669	7,770	60,892	9,354	15,461	36,077	3,083	2,481
BALUCHISTAN	8,102	2,204	2,568	23,742	3,647	6,028	14,066	4,351	3,501
National data	173,446	97,349	113,421	443,082	68,063	112,506	262,513	52,424	42,190
Check	-	-	-	-	-	-	-	-	-
Population growth									
2005-2016	24%								
Annual between 2005-2016	2.2%								
2011-2016	9%								

Heterosexual behaviors Female sex workers - Number of clients per day	Study 1					Study 2					Study 4					Study 5					Weighted for population size					
	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Average Clients	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Average Clients	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Average Clients	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Average Clients	Denominator	Size of FSW (take from the *Pop)	Weighted average				
Punjab	IBBS	2005	Countrywide	4.50%		IBBS	2006-07	Countrywide	4.00%		IBBS	2011	Countrywide	3		R5	2016	Gujranwala	1.01	304	4069	4109.69	1.217485675	42218.5772	118212	2.2199
																R5	2016	DGK	1.65	364	1349	2225.85		66650.5772		
																R5	2016	Gujrat	1.03	252	317	326.51				
																R5	2016	Sialkot	1.02	193	2031	2071.62				
																R5	2016	Sheikhupura	1.14	363	6252	7127.28				
																R5	2016	Rawalpindi	1.11	364	2465	2736.15				
																R5	2016	Bhawalpur	1.35	352	6210	8383.5				
																R5	2016	Kasur	1.59	364	1739	2765.01				
Sindh																R5	2016	Karachi	4.03	387	25191	101519.73	3.111192996			
																R5	2016	Hyderabad	1.84	364	4426	8143.84				
																R5	2016	Sukkur	1.14	364	3307	3769.98				
																R5	2016	Larkana	2.04	364	4593	9369.72				
																R5	2016	Nawabshah	1.5	364	1690	2535				
KPK																R5	2016	Mirpurkhas	1.5	364	2084	3126				
																R5	2016	Peshawar	2.15	265	765	1644.75	2.021598746	1.47413319		
																R5	2016	Bannu	1.51	196	192	289.92				
Balochistan																R5	2016	Quetta	1.18	364	4121	4862.78	1.361315676			
																R5	2016	Turbat	2.79	72	523	1459.17				

Heterosexual behaviors	Study 1					Study 2					Study 3					Study 4					Study 5					Study 6					
Female sex workers - Days worked per week	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	
	Not Available																														

Heterosexual behaviors	Study 1					Study 2					Study 4					Study 5					Weighted for population size			
	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Size of FSW (take from the "Pop size" sheet)	Weighted average		
Punjab	IBBS	2005	Countrywide	34.00%		IBBS	2006-07	CountryWide	45.00%		IBBS	2011	CountryWide	50.00%		R5	2016	Gujranwala	195	304	4069	2610.04934	64.6%	0.921859
																R5	2016	DGK	236	364	1349	874.626374		
																R5	2016	Gujrat	75	252	317	94.3452381		
																R5	2016	Sialkot	181	193	2031	1904.72021		
																R5	2016	Sheikhupura	270	363	6252	4650.24793		
																R5	2016	Rawalpindi	13	364	2465	88.0357143		
																R5	2016	Bhawalpur	201	352	6210	3546.05114		
																R5	2016	Kasur	108	364	1739	515.967033		
																	2014	Lahore	66.20%		24585.43777	16275.5598		
																	2014	Faisalabad	71.20%		7223.812716	5143.35465		Borrow data from 2014 to adjust for 2016 data point
																	2014	Multan	68.40%		6272.556277	4290.42849		
																	2014	Sargodha	74.40%		4136.770463	3077.75722		
Sindh																R5	2016	Karachi	236	387	25191	15361.9535	51.5%	
																R5	2016	Hyderabad	211	364	4426	2565.62088		
																R5	2016	Sukkur	219	364	3307	1989.6511		
																R5	2016	Larkana	41	364	4593	517.343407		
																R5	2016	Nawabshah	53	364	1690	246.071429		
																R5	2016	Mirpurkhas	104	364	2084	595.428571		
KPK																R5	2016	Peshawar	165	265	765	476.320755	64.6%	0.810129
																R5	2016	Bannu	145	196	192	142.040816		
Balochistan																R5	2016	Quetta	325	364	4121	3679.46429	84.4%	
																R5	2016	Turbat	33	72	523	239.708333		

Heterosexual behaviors	Study 2					Weighted for population size				Study 4					Study 5					Weighted for population size		
	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Size of FSW (take from the "Pop size" sheet)	FSW size 2006	FSW size	Weighted average	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Size of FSW (take from the "Pop size" sheet)	Weighted average	
Punjab	IBBS	2006-07	Gujrat	12.00%		317	247	29.6781655	22.6%	IBBS	2011	CountryWide	33.20%		R5	2016	Gujranwala	199	304	4069	2663.58882	51.0%
	IBBS	2006-07	Lahore	31.00%		25716	20,063	6219.58855							R5	2016	DGK	107	364	1349	396.546703	
	IBBS	2006-07	Sargodha	12.00%		4327	3,376	405.102278							R5	2016	Gujrat	42	252	317	52.8333333	
	IBBS	2006-07	Faisalabad	16.00%		7556	5,895	943.210173							R5	2016	Sialkot	180	193	2031	1894.19689	
	IBBS	2006-07	Multan	5.00%		6561	5,119	255.939069							R5	2016	Sheikhupura	264	363	6252	4546.90909	
	IBBS														R5	2016	Rawalpindi	4	364	2465	27.0879121	
	IBBS														R5	2016	Bhawalpur	140	352	6210	2469.88636	
	IBBS														R5	2016	Kasur	86	364	1739	410.862637	
Sindh	IBBS	2006-07	Karachi	44.00%		-	-	0 #DIV/0!							R5	2016	Karachi	176	387	25191	11456.3721	38.6%
	IBBS	2006-07	Hyderabad	36.00%		-	-	0							R5	2016	Hyderabad	138	364	4426	1677.98901	
	IBBS	2006-07	Sukkur	7.00%		-	-	0							R5	2016	Sukkur	203	364	3307	1844.28846	
	IBBS		Larkana	28.00%		-	-	0							R5	2016	Larkana	41	364	4593	517.343407	
	IBBS														R5	2016	Nawabshah	17	364	1690	78.9285714	
	IBBS														R5	2016	Mirpurkhas	63	364	2084	360.692308	
KPK	IBBS	2006-07	Peshawar	33.00%		-	-	0 #DIV/0!							R5	2016	Peshawar	124	265	765	357.962264	46.7%
	IBBS	2006-07	Bannu	5.00%		-	-	0							R5	2016	Bannu	91	196	192	89.1428571	
Balochistan	IBBS	2006-07	Quetta	33.00%											R5	2016	Quetta	273	364	4121	3090.75	68.0%
															R5	2016	Turbat	9	72	523	65.375	

Heterosexual behaviors		Study 2					Weighted for population size			Study 4					Weighted for population size			Study 5					Weighted for population size			
Female sex workers - Average duration selling sex		Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Duration in yrs	Denominator	Size of FSW 2016 (take from the "Pop size" sheet)	FSW size 2006	Weighted average	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Duration in yrs	Denominator	Size of FSW 2016 (take from the "Pop size" sheet)	FSW size 2011	Weighted average	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Duration in yrs	Denominator	Size of FSW (take from the "Pop size" sheet)	Weighted average		
Punjab	IBBS	2006-07	Lahore	4.5		0	0	#DIV/0!	IBBS	2011	Lahore	5.4			0	0	#DIV/0!	R5	2016	Gujranwala	5.6	304	4069	22786.4	4.569048788	
	IBBS	2006-07	Sagodha	4.4		0	0	0	IBBS	2011	Faisalabad	3.5			0	0	0	R5	2016	DGK	4	358	1349	5396		
	IBBS	2006-07	Faisalabad	5.8		0	0	0	IBBS	2011	Sargodha	6.5			0	0	0	R5	2016	Gujrat	4.9	252	317	1553.3		
	IBBS	2006-07	Multan	4.9		0	0	0	IBBS	2011	Multan	6.8			0	0	0	R5	2016	Sialkot	5.7	199	2031	11576.7		
	IBBS	2006-07	Gujrat	5.6		0	0	0	IBBS	2011	DG Khan	4.9			0	0	0	R5	2016	Sheikhupura	4.2	363	6252	26258.4		
Sindh	IBBS	2006-07	Karachi	5.3		0	0	#DIV/0!	IBBS	2011	Karachi	4.6			25191	23046.10775	106012.096	5.066046045	R5	2016	Kasur	6.8	364	1739	11825.2	
	IBBS	2006-07	Hyderabad	7.7		0	0	0	IBBS	2011	Sukkur	5.9			4426	4049.14743	23889.9698	R5	2016	Hyderabad	9.2	364	4426	40719.2		
	IBBS	2006-07	Sukkur	3.6		0	0	0	IBBS	2011	Larkana	7.5			3307	3025.424887	22690.6867	R5	2016	Sukkur	7.2	363	3307	23810.4		
	IBBS	2006-07	Larkana	5.5		0	0	0										R5	2016	Larkana	8	364	4593	36744		
																		R5	2016	Nawabshah	8.2	364	1690	13858		
KPK	IBBS	2006-07	Peshawar	4.7		0	0	#DIV/0!	IBBS	2011	Peshawar	4.9			765	699.8639367	3429.33329	4.980250784	R5	2016	Mirpurkhas	3.7	364	2084	7710.8	
	IBBS	2006-07	Bannu	5		0	0	0	IBBS	2011	Haripur	5.3			192	175.6521253	930.956264	R5	2016	Bannu	9	195	192	1728		
Balochistan	IBBS	2006-07	Quetta	5.2					IBBS	2011	Quetta	7.9			4121			R5	2016	Quetta	4.3	360	4121	17720.3	4.547760551	
																		R5	2016	Turbat	6.5	64	523	3399.5		

Heterosexual behaviors		Study 1					Study 2					Study 3					Study 4					Study 5					Study 6				
Clients of FSW - males aged 15-49 who visited FSW in the last year		Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator
		NOT APPLICABLE																													

Heterosexual behaviors		Study 1					Study 2					Study 3					Study 4					Study 5					Study 6				
Clients of FSW - Average duration buying sex (years)		Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator
		NO CLIENT INFORMATION AVAILABLE																													

Heterosexual behaviors	Study 4					Study 5					Weighted for population size		
Casual sex - Percent condom use in casual sex	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Size of FSW (take from the "Pop size" sheet)	Weighted average	
Punjab						R5	2016	Gujranwala	7	304	4069	93.6940789	8.6%
	IBBS	2011	CountryWide	20.60%		R5	2016	DGK	77	364	1349	285.365385	

	R5	2016	Gujrat	38	252	317	47.8015873	
	R5	2016	Sialkot	16	193	2031	168.373057	
	R5	2016	Sheikhupura	43	363	6252	740.595041	
	R5	2016	Rawalpindi	5	364	2465	33.8598901	
	R5	2016	Bhawalpur	21	352	6210	370.482955	
	R5	2016	Kasur	75	364	1739	358.31044	
Sindh	R5	2016	Karachi	144	387	25191	9373.39535	25.6%
	R5	2016	Hyderabad	40	364	4426	486.373626	
	R5	2016	Sukkur	27	364	3307	245.299451	
	R5	2016	Larkana	4	364	4593	50.4725275	
	R5	2016	Nawabshah	26	364	1690	120.714286	
	R5	2016	Mirpurkhas	50	364	2084	286.263736	
KPK	R5	2016	Peshawar	10	265	765	28.8679245	12.8%
	R5	2016	Bannu	96	196	192	94.0408163	
Balochistan	R5	2016	Quetta	100	364	4121	1132.14286	28.4%
	R5	2016	Turbat	26	72	523	188.861111	

Heterosexual behaviors	Study 1				Study 2				Study 3				Study 4				Study 5				Study 6					
Casual sex - Percent of males engaging in casual sex in the last year	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	
Province 1																										
Province 2																										
Province 3			Male and Female here refer to general population thus we have no information available on this. However I have sent proposition of FSW involved in casual sex																							

Heterosexual behaviors		Study 5				Weighted for population size		
Casual sex - Average number of sex contacts in the last year (male)	Source of data (e.g. IBBS)	Year of data collection	Study site (please add row to enter data by site)	Numerator	Denominator	Size of FSW (take from the "Pop size" sheet)	Weighted average	
Punjab	R5	2016	Gujranwala	0.6	304	4069	2441.4	0.577426326
Punjab	R5	2016	DGK	0.55	364	1349	741.95	
Punjab	R5	2016	Gujrat	1.17	252	317	370.89	
Punjab	R5	2016	Sialkot	0.16	193	2031	324.96	
Punjab	R5	2016	Sheikhupura	0.48	363	6252	3000.96	
Punjab	R5	2016	Rawalpindi	0.85	364	2465	2095.25	
Punjab	R5	2016	Bhawalpur	0.37	352	6210	2297.7	
Punjab	R5	2016	Kasur	1.63	364	1739	2834.57	
Sindh	R5	2016	Karachi	1.09	387	25191	27458.19	0.896997651
Sindh	R5	2016	Hyderabad	0.52	364	4426	2301.52	
Sindh	R5	2016	Sukkur	0.66	364	3307	2182.62	
Sindh	R5	2016	Larkana	0.3	364	4593	1377.9	
Sindh	R5	2016	Nawabshah	1.09	364	1690	1842.1	
Sindh	R5	2016	Mirpurkhas	0.9	364	2084	1875.6	
KPK	R5	2016	Peshawar	0.1	265	765	76.5	1.915673981
KPK	R5	2016	Bannu	9.15	196	192	1756.8	
Balochistan	R5	2016	Quetta	0.98	364	4121	4038.58	1.007028424
Balochistan	R5	2016	Turbat	1.22	72	523	638.06	

IDU behaviours_weighted 19032017

Region	FSW	PWID 15-49	PWID 15-64	MSM	MSW	MSM1	MSM2	TG	TG SW
PAKISTAN	173,446	97,349	113,421	443,082	68,063	112,506	262,513	52,424	42,190
ISLAMABAD	1,196	667	777	3,206	493	814	1,900	343	276
PUNJAB	-	-	-	-	-	-	-	-	-
PUNJAB ATTOCK	975	390	455	4,204	646	1,068	2,491	201	162
PUNJAB BAHAWALNAGAR	1,518	654	763	7,053	1,083	1,791	4,179	337	271
PUNJAB BAHAWALPUR	6,210	2,755	3,210	8,447	1,298	2,145	5,005	1,578	1,270
PUNJAB BHAKKAR	775	333	388	3,591	552	912	2,127	172	138
PUNJAB CHAKWAL	864	318	370	3,424	526	869	2,029	164	132
PUNJAB DERA GHAZI KHAN	1,349	724	844	3,424	526	869	2,029	156	126
PUNJAB FAISALABAD	7,556	10,389	12,104	18,676	2,869	4,742	11,065	2,737	2,203
PUNJAB GUJRANWALA	4,069	3,210	3,740	11,697	1,797	2,970	6,930	598	481
PUNJAB GUJRAT	317	557	649	6,782	1,042	1,722	4,018	103	83
PUNJAB HAFIZABAD	610	266	309	2,862	440	727	1,695	137	110
PUNJAB JHANG	2,078	904	1,053	9,739	1,496	2,473	5,770	466	375
PUNJAB JHELUM	1,258	339	395	3,095	475	786	1,833	403	324
PUNJAB KASUR	1,739	715	833	8,216	1,262	2,086	4,868	506	407
PUNJAB KHANEWAL	1,521	658	766	7,087	1,089	1,799	4,199	339	273
PUNJAB KHUSHAB	694	277	322	2,983	458	757	1,767	143	115
PUNJAB LAHORE	25,716	3,774	4,397	21,990	3,378	5,584	13,028	3,936	3,168
PUNJAB LAYYAH	828	355	413	3,825	588	971	2,266	183	147
PUNJAB LODHRAN	1,509	747	870	4,025	618	1,022	2,385	385	310
PUNJAB MANDI BAHAUDDIN	865	1,040	1,212	3,925	603	997	2,325	750	604
PUNJAB MIANWALI	1,411	1,300	1,515	3,503	538	889	2,075	670	539
PUNJAB MULTAN	6,561	1,386	1,615	10,806	1,660	2,744	6,402	3,130	2,519
PUNJAB MUZAFARGHAR	3,388	1,684	1,962	9,073	1,394	2,304	5,375	867	698
PUNJAB NAROWAL	961	390	454	4,204	646	1,067	2,491	201	162

PUNJAB	OKARA	1,627	716	834	7,712	1,185	1,958	4,569	737	593
PUNJAB	PAKPATTAN	944	487	567	4,414	678	1,121	2,615	211	170
PUNJAB	RAHIM YAR KHAN	4,035	426	496	10,815	1,661	2,746	6,407	2,068	1,664
PUNJAB	RAJANPUR	799	356	415	3,839	590	975	2,274	183	148
PUNJAB	RAWALPINDI	2,465	1,308	1,524	11,381	1,748	2,890	6,743	1,580	1,272
PUNJAB	SAHIWAL	1,359	585	681	6,300	968	1,600	3,733	301	242
PUNJAB	SARGODHA	4,327	1,873	2,182	9,071	1,393	2,303	5,374	1,213	976
PUNJAB	SHEIKHUPURA	6,252	1,966	2,291	11,423	1,755	2,901	6,768	800	644
PUNJAB	SIALKOT	2,031	2,923	3,406	9,227	1,417	2,343	5,467	532	428
PUNJAB	TOBA TEK SINGH	1,538	665	774	7,163	1,100	1,819	4,244	342	276
PUNJAB	VEHARI	1,207	510	594	5,495	844	1,395	3,256	263	211
	SINDH	-	-	-	-	-	-	-	-	-
SINDH	BADIN	1,251	999	1,164	3,947	606	1,002	2,339	466	375
SINDH	DADU	926	470	548	5,868	901	1,490	3,477	693	558
SINDH	GHOTKI	534	427	497	3,372	518	856	1,998	199	160
SINDH	HYDERABAD	4,426	3,857	4,494	10,047	1,543	2,551	5,953	1,062	855
SINDH	JACCOBABAD	1,558	2,507	2,921	4,953	761	1,258	2,935	1,170	942
SINDH	KARACHI (CENTRAL)	25,191	24,036	28,004	7,915	1,216	2,010	4,689	9,123	7,342
SINDH	KARACHI (EAST)	-	-	-	9,542	1,466	2,423	5,653	-	-
SINDH	KARACHI (MALIR)	-	-	-	3,410	524	866	2,020	-	-
SINDH	KARACHI (SOUTH)	-	-	-	6,063	931	1,540	3,592	-	-
SINDH	KARACHI (WEST)	-	-	-	7,317	1,124	1,858	4,335	-	-
SINDH	KHAIRPUR	846	680	792	5,374	826	1,365	3,184	317	255
SINDH	LARKANA	4,593	1,204	1,403	6,696	1,029	1,700	3,967	1,130	909
SINDH	MIRPURKHAS	2,084	1,229	1,432	3,148	484	799	1,865	435	350
SINDH	NAUSHAHRO FEROZE	593	478	557	3,779	581	960	2,239	223	180
SINDH	NAWABSHAH	1,690	1,865	2,173	3,723	572	945	2,206	383	308
SINDH	SANGHAR	796	639	744	5,049	776	1,282	2,991	298	240
SINDH	SHIKARPUR	477	387	451	3,059	470	777	1,813	181	145
SINDH	SUKKUR	3,307	1,979	2,306	3,156	485	801	1,870	1,609	1,295

SINDH	THARPARKAR	1,047	804	937	3,177	488	807	1,882	375	302
SINDH	THATTA	1,234	979	1,140	3,868	594	982	2,292	457	368
SINDH	UMERKOT	365	292	340	2,304	354	585	1,365	136	109
	NWFP (Khyber Pakhtunkhwa - KPK)	-	-	-	-	-	-	-	-	-
KPK	ABBOTTABAD	956	374	436	3,023	464	768	1,791	153	123
KPK	BANNU	192	146	170	2,325	357	590	1,378	38	31
KPK	BATAGRAM	172	65	76	1,055	162	268	625	53	43
KPK	BUNER	274	107	125	1,737	267	441	1,029	44	35
KPK	CHARSADA	576	217	253	3,510	539	891	2,079	89	71
KPK	CHITRAL	176	135	158	1,094	168	278	648	55	45
KPK	DERA ISMAIL KHAN	974	362	422	2,928	450	744	1,735	148	119
KPK	HANGU	167	67	78	1,080	166	274	640	27	22
KPK	HARIPUR	2,994	493	574	2,376	365	603	1,408	644	518
KPK	KARAK	229	91	107	1,479	227	376	876	37	30
KPK	KOHAT	613	239	278	1,932	297	490	1,144	196	157
KPK	KOHISTAN	284	100	117	1,622	249	412	961	41	33
KPK	LAKKI MARWAT	271	104	121	1,682	258	427	997	43	34
KPK	LOWER DIR	386	152	178	2,464	378	626	1,460	62	50
KPK	MALAKAND	253	96	112	1,553	239	394	920	39	32
KPK	MANSEHRA	620	245	285	3,958	608	1,005	2,345	100	81
KPK	MARDAN	817	620	723	5,012	770	1,273	2,970	254	204
KPK	NOWSEHRA	494	186	216	3,002	461	762	1,778	76	61
KPK	PESHAWAR	765	1,850	2,155	6,931	1,065	1,760	4,107	567	456
KPK	SHANGLA	243	92	108	1,492	229	379	884	38	30
KPK	SWABI	560	218	254	3,525	541	895	2,088	89	72
KPK	SWAT	1,405	534	622	4,317	663	1,096	2,558	219	176
KPK	TANK	135	51	59	818	126	208	485	21	17
KPK	UPPER DIR	316	122	142	1,977	304	502	1,171	50	40
	BALUCHISTAN	-	-	-	-	-	-	-	-	-
BALUCHISTAN	AWARAN	75	24	28	427	66	109	253	40	32

BALUCHISTAN	BARKHAN	65	21	25	374	58	95	222	35	28
BALUCHISTAN	BOLAN	187	59	68	1,042	160	264	617	97	78
BALUCHISTAN	CHAGHI	131	41	48	732	113	186	434	68	55
BALUCHISTAN	DERA BHUGHTI	117	37	43	656	101	166	388	61	49
BALUCHISTAN	GAWADAR	119	75	88	671	103	170	397	124	100
BALUCHISTAN	JAFARABAD	270	88	103	1,565	240	397	927	145	117
BALUCHISTAN	JHALMAGSI	71	22	26	398	61	101	236	37	30
BALUCHISTAN	KALAT	148	48	56	860	132	218	510	80	64
BALUCHISTAN	KECH/Turbat	523	316	368	1,494	230	379	885	82	66
BALUCHISTAN	KHARAN	129	42	49	748	115	190	443	69	56
BALUCHISTAN	KHUZDAR	264	170	198	1,510	232	383	894	560	451
BALUCHISTAN	KILLA ADULLAH	244	75	88	1,339	206	340	793	124	100
BALUCHISTAN	KILLA SAIFULLAH	126	39	46	700	108	178	415	65	52
BALUCHISTAN	KOHLU	66	20	24	361	55	92	214	34	27
BALUCHISTAN	LASBELA	201	64	74	1,131	174	287	670	105	84
BALUCHISTAN	LORALAI	190	61	70	1,076	165	273	637	100	80
BALUCHISTAN	MASTUNG	105	33	39	595	91	151	353	55	44
BALUCHISTAN	MUSAKHAIL	89	27	32	485	74	123	287	45	36
BALUCHISTAN	NASIRABAD	155	50	58	889	137	226	527	83	66
BALUCHISTAN	PISHIN	236	149	174	1,328	204	337	787	246	198
BALUCHISTAN	PUNJGUR	151	95	111	846	130	215	501	314	253
BALUCHISTAN	QUETTA	4,121	503	586	2,748	422	698	1,628	1,425	1,147
BALUCHISTAN	SIBI	117	73	85	652	100	166	386	242	195
BALUCHISTAN	ZHOB	180	56	65	995	153	253	589	92	74
BALUCHISTAN	ZIARAT	21	14	16	121	19	31	71	22	18
SIZE EST BY REGION										
PUNJAB		100,553	45,645	53,181	252,678	38,815	64,159	149,704	26,734	21,514
SINDH		50,918	42,831	49,903	105,770	16,248	26,857	62,665	18,257	14,693
NWFP (Khyber Pakhtunkhwa - KPK)		13,874	6,669	7,770	60,892	9,354	15,461	36,077	3,083	2,481

Male IDU injecting behavior	Study 1				Study 2				Study 3				Study 4				Study 5			
	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Average number of injections per day	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Average number of injections per day	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Average number of injections per day	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Average number of injections per day	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Average number of injections per day
Punjab	BBS	2005	Countrywide	2.3	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				2.2																
				2.1																
				2.2																
				2.4																
Sindh	BBS	2006-07	Karachi	1.8	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				2.2																
				1.1																
				3.2																
				2.4																
Khyber Pakhtunkhwa	BBS	2006-07	Peshawar	1.8	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				1.4																
				1.8																
				1.5																
				1.5																
Balochistan	BBS	2006-07	Quetta	1.5	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				1.8																
				1.4																
				1.8																
				1.5																

Male IDU injecting behavior	Study 1				Study 2				Study 3				Study 4				Study 5			
	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Duration of injecting drugs in years	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Duration of injecting drugs in years	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Duration of injecting drugs in years	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Duration of injecting drugs in years	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Duration of injecting drugs in years
Punjab	BBS	2005	Lahore	6.3	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				6.3																
				3.8																
				3.8																
				4.2																
Sindh	BBS	2005	Hyderabad	9.4	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				6.1																
				7.9																
				4.4																
				4.2																
Khyber Pakhtunkhwa	BBS	2005	Peshawar	2.6	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				4																
				4																
				4																
				4																
Balochistan	BBS	2005	Quetta	4	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				4																
				4																
				4																
				4																

Male IDU injecting behaviors	Study 1				Study 2				Study 3				Study 4				Study 5			
	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Duration of injecting drugs in years	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Duration of injecting drugs in years	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Duration of injecting drugs in years	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Duration of injecting drugs in years	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Duration of injecting drugs in years
Punjab	BBS	2005	Lahore	6.3	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				6.3																
				3.8																
				3.8																
				4.2																
Sindh	BBS	2005	Hyderabad	9.4	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				6.1																
				7.9																
				4.4																
				4.2																
Khyber Pakhtunkhwa	BBS	2005	Peshawar	2.6	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				4																
				4																
				4																
				4																
Balochistan	BBS	2005	Quetta	4	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				4																
				4																
				4																
				4																

Male IDU sexual behaviors	Study 1				Study 2				Study 3				Study 4				Study 5			
	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Percentage of male IDU visiting female sex workers	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Percentage of male IDU visiting female sex workers	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Percentage of male IDU visiting female sex workers	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Percentage of male IDU visiting female sex workers	Source of data (e.g. BBS)	Year of collection	Study site (please add row to enter data by site)	Percentage of male IDU visiting female sex workers
Punjab	BBS	2005	Lahore	26%	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				4%																
				3%																
				3%																
				3%																
Sindh	BBS	2005	Hyderabad	8%	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				22%																
				7%																
				14%																
				14%																
Khyber Pakhtunkhwa	BBS	2005	Peshawar	13%	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				32%																
				32%																
				32%																
				32%																
Balochistan	BBS	2005	Quetta	28%	0	0	#DIV/0!	0	0	0	#DIV/0!	0	0	0	0	0	0	0	0	0
				28%																
				28%																
				28%																
				28%																

8. ART Data 2011-2016 disaggregated by age group updated 22032017

Number of PLHIV receiving ART	2011					2012					2013					2014					2015					2016				
	Total	Male	Female	<15 year	15+ year	Total	Male	Female	<15 year	15+ year	Total	Male	Female	<15 year	15+ year	Total	Male	Female	<15 year	15+ year	Total	Male	Female	<15 year	15+ year	Total	Male	Female	<15 year	15+ year
Punjab	581	407	174	8	573	1207	785	422	19	1188	1230	828	402	19	1211	2182	1601	581	35	2147	2764	2093	671	176	2588	3637	2819	818	163	3474
Sindh	469	352	117	16	453	740	581	159	32	708	866	693	173	37	829	1117	876	241	41	1076	1683	1387	296	47	1636	2491	2039	452	86	2405
Khyber Pakhtunkhwa	477	365	112	10	467	613	414	199	21	592	683	477	206	28	655	958	746	212	29	929	1170	807	363	9	1161	1411	993	418	35	1376
Balochistan	51	39	12	0	51	51	39	12	0	51	61	51	10	2	59	95	80	15	4	91	198	147	51	5	193	289	212	77	8	281
Federal	440	318	122	17	423	523	379	144	13	510	572	440	132	22	550	667	511	156	24	643	749	556	193	26	723	787	593	194	14	773
Total	2018	1481	537	51	1967	3134	2198	936	85	3048	3412	2489	923	108	3304	5019	3814	1205	133	4886	6564	4990	1574	263	6301	8615	6656	1959	306	8309

Number of PLHIV receiving ART	2011					2012					2013					2014					2015					2016									
	Total	< 15 years		15+ years		Total	< 15 years		15+ years		Total	< 15 years		15+ years		Total	< 15 years		15+ years		Total	< 15 years		15+ years		Total	< 15 years		15+ years						
Punjab	581	5	3	402	171	1207	12	7	773	415	1230	12	7	816	395	2182	23	12	1578	569	2764	111	65	1982	606	3706	105	71	2754	776					
Sindh	469	10	6	342	111	740	23	9	558	150	866	26	11	667	162	1117	29	12	847	229	1683	33	14	1354	282	2555	68	30	2019	438					
Khyber Pakhtunkhwa	477	9	1	356	111	613	15	6	399	193	683	20	8	457	198	958	21	8	725	204	1170	7	2	800	361	1410	25	12	986	387					
Balochistan	51	0	0	39	12	51	0	0	39	12	61	2	0	49	10	95	3	1	77	14	198	4	1	143	50	323	6	3	237	77					
Federal	440	12	5	306	117	523	10	3	369	141	572	14	8	426	124	667	16	8	495	148	749	17	9	539	184	894	10	4	655	225					
Total	2018	36	15	1445	522	3134	60	25	2138	911	3412	74	34	2415	889	5019	92	41	3722	1164	6564	172	91	4818	1483	8888	214	120	6651	1903					
ROC	2011	2012	2013	2014	2015	2016																													
Male	701	807	932	1297	1482	1878																													
Female	240	346	332	366	595	689																													
Total	941	1153	1264	1663	2077	2567																													

9. Case reporting

Case reporting: Number of alive male HIV+	2011	2012	2013	2014	2015	2016	
Punjab	998	1769	2065	3002	3760	5067	2.443105
Sindh	1186	1579	1909	2415	3116	4225	2.445023
KPK	634	833	931	1018	1367	1530	
Baluchistan	80	110	125	152	278	370	
Federal	836	1203	1289	1247	1349	1579	

Case reporting: Number of alive Female HIV+	2011	2012	2013	2014	2015	2016
Punjab	316	693	721	1227	1838	2074
Sindh	418	472	531	988	1530	1728
KPK	261	335	259	417	669	627
Baluchistan	21	21	30	62	136	152
Federal	350	242	319	510	662	646

Case reporting: Number of alive HIV+	2010	2011	2012	2013	2014	2015	2016
Punjab		1314	2462	2786	4229	5598	7141
Sindh		1604	2051	2440	3403	4646	5953
KPK		895	1168	1190	1435	2036	2157
Baluchistan		101	131	155	214	414	522
Federal		1186	1445	1608	1757	2011	2225
Elsewhere (KPK + Baluchistan + Federal)							

Case reporting: M/F Ratio of alive HIV+	2011	2012	2013	2014	2015	2016
Punjab	3.16	2.55	2.86	2.45	2.05	2.44
Sindh	2.84	3.35	3.60	2.44	2.04	2.45
<i>KPK</i>	2.43	2.49	3.59	2.44	2.04	2.44
<i>Baluchistan</i>	3.81	5.24	4.17	2.45	2.04	2.43
<i>Federal</i>	2.39	4.97	4.04	2.45	2.04	2.44
Else where (KPK + Baluchistan + Federal)	2.45	3.59	3.86	2.44	2.04	2.44

Case reporting: Number of alive Male IDU HIV+	2011	2012	2013	2014	2015	2016
Punjab	54	60	172	487	554	1157
Sindh	156	207	225	508	554	1011
KPK	0	4	2	1	16	171
Baluchistan	7	9	6	9	2	35
Federal	8	81	102	94	1	315
% of IDU among all cases						
Punjab	4%	2%	6%	12%	10%	16%
Sindh	10%	10%	9%	15%	12%	17%
KPK						
Baluchistan						
Federal						
Else where	1%	3%	4%	3%	0%	11%

Case reporting: Number of alive people who infected with through heterosexual transmission																										
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Punjab																					0	0	0	0	2	13
Sindh																					0	0	0	0	0	1
KPK																					0	0	0	0	0	0
Balochistan																					0	0	0	0	1	0
Federal																					0	0	0	0	0	1

Case reporting: Number of alive MSM with HIV+																									
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Punjab																					4	6	14	5	24
Sindh																					12	43	26	55	19
KPK																					0	0	0	0	3
Balochistan																					0	1	0	0	0
Federal																					0	0	0	1	0
Number of MSM on ART																									
Punjab																					38	45	50	53	67
Sindh																					73	98	114	153	168
KPK																					0	0	0	0	3
Balochistan																					0	0	0	0	0
Federal																					0	0	0	1	1

Case reporting: Number of alive migrant who infected with HIV+																										
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Punjab																					0	0	0	0	0	7
Sindh																					0	0	0	0	0	6
KPK																					0	0	0	0	1	55
Balochistan																					0	0	0	0	6	1
Federal																					0	0	0	0	0	0

Case reporting: Number of male HIV+ death	2011	2012	2013	2014	2015	2016
Punjab	69	28	44	76	55	103
Sindh	82	23	7	95	84	104
KPK	90	38	21	30	16	40
Baluchistan	7	0	8	16	20	27
Federal	47	10	5	42	9	18

Case reporting: Number of Female HIV+ death	2011	2012	2013	2014	2015	2016
Punjab	21	8	11	7	13	7
Sindh	12	4	3	12	12	10
KPK	13	3	6	5	15	17
Baluchistan	1	0	3	1	1	1
Federal	9	0	4	1	7	1

10. PMTCT data

PMTCT program: Number of pregnant women tested for HIV	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ICT (Federal Area)	311	730	2,882	55		71	65	139	102	47
Punjab (Province 1)	2,253	3,359	3,599	2,320	1,512	348	496	808	79	97
Sindh (Province 2)	206	653	3,108	713	1,479	1,674	1,773	1,409	832	1,568
Khyber Pakhtunkhwa (Province 3)										
Baluchistan (Province 4)	0	0	0	0	0	0	26	140	92	0
Total	3,249	6,926	10,277	3,550	3,442	2,246	2,384	2,650	1,385	1,816
...										

PMTCT program: Number of pregnant women tested POSITIVE for HIV	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ICT (Federal Area)	1	2	2	0	0	0	0	0	0	0
Punjab (Province 1)	0	0	1	0	0	1	11	6	7	5
Sindh (Province 2)	0	3	0	0	3	1	4	2	5	0
Khyber Pakhtunkhwa (Province 3)	0	2	1	0	0	0	0	5	1	14
Balochistan (Province 4)	0	0	0	0	0	0	2	4	2	0
Total	1	7	4	0	3	2	17	17	15	19
...										
...										
Note:	Please note that the data for the identified HIV+ pregnant women at PPTCT Center is misleading, as most of them are already identified as HIV+ (by NGOS or Treatment Center) and then referred to PPTCT Center where they are tested again.									

PMTCT Program: Number of HIV+ pregnant women received ART prophylaxis	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ICT (Federal Area)	1	6	2	2	0	4	5	1	2	4
Punjab (Province 1)	0	0	3	3	13	10	15	11	2	8
Sindh (Province 2)	0	0	0	2	2	2	5	6	0	17
Khyber Pakhtunkhwa (Province 3)										
Balochistan (Province 4)	0	0	0	0	0	0	0	0	0	3
Total	1	10	9	12	18	18	25	22	4	54
...										
...										
...										
Note:	The last tab of the data sheet asks for pregnant women on ARV prophylaxis, this is a little confusing, as from 2015 we are putting women on treatment, not prophylaxis, as guided by WHO. So we wasn't sure how to put data for years 2015 and 2016 as the data sheet only asks for prophylaxis, after some deliberation, we decided to put the number of only those HIV+ women who started ARVs during pregnancy (that is they were not already on treatment).									

11. VCT.HTC data

VCT: Number of male tested for HIV in General Population	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
CHBC																												
Punjab																							435	1148	1330	1450	885	
Sindh																							185	231	301	733	396	
Khyber Pakhtunkhwa																							315	419	340	549	289	
Balochistan																							0	0	34	468	412	
ART																												
Balochistan																											790	
VCT: Number of male tested POSITIVE for HIV in General Population																												
CHBC																												
Punjab																								168	163	192	245	68
Sindh																								106	58	72	46	37
Khyber Pakhtunkhwa																								249	160	5	44	16
Balochistan																								0	0	13	211	166
ART																												
Balochistan																											262	

VCT: Number of FEmale tested for HIV in General Population	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016					
CHBC																															
Punjab																							501	1150	1355	1364	1065				
Sindh																							60	239	257	367	457				
Khyber Pakhtunkhwa																							307	361	77	381	205				
Balochistan																							0	0	23	186	163				
ART																															
Balochistan																											223				
Nai Zindagi																															
Punjab																								103	300	791	1066	1238			
Sindh																								94	252	444	656	813			
Balochistan																								0	0	7	14	19			
VCT: Number of FEmale tested POSITIVE for HIV in General Population																															
CHBC																															
Punjab																								209	218	142	72	62			
Sindh																								15	60	87	22	148			
Khyber Pakhtunkhwa																								262	220	2	68	27			
Balochistan																								0	0	5	41	106			
ART																															
Balochistan																												43			
Nai Zindagi																															
Punjab																									6	15	34	34	39		
Sindh																									6	11	14	19	17		
Balochistan																									0	0	2	2	0		
VCT: Number of IDU tested for HIV																															
CHBC																															
Punjab																									42	436	873	1186	989		
Sindh																									68	98	275	872	611		
Khyber Pakhtunkhwa																									89	52	65	575	876		
Balochistan																									0	0	0	7	1		
ART																															
Balochistan																															
Nai Zindagi																															
Punjab																										2933	3609	7673	6531	5594	
Sindh																										2507	5625	7916	8317	5783	
Balochistan																											0	0	107	271	282

VCT: Number of IDU tested POSITIVE for HIV	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
CHBC																												
Punjab																							21	169	292	384	202	
Sindh																							57	17	89	197	137	
Khyber Pakhtunkhwa																							50	11	0	67	64	
Balochistan																							0	0	0	6	1	
ART																												
Balochistan																											36	
Nai Zindagi																												
Punjab																								993	1232	2571	1783	1984
Sindh																								303	923	1442	1277	971
Balochistan																								0	0	39	48	31

VCT: Number of FSW tested for HIV	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
CHBC																												
Punjab																								0	38	33	139	72
Sindh																								9	13	85	128	220
Khyber Pakhtunkhwa																								0	77	0	65	16
Balochistan																								0	0	0	0	0

VCT: Number of FSW tested POSITIVE for HIV	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
CHBC																												
Punjab																								0	2	1	1	0
Sindh																								9	2	0	0	14
Khyber Pakhtunkhwa																								0	77	0	0	0
Balochistan																								0	0	0	0	0
ART																												
Balochistan																											0	

VCT: Number of MSM tested for HIV	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016			
CHBC																													
Punjab																									4	11	32	167	148
Sindh																									11	34	85	202	260
Khyber Pakhtunkhwa																									0	0	8	124	56
Balochistan																									0	0	0	1	15

VCT: Number of MSM tested POSITIVE for HIV	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016				
CHBC																														
Punjab																										4	1	4	29	15
Sindh																										10	2	3	17	88
Khyber Pakhtunkhwa																										0	0	0	8	7
Balochistan																										0	0	0	1	11
ART																														
Balochistan																												34		

VCT: Number of MSW tested for HIV	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
CHBC																											
Punjab																							0	3	7	39	56
Sindh																							19	65	46	157	217
Khyber Pakhtunkhwa																							0	0	0	49	60
Balochistan																							0	0	0	0	1

VCT: Number of MSW tested POSITIVE for HIV	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
CHBC																												
Punjab																								0	2	3	10	4
Sindh																								18	10	0	70	36
Khyber Pakhtunkhwa																								0	0	0	8	6
Balochistan																								0	0	0	0	1

VCT: Number of TG tested for HIV	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		
CHBC																												
Punjab																								3	153	380	226	90
Sindh																								4	37	8	194	220
Khyber Pakhtunkhwa																								27	15	28	166	189
Balochistan																								0	0	0	0	4
ART																												
Balochistan																											2	

VCT: Number of TG tested POSITIVE for HIV	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016			
CHBC																													
Punjab																									0	24	27	13	4
Sindh																									3	2	6	56	142
Khyber Pakhtunkhwa																									27	10	3	6	7
Balochistan																									0	0	0	0	4
ART																													
Balochistan																											6		

12. FSW.PWID.HSW Size Estimates 22Mar2017

	2005			2016		
	Male	Female	Total	Male	Female	Total
Data	79,633,382	73,818,591	153,451,973	97,880,029	92,676,413	190,556,442
M/F ratio	1.08					
Source	KP SE 2011	KP SE 2011	KP SE 2011	Manipulated	Manipulated	Spectrum
Growth rate	2005-2016			1.241798579		
Number in blue = manipulated						
Cell in red = Need to review						

Region	2005			Growth rate			1.241798579		Male 15-49 (2011)		47,036,253
	Male	Female	Total	Male	Female	Total	Male 15-49	Female 15-49	Male (2011)	91,129,392	
									% Male 15-49 among Male	51.6%	-> Assume % of female 15-49 among female is the same
PAKISTAN	79633382	73818591	153,451,973	98,888,621	91,667,821	190,556,442	50,232,838	47,907,618			
ISLAMABAD	562631	518451	1,081,082	698,674	643,812	1,342,486	360,619	332,302			
PUNJAB	43776112	41036898	84,813,010	54,361,114	50,959,562	105,320,676	28,058,380	26,302,676			
PUNJAB	737746	742315	1,480,061	916,132	921,806	1,837,938	472,860	475,788			
PUNJAB	1237696	1156652	2,393,347	1,536,969	1,435,087	2,972,055	793,303	740,717			
PUNJAB	1482315	1341572	2,823,887	1,840,737	1,665,962	3,506,699	950,093	859,883			
PUNJAB	630109	590092	1,220,201	782,469	732,775	1,515,244	403,870	378,221			
PUNJAB	600846	657327	1,258,173	746,129	816,268	1,562,397	385,113	421,315			
PUNJAB	600879	657363	1,258,242	746,171	816,313	1,562,483	385,134	421,338			
PUNJAB	3277240	3025194	6,302,434	4,069,672	3,756,681	7,826,353	2,100,553	1,939,003			
PUNJAB	2052512	1895669	3,948,181	2,548,806	2,354,039	4,902,845	1,315,561	1,215,033			
PUNJAB	1190106	1188004	2,378,110	1,477,871	1,475,262	2,953,133	762,800	761,453			
PUNJAB	502163	464375	966,538	623,585	576,661	1,200,245	321,862	297,642			
PUNJAB	1708964	1581358	3,290,321	2,122,189	1,963,728	4,085,917	1,095,363	1,013,574			
PUNJAB	543013	545296	1,088,309	674,313	677,148	1,351,461	348,045	349,509			
PUNJAB	1441755	1315666	2,757,422	1,790,370	1,633,793	3,424,162	924,096	843,279			
PUNJAB	1243590	1157935	2,401,525	1,544,288	1,437,922	2,982,211	797,081	742,181			
PUNJAB	523409	528081	1,051,490	649,968	655,770	1,305,739	335,480	338,475			
PUNJAB	3858657	3475654	7,334,311	4,791,675	4,316,062	9,107,737	2,473,213	2,227,727			
PUNJAB	671157	629846	1,301,003	833,442	782,142	1,615,584	430,179	403,701			
PUNJAB	706314	654000	1,360,314	877,100	812,136	1,689,236	452,713	419,182			
PUNJAB	688714	658332	1,347,046	855,244	817,515	1,672,759	441,433	421,959			
PUNJAB	614709	611677	1,226,386	763,345	759,580	1,522,924	393,999	392,056			
PUNJAB	1896178	1721391	3,617,570	2,354,672	2,137,621	4,492,293	1,215,359	1,103,329			
PUNJAB	1592035	1468152	3,060,186	1,976,987	1,823,149	3,800,135	1,020,418	941,015			
PUNJAB	737691	731105	1,468,795	916,063	907,885	1,823,948	472,824	468,603			
PUNJAB	1353343	1238393	2,591,736	1,680,579	1,537,835	3,218,414	867,427	793,750			
PUNJAB	774469	718810	1,493,279	961,734	892,618	1,854,352	496,397	460,723			
PUNJAB	1897734	1748509	3,646,243	2,356,603	2,171,296	4,527,899	1,216,356	1,120,710			
PUNJAB	673618	607919	1,281,537	836,498	754,913	1,591,411	431,757	389,647			
PUNJAB	1997024	1908077	3,905,102	2,479,902	2,369,448	4,849,350	1,279,996	1,222,986			
PUNJAB	1105548	1034148	2,139,696	1,372,868	1,284,203	2,657,071	708,603	662,839			
PUNJAB	1591784	1503225	3,095,010	1,976,675	1,866,703	3,843,379	1,020,257	963,495			
PUNJAB	2004507	1850390	3,854,897	2,489,194	2,297,811	4,787,005	1,284,792	1,186,011			
PUNJAB	1619064	1542446	3,161,510	2,010,551	1,915,408	3,925,959	1,037,742	988,634			
PUNJAB	1256910	1170447	2,427,357	1,560,830	1,453,459	3,014,289	805,619	750,200			
PUNJAB	964315	918477	1,882,792	1,197,485	1,140,564	2,338,049	618,080	588,700			
SINDH	18559943	16697621	35,257,564	23,047,711	20,735,082	43,782,793	11,896,030	10,702,371			
SINDH	692674	619847	1,312,521	860,161	769,725	1,629,887	443,970	397,292			
SINDH	1029709	920126	1,949,835	1,278,691	1,142,611	2,421,302	659,994	589,756			
SINDH	591767	530424	1,122,191	734,856	658,680	1,393,535	379,294	339,976			
SINDH	1763011	1567348	3,330,358	2,189,304	1,946,330	4,135,634	1,130,005	1,004,594			
SINDH	869206	771747	1,640,953	1,079,379	958,354	2,037,733	557,119	494,653			
SINDH	1388910	1245285	2,634,195	1,724,746	1,546,394	3,271,140	890,224	798,168			
SINDH	1674312	1518943	3,193,255	2,079,158	1,886,222	3,965,379	1,073,153	973,570			
SINDH	598391	569095	1,167,486	743,081	706,702	1,449,783	383,540	364,763			
SINDH	1063992	978528	2,042,521	1,321,264	1,215,135	2,536,399	681,968	627,190			
SINDH	1284032	1192036	2,476,068	1,594,510	1,480,268	3,074,778	823,003	764,038			
SINDH	942992	840657	1,783,649	1,171,006	1,043,927	2,214,933	604,412	538,821			
SINDH	1174979	1030611	2,205,590	1,459,087	1,279,811	2,738,899	753,105	660,572			
SINDH	552371	488656	1,041,026	685,933	606,812	1,292,745	354,043	313,205			
SINDH	663118	589767	1,252,886	823,460	732,372	1,555,832	425,027	378,012			
SINDH	653340	576390	1,229,729	811,316	715,760	1,527,076	418,759	369,438			
SINDH	885947	790698	1,676,644	1,100,167	981,887	2,082,054	567,849	506,799			
SINDH	536824	473608	1,010,433	666,628	588,126	1,254,754	344,079	303,560			
SINDH	553857	501264	1,055,121	687,779	622,469	1,310,248	354,996	321,286			
SINDH	557465	518491	1,075,956	692,260	643,861	1,336,121	357,309	332,328			
SINDH	678741	611308	1,290,050	842,860	759,122	1,601,982	435,041	391,819			
SINDH	404305	362791	767,096	502,066	450,513	952,579	259,140	232,532			
SINDH	NWFP (Khyber Pakhtunkhwa - KP)	10685978	10249495	20,935,473	13,269,832	12,727,809	25,997,641	6,849,197	6,569,433		

KPK	ABBOTTABAD	530505	497123	1,027,629	658,781	617,327	1,276,108	340,028	318,632										
KPK	BANNU	408027	394768	802,795	506,688	490,222	996,910	261,526	253,027										
KPK	BATAGRAM	185102	178857	363,958	229,859	222,104	451,963	118,641	114,639										
KPK	BUNER	304839	285420	590,259	378,548	354,434	732,982	195,387	182,940										
KPK	CHARSADA	615863	598649	1,214,512	764,778	743,401	1,508,179	394,738	383,705										
KPK	CHITRAL	191975	182826	374,802	238,395	227,033	465,428	123,047	117,183										
KPK	DERA ISMAIL KHAN	513837	506454	1,020,291	638,082	628,914	1,266,995	329,344	324,613										
KPK	HANGU	189469	173733	363,203	235,283	215,742	451,025	121,441	111,355										
KPK	HARIPIUR	416992	389788	806,780	517,820	484,038	1,001,858	267,272	249,835										
KPK	KARAK	259508	238448	497,956	322,256	296,105	618,361	166,332	152,834										
KPK	KOHAT	338932	319044	657,976	420,885	396,188	817,073	217,239	204,492										
KPK	KOHISTAN	284672	295467	580,139	353,505	366,910	720,415	182,461	189,380										
KPK	LAKKI MARWAT	295187	282375	577,562	366,562	350,653	717,216	189,200	180,989										
KPK	LOWER DIR	432305	401256	833,561	536,836	498,279	1,035,115	277,087	257,186										
KPK	MALAKAND	272456	263448	535,904	338,336	327,149	665,485	174,631	168,857										
KPK	MANSEHRA	694460	645073	1,339,533	862,379	801,051	1,663,430	445,115	413,461										
KPK	MARDAN	879551	849871	1,729,423	1,092,225	1,055,369	2,147,595	563,750	544,727										
KPK	NOWSEHRA	526714	513908	1,040,622	654,073	638,170	1,292,243	337,599	329,390										
KPK	PESHAWAR	1216299	1196906	2,413,205	1,510,398	1,486,316	2,996,714	779,589	767,159										
KPK	SHANGLA	261777	252384	514,161	325,074	313,411	638,485	167,786	161,766										
KPK	SWABI	618538	582649	1,201,187	768,099	723,533	1,491,632	396,453	373,450										
KPK	SWAT	757568	730943	1,488,512	940,747	907,685	1,848,432	485,565	468,500										
KPK	TANK	143499	140244	283,743	178,197	174,154	352,351	91,976	89,889										
KPK	UPPER DIR	346892	328900	675,792	430,770	408,428	839,197	222,341	210,809										
	BALOCHISTAN	4166144	3651902	7,818,046	5,173,512	4,534,927	9,708,439	2,670,298	2,340,693										
BALOCH	AWARAN	74982	64690	139,672	93,113	80,331	173,444	48,060	41,463										
BALOCH	BARKHAN	65701	56619	122,320	81,587	70,310	151,897	42,111	36,290										
BALOCH	BOLAN	182775	161935	344,711	226,970	201,091	428,061	117,150	103,793										
BALOCH	CHAGHI	128530	113245	241,774	159,608	140,627	300,235	82,381	72,584										
BALOCH	DERA BHUGHTI	115044	101351	216,395	142,861	125,858	268,719	73,737	64,961										
BALOCH	GAWADAR	117701	103559	221,260	146,161	128,600	274,760	75,441	66,376										
BALOCH	JAFARABAD	274628	234359	508,987	341,033	291,026	632,059	176,024	150,213										
BALOCH	JHALMAGSI	69759	61309	131,068	86,627	76,133	162,760	44,712	39,296										
BALOCH	KALAT	150909	128032	278,941	187,399	158,991	346,389	96,725	82,063										
BALOCH	KECH	262184	225546	487,729	325,579	280,082	605,662	168,047	144,564										
BALOCH	KHARAN	131287	111709	242,995	163,032	138,720	301,751	84,148	71,600										
BALOCH	KHUZDAR	264888	229146	494,034	328,937	284,553	613,491	169,780	146,872										
BALOCH	KILLA ADULLAH	234941	211755	446,696	291,749	262,957	554,706	150,586	135,725										
BALOCH	KILLA SAIFULLAH	122812	109535	232,347	152,508	136,020	288,528	78,717	70,207										
BALOCH	KOHLU	63354	57160	120,513	78,672	70,981	149,653	40,607	36,637										
BALOCH	LASBELA	198409	174414	372,823	246,384	216,587	462,972	127,171	111,791										
BALOCH	LORALAI	188803	164726	353,529	234,455	204,557	439,012	121,013	105,582										
BALOCH	MASTUNG	104470	90955	195,425	129,730	112,948	242,678	66,960	58,298										
BALOCH	MUSAKHAIL	85060	77213	162,274	105,628	95,883	201,511	54,520	49,490										
BALOCH	NASIRABAD	156023	134778	290,801	193,749	167,367	361,116	100,003	86,386										
BALOCH	PISHIN	232983	204471	437,453	289,318	253,911	543,229	149,331	131,056										
BALOCH	PUNJGUR	148509	130858	279,367	184,418	162,499	346,917	95,187	83,874										
BALOCH	QUETTA	482193	429150	911,343	598,787	532,918	1,131,705	309,062	275,065										
BALOCH	SIBI	114465	101368	215,833	142,142	125,878	268,021	73,367	64,972										
BALOCH	ZHOB	174581	155998	330,579	216,795	193,718	410,513	111,898	99,987										
BALOCH	ZIARAT	21155	18022	39,176	26,270	22,379	48,649	13,559	11,551										

TAKEN FROM PREVIOUS ROUND				
Key pop	Large C	Medium C	Small C	
PWID	0.33%	0.17%	0.08%	Punjab
	0.45%	0.23%	0.11%	Sindh
	0.22%	0.11%	0.06%	KPK
	0.20%	0.10%	0.05%	Balochistan
FSW	mapped	0.36%	0.205%	Punjab
	mapped	0.315%	0.157%	Sindh
	mapped	0.30%	0.15%	KPK
	mapped		0.18%	Balochistan
MSW	0.18%	0.09%	0.05%	Punjab
	0.19%	0.10%	0.05%	Sindh
	0.17%	0.09%	0.04%	KPK
	0.36%	0.18%	0.09%	Balochistan
HSW	0.17%	0.09%	0.04%	Punjab
	0.21%	0.11%	0.05%	Sindh
	0.09%	0.05%	0.02%	KPK
	0.33%	0.17%	0.08%	Balochistan

Region	FSW	PWID 15-49	PWID 15-64	TG	TG SW
PAKISTAN	173,446	97,349	113,421	52,424	42,190
ISLAMABAD	1,196	667	777	343	276
PUNJAB	-	-	-	-	-
PUNJAB ATTOCK	975	390	455	201	162
PUNJAB BAHAWALNAGAR	1,518	654	763	337	271
PUNJAB BAHAWALPUR	6,210	2,755	3,210	1,578	1,270
PUNJAB BHAKKAR	775	333	388	172	138
PUNJAB CHAKWAL	864	318	370	164	132
PUNJAB DERA GHAZI KHAN	1,349	724	844	156	126
PUNJAB FAISALABAD	7,556	10,389	12,104	2,737	2,203
PUNJAB GUJRANWALA	4,069	3,210	3,740	598	481
PUNJAB GUJRAT	317	557	649	103	83
PUNJAB HAFIZABAD	610	266	309	137	110
PUNJAB JHANG	2,078	904	1,053	466	375

PUNJAB	JHELUM	1,258	339	395	403	324
PUNJAB	KASUR	1,739	715	833	506	407
PUNJAB	KHANEWAL	1,521	658	766	339	273
PUNJAB	KHUSHAB	694	277	322	143	115
PUNJAB	LAHORE	25,716	3,774	4,397	3,936	3,168
PUNJAB	LAYYAH	828	355	413	183	147
PUNJAB	LODHRAN	1,509	747	870	385	310
PUNJAB	MANDI BAHAUDDIN	865	1,040	1,212	750	604
PUNJAB	MIANWALI	1,411	1,300	1,515	670	539
PUNJAB	MULTAN	6,561	1,386	1,615	3,130	2,519
PUNJAB	MUZAFARGHAR	3,388	1,684	1,962	867	698
PUNJAB	NAROWAL	961	390	454	201	162
PUNJAB	OKARA	1,627	716	834	737	593
PUNJAB	PAKPATTAN	944	487	567	211	170
PUNJAB	RAHIM YAR KHAN	4,035	426	496	2,068	1,664
PUNJAB	RAJANPUR	799	356	415	183	148
PUNJAB	RAWALPINDI	2,465	1,308	1,524	1,580	1,272
PUNJAB	SAHIWAL	1,359	585	681	301	242
PUNJAB	SARGODHA	4,327	1,873	2,182	1,213	976
PUNJAB	SHEIKHUPURA	6,252	1,966	2,291	800	644
PUNJAB	SIALKOT	2,031	2,923	3,406	532	428
PUNJAB	TOBA TEK SINGH	1,538	665	774	342	276
PUNJAB	VEHARI	1,207	510	594	263	211
	SINDH	-	-	-	-	-
SINDH	BADIN	1,251	999	1,164	466	375
SINDH	DADU	926	470	548	693	558
SINDH	GHOTKI	534	427	497	199	160
SINDH	HYDERABAD	4,426	3,857	4,494	1,062	855
SINDH	JACCOBABAD	1,558	2,507	2,921	1,170	942
SINDH	KARACHI (CENTRAL)	25,191	24,036	28,004	9,123	7,342
SINDH	KARACHI (EAST)	-	-	-	-	-
SINDH	KARACHI (MALIR)	-	-	-	-	-
SINDH	KARACHI (SOUTH)	-	-	-	-	-
SINDH	KARACHI (WEST)	-	-	-	-	-
SINDH	KHAIRPUR	846	680	792	317	255

SINDH	LARKANA	4,593	1,204	1,403	1,130	909
SINDH	MIRPURKHAS	2,084	1,229	1,432	435	350
SINDH	NAUSHAHRO FEROZE	593	478	557	223	180
SINDH	NAWABSHAH	1,690	1,865	2,173	383	308
SINDH	SANGHAR	796	639	744	298	240
SINDH	SHIKARPUR	477	387	451	181	145
SINDH	SUKKUR	3,307	1,979	2,306	1,609	1,295
SINDH	THARPARKAR	1,047	804	937	375	302
SINDH	THATTA	1,234	979	1,140	457	368
SINDH	UMERKOT	365	292	340	136	109
	NWFP (Khyber Pakhtunkhwa - KPK)	-	-	-	-	-
KPK	ABBOTTABAD	956	374	436	153	123
KPK	BANNU	192	146	170	38	31
KPK	BATAGRAM	172	65	76	53	43
KPK	BUNER	274	107	125	44	35
KPK	CHARSADA	576	217	253	89	71
KPK	CHITRAL	176	135	158	55	45
KPK	DERA ISMAIL KHAN	974	362	422	148	119
KPK	HANGU	167	67	78	27	22
KPK	HARIPUR	2,994	493	574	644	518
KPK	KARAK	229	91	107	37	30
KPK	KOHAT	613	239	278	196	157
KPK	KOHISTAN	284	100	117	41	33
KPK	LAKKI MARWAT	271	104	121	43	34
KPK	LOWER DIR	386	152	178	62	50
KPK	MALAKAND	253	96	112	39	32
KPK	MANSEHRA	620	245	285	100	81
KPK	MARDAN	817	620	723	254	204
KPK	NOWSEHRA	494	186	216	76	61
KPK	PESHAWAR	765	1,850	2,155	567	456
KPK	SHANGLA	243	92	108	38	30
KPK	SWABI	560	218	254	89	72
KPK	SWAT	1,405	534	622	219	176
KPK	TANK	135	51	59	21	17
KPK	UPPER DIR	316	122	142	50	40

	BALUCHISTAN	-	-	-	-	-
BALUCHIS TAN	AWARAN	75	24	28	40	32
BALUCHIS TAN	BARKHAN	65	21	25	35	28
BALUCHIS TAN	BOLAN	187	59	68	97	78
BALUCHIS TAN	CHAGHI	131	41	48	68	55
BALUCHIS TAN	DERA BHUGHTI	117	37	43	61	49
BALUCHIS TAN	GAWADAR	119	75	88	124	100
BALUCHIS TAN	JAFARABAD	270	88	103	145	117
BALUCHIS TAN	JHALMAGSI	71	22	26	37	30
BALUCHIS TAN	KALAT	148	48	56	80	64
BALUCHIS TAN	KECH/Turbat	523	316	368	82	66
BALUCHIS TAN	KHARAN	129	42	49	69	56
BALUCHIS TAN	KHUZDAR	264	170	198	560	451
BALUCHIS TAN	KILLA ADULLAH	244	75	88	124	100
BALUCHIS TAN	KILLA SAIFULLAH	126	39	46	65	52
BALUCHIS TAN	KOHLU	66	20	24	34	27
BALUCHIS TAN	LASBELA	201	64	74	105	84
BALUCHIS TAN	LORALAI	190	61	70	100	80
BALUCHIS TAN	MASTUNG	105	33	39	55	44
BALUCHIS TAN	MUSAKHAIL	89	27	32	45	36
BALUCHIS TAN	NASIRABAD	155	50	58	83	66
BALUCHIS TAN	PISHIN	236	149	174	246	198
BALUCHIS TAN	PUNJGUR	151	95	111	314	253
BALUCHIS TAN	QUETTA	4,121	503	586	1,425	1,147
BALUCHIS TAN	SIBI	117	73	85	242	195
BALUCHIS TAN	ZHOB	180	56	65	92	74
BALUCHIS TAN	ZIARAT	21	14	16	22	18

SIZE EST BY REGION					
PUNJAB	100,553	45,645	53,181	26,734	21,514
SINDH	50,918	42,831	49,903	18,257	14,693
NWFP (Khyber Pakhtunkhwa - KPK)	13,874	6,669	7,770	3,083	2,481
BALUCHISTAN	8,102	2,204	2,568	4,351	3,501
National data	173,446	97,349	113,421	52,424	42,190
Check	-	-	-		

Region	2005			2016			Female 15-49	2016 size estimate		2011 size estimate		2014 SE	FSW SE 2016 (15-49)
	Male	Female	Total	Male	Female	Total		Manipulated	Mapped number	Manipulated	Mapped number		
PAKISTAN	79,633,382	73,818,591	153,451,973	98,888,621	91,667,821	190,556,442	47,907,618						
ISLAMABAD	562,631	518,451	1,081,082	698,674	643,812	1,342,486	332,302	1,196		1,193			1,196
PUNJAB	43,776,112	41,036,898	84,813,010	54,361,114	50,959,562	105,320,676	26,302,676						
PUNJAB ATTOCK	737,746	742,315	1,480,061	916,132	921,806	1,837,938	475,788	975		930			975
PUNJAB BAHAWALNAGAR	1,237,696	1,155,652	2,393,347	1,536,969	1,435,087	2,972,055	740,717	1,518		1,504			1,518
PUNJAB BAHAWALPUR	1,482,315	1,341,572	2,823,887	1,840,737	1,665,962	3,506,699	859,883		6210				6,210
PUNJAB BHAKKAR	630,109	590,092	1,220,201	782,469	732,775	1,515,244	378,221	775		767			775
PUNJAB CHAKWAL	600,846	657,327	1,258,173	746,129	816,268	1,562,397	421,315	864		791			864
PUNJAB DERA GHAZI KHAN	600,879	657,363	1,258,242	746,171	816,313	1,562,483	421,338		1,349		1413		1,349
PUNJAB FAISALABAD	3,277,240	3,025,194	6,302,434	4,069,672	3,756,681	7,826,353	1,939,003		7,556		4846	7556	7,556
PUNJAB GUJRANWALA	2,052,512	1,895,669	3,948,181	2,548,806	2,354,039	4,902,845	1,215,033		4069		9,924		4,069
PUNJAB GUJRAT	1,190,106	1,188,004	2,378,110	1,477,871	1,475,262	2,953,133	761,453		317		5,977		317
PUNJAB HAFIZABAD	502,163	464,375	966,538	623,585	576,661	1,200,245	297,642	610			607		610
PUNJAB JHANG	1,708,964	1,581,358	3,290,321	2,122,189	1,963,728	4,085,917	1,013,574	2,078			2,068		2,078
PUNJAB JHELUM	543,013	545,296	1,088,309	674,313	677,148	1,351,461	349,509	1,258					1,258
PUNJAB KASUR	1,441,755	1,315,666	2,757,422	1,790,370	1,633,793	3,424,162	843,279		1739				1,739
PUNJAB KHANEWAL	1,243,590	1,157,935	2,401,525	1,544,288	1,437,922	2,982,211	742,181	1,521			1,509		1,521
PUNJAB KHUSHAB	523,409	528,081	1,051,490	649,968	655,770	1,305,739	338,475	694			661		694
PUNJAB LAHORE	3,858,657	3,475,654	7,334,311	4,791,675	4,316,062	9,107,737	2,227,727		25,716		23766	25716	25,716
PUNJAB LAYYAH	671,157	629,846	1,301,003	833,442	782,142	1,615,584	403,701	828			818		828
PUNJAB LODHRAN	706,314	654,000	1,360,314	877,100	812,136	1,689,236	419,182	1,509					1,509
PUNJAB MANDI BAHAUDDIN	688,714	658,332	1,347,046	855,244	817,515	1,672,759	421,959	865			846		865
PUNJAB MIANWALI	614,709	611,677	1,226,386	763,345	759,580	1,522,924	392,056	1,411					1,411
PUNJAB MULTAN	1,896,178	1,721,391	3,617,570	2,354,672	2,137,621	4,492,293	1,103,329		6,561		5308	6561	6,561
PUNJAB MUZAFARGHAR	1,592,035	1,468,152	3,060,186	1,976,987	1,823,149	3,800,135	941,015	3,388					3,388
PUNJAB NAROWAL	737,691	731,105	1,468,795	916,063	907,885	1,823,948	468,603	961			923		961
PUNJAB OKARA	1,353,343	1,238,393	2,591,736	1,680,579	1,537,835	3,218,414	793,750	1,627			1,629		1,627
PUNJAB PAKPATTAN	774,469	718,810	1,493,279	961,734	892,618	1,854,352	460,723	944			938		944
PUNJAB RAHIM YAR KHAN	1,897,734	1,748,509	3,646,243	2,356,603	2,171,296	4,527,899	1,120,710	4,035					4,035
PUNJAB RAJANPUR	673,618	607,919	1,281,537	836,498	754,913	1,591,411	389,647	799			805		799
PUNJAB RAWALPINDI	1,997,024	1,908,077	3,905,102	2,479,902	2,369,448	4,849,350	1,222,986		2465		3635		2,465
PUNJAB SAHIWAL	1,105,548	1,034,148	2,139,696	1,372,868	1,284,203	2,657,071	662,839	1,359			1,345		1,359
PUNJAB SARGODHA	1,591,784	1,503,225	3,095,010	1,976,675	1,866,703	3,843,379	963,495		4,327		3898	4327	4,327
PUNJAB SHEIKHUPURA	2,004,507	1,850,390	3,854,897	2,489,194	2,297,811	4,787,005	1,186,011				6252		6,252
PUNJAB SIALKOT	1,619,064	1,542,446	3,161,510	2,010,551	1,915,408	3,925,959	988,634		2031				2,031
PUNJAB TOBA TEK SINGH	1,256,910	1,170,447	2,427,357	1,560,830	1,453,459	3,014,289	750,200	1,538			1,525		1,538
PUNJAB VEHARI	964,315	918,477	1,882,792	1,197,485	1,140,564	2,338,049	588,700	1,207			1,183		1,207

PUNJAB	RAHIM YAR KHAN	1897734	1748509	3,646,243	2,356,603	2,171,296	4,527,899	1,216,356		426		426			496
PUNJAB	RAJANPUR	673618	607919	1,281,537	836,498	754,913	1,591,411	431,757	356		324				415
PUNJAB	RAWALPINDI	1997024	1908077	3,905,102	2,479,902	2,369,448	4,849,350	1,279,996		1,308	3,950				1,523.96
PUNJAB	SAHIWAL	1105548	1034148	2,139,696	1,372,868	1,284,203	2,657,071	708,603	585		541				681
PUNJAB	SARGODHA	1591784	1503225	3,050,010	1,976,675	1,866,703	3,843,379	1,020,257		1,873		1,621	1873		2,182
PUNJAB	SHEIKHPURA	2004507	1850390	3,854,897	2,489,194	2,297,811	4,787,005	1,284,792		1,966	3,899		1966		2,291
PUNJAB	SIALKOT	1619064	1542446	3,161,510	2,010,551	1,915,408	3,925,959	1,037,742		2,923	3,198		2923		3,406
PUNJAB	TOBA TEK SINGH	1256910	1170447	2,427,357	1,560,830	1,453,459	3,014,289	805,619	665		614				774
PUNJAB	VEHARI	964315	918477	1,882,792	1,197,485	1,140,564	2,338,049	618,080	510		476				594
	SINDH	18559943	16697621	35,257,564	23,047,711	20,735,082	43,782,793	11,896,030							
SINDH	BADIN	692674	619847	1,312,521	860,161	769,725	1,629,887	443,970	999		905				1,164
SINDH	DADU	1029709	920126	1,949,835	1,278,691	1,142,611	2,421,302	659,994		470		470			548
SINDH	GHOTKI	591767	530424	1,122,191	734,856	658,680	1,393,535	379,294	427		387				497
SINDH	HYDERABAD	1763011	1567348	3,330,358	2,189,304	1,946,330	4,135,634	1,130,005		3,857		3,857			4,494
SINDH	JACCOBABAD	869206	771747	1,640,953	1,079,379	958,354	2,037,733	557,119	2,507		2,263				2,921
SINDH	KARACHI (CENTRAL)	1388910	1245285	2,634,195	1,724,746	1,546,394	3,271,140	890,224		24,036		16,544			
SINDH	KARACHI (EAST)	1674312	1518943	3,193,255	2,079,158	1,886,222	3,965,379	1,073,153							
SINDH	KARACHI (MALIR)	598391	569095	1,167,486	743,081	706,702	1,449,783	383,540							28,004
SINDH	KARACHI (SOUTH)	1063992	978528	2,042,521	1,321,264	1,215,135	2,536,399	681,968							
SINDH	KARACHI (WEST)	1284032	1192036	2,476,068	1,594,510	1,480,268	3,074,778	823,003							
SINDH	KHAIRPUR	942992	840657	1,783,649	1,171,006	1,043,927	2,214,933	604,412	680		615				792
SINDH	LARKANA	1174979	1030611	2,205,590	1,459,087	1,279,811	2,738,899	753,105		1,204		1,096			1,403
SINDH	MIRPURKHAS	552371	489656	1,041,026	685,933	606,812	1,292,745	354,043		1,229		1,229			1,432
SINDH	NAUSHAHRO FEROZE	663118	589767	1,252,886	823,460	732,372	1,555,832	425,027	478		432				557
SINDH	NAWABSHAH	653340	576390	1,229,729	811,316	715,760	1,527,076	418,759		1,865		1,865			2,173
SINDH	SANGHAR	885947	790698	1,676,644	1,100,167	981,887	2,082,054	567,849	639		578				744
SINDH	SHIKARPUR	536824	473608	1,010,433	666,628	588,126	1,254,754	344,079	387		348				451
SINDH	SUKKUR	553857	501264	1,055,121	687,779	622,469	1,310,248	354,996		1,979		1,979			2,306
SINDH	THARPARKAR	557465	518491	1,075,956	692,260	643,861	1,336,121	357,309	804		742				937
SINDH	THATTA	678741	611308	1,290,050	842,860	759,122	1,601,982	435,041	979		890				1,140
SINDH	UMERKOT	404305	362791	767,096	502,066	450,513	952,579	259,140	292		265				340
	NWFP (Khyber Pakhtunkhwa)	10685976	10249495	20,935,473	13,269,832	12,727,809	25,997,641	6,849,197							
KPK	ABBOTTABAD	530505	497123	1,027,629	658,781	617,327	1,276,108	340,028	374		346				436
KPK	BANNU	408027	394768	802,795	506,688	490,222	996,910	261,526		146	271				170
KPK	BATAGRAM	185102	178857	363,958	229,859	222,104	451,963	118,641		65	61				76
KPK	BUNER	304839	285420	590,259	378,548	354,434	732,982	195,387	107		100				125
KPK	CHARSADA	615863	598649	1,214,512	764,778	743,401	1,508,179	394,738		217	205				253
KPK	CHITRAL	191975	182826	374,802	238,395	227,033	465,428	123,047		135	126				158
KPK	DERA ISMAIL KHAN	513837	506454	1,020,291	638,082	628,914	1,266,995	329,344		362	344				422
KPK	HANGU	189469	173733	363,203	235,283	215,742	451,025	121,441		67	61				78
KPK	HARIPUR	416992	389788	806,780	517,820	484,038	1,001,858	267,272				493			574
KPK	KARAK	259508	238448	497,956	322,256	296,105	618,361	166,332	91		84				107
KPK	KOHAT	338932	319044	657,976	420,885	396,188	817,073	217,239	239		222				278
KPK	KOHISTAN	284672	295467	580,139	353,505	366,910	720,415	182,461	100		98				117
KPK	LAKKI MARWAT	295187	282375	577,562	366,562	350,653	717,216	189,200	104		97				121
KPK	LOWER DIR	432305	401256	833,561	536,836	498,279	1,035,115	277,087	152		141				178
KPK	MALAKAND	272456	263448	535,904	338,336	327,149	665,485	174,631		96	90				112
KPK	MANSEHRA	694460	645073	1,339,533	862,379	801,051	1,663,430	445,115		245	226				285
KPK	MARDAN	879551	849871	1,729,423	1,092,225	1,055,369	2,147,595	563,750		620	583				723
KPK	NOWSEHRA	526714	513908	1,040,622	654,073	638,170	1,292,243	337,599	186		175				216
KPK	PESHAWAR	1216299	1196906	2,413,205	1,510,398	1,486,316	2,996,714	779,589		1,850		1,850			2,155
KPK	SHANGLA	261777	252384	514,161	325,074	313,411	638,485	167,786		92	87				108
KPK	SWABI	618538	582649	1,201,187	768,099	723,533	1,491,632	396,453		218	203				254
KPK	SWAT	757568	730943	1,488,512	940,747	907,685	1,848,432	485,565		534	502				622
KPK	TANK	143499	140244	283,743	178,197	174,154	352,351	91,976		51	48				59
KPK	UPPER DIR	346892	328900	675,792	430,770	408,428	839,197	222,341	122		114				142
	BALUCHISTAN	4166144	3651902	7,818,046	5,173,512	4,534,927	9,708,439	2,670,298							
BALUCHISTAN	AWARAN	74982	64690	139,672	93,113	80,331	173,444	48,060	24		21				28
BALUCHISTAN	BARKHAN	65701	56619	122,320	81,587	70,310	151,897	42,111		21	19				25
BALUCHISTAN	BOLAN	182775	161935	344,711	226,970	201,091	428,061	117,150		59	53				68
BALUCHISTAN	CHAGHI	128530	113245	241,774	159,608	140,627	300,235	82,381		41	37				48
BALUCHISTAN	DERA BHUGHTI	115044	101351	216,395	142,861	125,858	268,719	73,737		37	33				43
BALUCHISTAN	GAWADAR	117701	103559	221,260	146,161	128,600	274,760	75,441		75	68				88
BALUCHISTAN	JAFARABAD	274628	234359	509,987	341,033	291,026	632,059	176,024		88	78				103
BALUCHISTAN	JHALMAGSI	69759	61309	131,068	86,627	76,133	162,760	44,712		22	20				26
BALUCHISTAN	KALAT	150909	128032	278,941	187,399	158,991	346,389	96,725		48	43				56
BALUCHISTAN	KECH/Turbat	262184	225546	487,729	325,579	280,082	605,662	168,047		316		408			368
BALUCHISTAN	KHARAN	131287	111709	242,995	163,032	138,720	301,751	84,148	42		37				49

PUNJAB	MUZAFARGHAR	1592035	1468152	3,060,186	1,976,987	1,823,149	3,800,135	1,020,418	918		
PUNJAB	NAROWAL	737691	731105	1,468,795	916,063	907,885	1,823,948	472,824	213		
PUNJAB	OKARA	1353343	1238393	2,591,736	1,680,579	1,537,835	3,218,414	867,427	781		
PUNJAB	PAKPATTAN	774469	718810	1,493,279	961,734	892,618	1,854,352	496,397	223		
PUNJAB	RAHIM YAR KHAN	1897734	1748509	3,646,243	2,356,603	2,171,296	4,527,899	1,216,356	2,189		
PUNJAB	RAJANPUR	673618	607919	1,281,537	836,498	754,913	1,591,411	431,757	194		
PUNJAB	RAWALPINDI	1997024	1908077	3,905,102	2,479,902	2,369,448	4,849,350	1,279,996		1,369	1,054
PUNJAB	SAHIWAL	1105548	1034148	2,139,696	1,372,868	1,284,203	2,657,071	708,603	319		
PUNJAB	SARGODHA	1591784	1503225	3,095,010	1,976,675	1,866,703	3,843,379	1,020,257		1,954	1,915
PUNJAB	SHEIKHUPURA	2004507	1850390	3,854,897	2,489,194	2,297,811	4,787,005	1,284,792		668	454
PUNJAB	SIALKOT	1619064	1542446	3,161,510	2,010,551	1,915,408	3,925,959	1,037,742		207	124
PUNJAB	TOBA TEK SINGH	1256910	1170447	2,427,357	1,560,830	1,453,459	3,014,289	805,619	363		
PUNJAB	VEHARI	964315	918477	1,882,792	1,197,485	1,140,564	2,338,049	618,080	278		
	SINDH	18559943	16697621	35,257,564	23,047,711	20,735,082	43,782,793	11,896,030			
SINDH	BADIN	692674	619847	1,312,521	860,161	769,725	1,629,887	443,970	422		
SINDH	DADU	1029709	920126	1,949,835	1,278,691	1,142,611	2,421,302	659,994	627		
SINDH	GHOTKI	591767	530424	1,122,191	734,856	658,680	1,393,535	379,294	180		
SINDH	HYDERABAD	1763011	1567348	3,330,358	2,189,304	1,946,330	4,135,634	1,130,005		1,779	1,708
SINDH	JACCOBABAD	869206	771747	1,640,953	1,079,379	958,354	2,037,733	557,119	1,059		
SINDH	KARACHI (CENTRAL)	1388910	1245285	2,634,195	1,724,746	1,546,394	3,271,140	890,224			
SINDH	KARACHI (EAST)	1674312	1518943	3,193,255	2,079,158	1,886,222	3,965,379	1,073,153			
SINDH	KARACHI (MALIR)	598391	569095	1,167,486	743,081	706,702	1,449,783	383,540		18,361	13,954
SINDH	KARACHI (SOUTH)	1063992	978528	2,042,521	1,321,264	1,215,135	2,536,399	681,968			
SINDH	KARACHI (WEST)	1284032	1192036	2,476,068	1,594,510	1,480,268	3,074,778	823,003			
SINDH	KHAIRPUR	942992	840657	1,783,649	1,171,006	1,043,927	2,214,933	604,412	287		
SINDH	LARKANA	1174979	1030611	2,205,590	1,459,087	1,279,811	2,738,899	753,105		1,612	1,580
SINDH	MIRPURKHAS	552371	488656	1,041,026	685,933	606,812	1,292,745	354,043		300	264
SINDH	NAUSHAHRO FEROZE	663118	589767	1,252,886	823,460	732,372	1,555,832	425,027	202		
SINDH	NAWABSHAH	653340	576390	1,229,729	811,316	715,760	1,527,076	418,759		712	698
SINDH	SANGHAR	885947	790698	1,676,644	1,100,167	981,887	2,082,054	567,849	270		
SINDH	SHIKARPUR	536824	473608	1,010,433	666,628	588,126	1,254,754	344,079	163		
SINDH	SUKKUR	553857	501264	1,055,121	687,779	622,469	1,310,248	354,996		1,070	1,049
SINDH	THARPARKAR	557465	518491	1,075,956	692,260	643,861	1,336,121	357,309	339		
SINDH	THATTA	678741	611308	1,290,050	842,860	759,122	1,601,982	435,041	413		
SINDH	UMERKOT	404305	362791	767,096	502,066	450,513	952,579	259,140	123		
	NWFP (Khyber Pakhtunkhw	10685978	10249495	20,935,473	13,269,832	12,727,809	25,997,641	6,849,197			
KPK	ABBOTTABAD	530505	497123	1,027,629	658,781	617,327	1,276,108	340,028	289		
KPK	BANNU	408027	394768	802,795	506,688	490,222	996,910	261,526		494	366
KPK	BATAGRAM	185102	178857	363,958	229,859	222,104	451,963	118,641	101		
KPK	BUNER	304839	285420	590,259	378,548	354,434	732,982	195,387	83		
KPK	CHARSADA	615863	598649	1,214,512	764,778	743,401	1,508,179	394,738	168		

		2005			2016			Male 15-49	2016 KP SE (TG)		2011 KP SE (TG SW)		2014 SE TG SW	TG SE 2016
		Male	Female	Total	Male	Female	Total		Manipulated	Mapped number	Manipulated	Mapped number		
	PAKISTAN	79633382	73818591	153,451,973	98,888,621	91,667,821	190,556,442		50,232,838					
	ISLAMABAD	562631	518451	1,081,082	698,674	643,812	1,342,486		360,619					
	PUNJAB	43776112	41036898	84,813,010	54,361,114	50,959,562	105,320,676		28,058,380				343	
PUNJAB	ATTOCK	737746	742315	1,480,061	916,132	921,806	1,837,938		472,860		193		201	
PUNJAB	BAHAWALNAGAR	1237696	1155652	2,393,347	1,536,969	1,435,087	2,972,055		793,303		312		337	
PUNJAB	BAHAWALPUR	1482315	1341572	2,823,887	1,840,737	1,665,962	3,506,699		950,093	1578	736		1,578	
PUNJAB	BHAKKAR	630109	590092	1,220,201	782,469	732,775	1,515,244		403,870		172		172	
PUNJAB	CHAKWAL	600846	657327	1,258,173	746,129	816,268	1,562,397		385,113		164		164	
PUNJAB	DERA GHAZI KHAN	600879	657363	1,258,242	746,171	816,313	1,562,483		385,134		156		156	
PUNJAB	FAISALABAD	3277240	3025194	6,302,434	4,069,672	3,756,681	7,826,353		2,100,553		2,737	1,613	5147 TG S	2,737
PUNJAB	GUJRANWALA	2052512	1895669	3,948,181	2,548,806	2,354,039	4,902,845		1,315,561		598	2,057		598
PUNJAB	GUJRAT	1190106	1188004	2,378,110	1,477,871	1,475,262	2,953,133		762,800		103	1,239		103
PUNJAB	HAFIZABAD	502163	464375	966,538	623,585	576,661	1,200,245		321,862		137	126		137
PUNJAB	JHANG	1708964	1581358	3,290,321	2,122,189	1,963,728	4,085,917		1,095,363		466	429		466
PUNJAB	JHELUM	543013	545296	1,088,309	674,313	677,148	1,351,461		348,045		403	284		403
PUNJAB	KASUR	1441755	1315666	2,757,422	1,790,370	1,633,793	3,424,162		924,096		506	718		506
PUNJAB	KHANEWAL	1243590	1157935	2,401,525	1,544,288	1,437,922	2,982,211		797,081		339	313		339
PUNJAB	KHUSHAB	523409	528081	1,051,490	649,968	655,770	1,305,739		335,480		143	137		143
PUNJAB	LAHORE	3858657	3475654	7,334,311	4,791,675	4,316,062	9,107,737		2,473,213		3,936	3,643	4350 TG S	3,936
PUNJAB	LAYYAH	671157	629846	1,301,003	833,442	782,142	1,615,584		430,179		183	169		183
PUNJAB	LODHRAN	706314	654000	1,360,314	877,100	812,136	1,689,236		452,713		385	354		385
PUNJAB	MANDI BHAUDDIN	688714	658332	1,347,046	855,244	817,515	1,672,759		441,433		750	702		750
PUNJAB	MIANWALI	614709	611677	1,226,386	763,345	759,580	1,522,924		393,999		670	639		670
PUNJAB	MULTAN	1896178	1721391	3,617,570	2,354,672	2,137,621	4,492,293		1,215,359		3,130	2,266	2891	3,130
PUNJAB	MUZAFARGHAR	1592035	1468152	3,060,186	1,976,987	1,823,149	3,800,135		1,020,418		867	797		867
PUNJAB	NAROWAL	737691	731105	1,468,795	916,063	907,885	1,823,948		472,824		201	191		201
PUNJAB	OKARA	1353343	1238393	2,591,736	1,680,579	1,537,835	3,218,414		867,427		737	675		737
PUNJAB	PAKPATTAN	774469	718810	1,493,279	961,734	892,618	1,854,352		496,397		211	195		211
PUNJAB	RAHIM YAR KHAN	1897734	1748509	3,646,243	2,356,603	2,171,296	4,527,899		1,216,356		2,068	1,900		2,068
PUNJAB	RAJANPUR	673618	607919	1,281,537	836,498	754,913	1,591,411		431,757		183	167		183
PUNJAB	RAWALPINDI	1997024	1908077	3,905,102	2,479,902	2,369,448	4,849,350		1,279,996		1,580	490		1,580
PUNJAB	SAHWAL	1105548	1034148	2,139,696	1,372,868	1,284,203	2,657,071		708,603		301	279		301
PUNJAB	SARGODHA	1591784	1503225	3,095,010	1,976,675	1,866,703	3,843,379		1,020,257		1,213	779	821	1,213
PUNJAB	SHEIKHUPURA	2004507	1850390	3,854,897	2,489,194	2,297,811	4,787,005		1,284,792		800	2,009		800
PUNJAB	SIALKOT	1619064	1542446	3,161,510	2,010,551	1,915,408	3,925,959		1,037,742		532	1,647		532
PUNJAB	TOBA TEK SINGH	1256910	1170447	2,427,357	1,560,830	1,453,459	3,014,289		805,619		342	316		342
PUNJAB	VEHARI	964315	918477	1,882,792	1,197,485	1,140,564	2,338,049		618,080		263	245		263
	SINDH	18559943	16697621	35,257,564	23,047,711	20,735,082	43,782,793		11,896,030					
	BADIN	692674	619847	1,312,521	860,161	769,725	1,629,887		443,970		466	422		466
	DADU	1029709	920126	1,949,835	1,278,691	1,142,611	2,421,302		659,994		693	628		693
	GHOTKI	591767	530424	1,122,191	734,856	658,680	1,393,535		379,294		199	181		199
	HYDERABAD	1763011	1567348	3,330,358	2,189,304	1,946,330	4,135,634		1,130,005		1,062	658		1,062
	JACCOBABAD	869206	771747	1,640,953	1,079,379	958,354	2,037,733		557,119		1,170			1,170
	KARACHI (CENTRAL)	1388910	1245285	2,634,195	1,724,746	1,546,394	3,271,140		890,224		1,056	9,069		
	KARACHI (EAST)	1674312	1518943	3,193,255	2,079,158	1,886,222	3,965,379		1,073,153					
	KARACHI (MALIR)	598391	569095	1,167,486	743,081	706,702	1,449,783		383,540		9,123			9,123
	KARACHI (SOUTH)	1063992	978528	2,042,521	1,321,264	1,215,135	2,536,399		681,968					
	KARACHI (WEST)	1284032	1192036	2,476,068	1,594,510	1,480,268	3,074,778		823,003					
	KHAIRPUR	942992	840657	1,783,649	1,171,006	1,043,927	2,214,933		604,412		317	287		317
	LARKANA	1174979	1030611	2,205,590	1,459,087	1,279,811	2,738,899		753,105		1,130	485		1,130
	MIRPURKHAS	552371	488656	1,041,026	685,933	606,812	1,292,745		354,043		435	350		435
	NAUSHAHRO FEROZE	663118	589767	1,252,886	823,460	732,372	1,555,832		425,027		223	202		223
	NAWABSHAH	653340	576390	1,229,729	811,316	715,760	1,527,076		418,759		383	310		383
	SANGHAR	885947	790698	1,676,644	1,100,167	981,887	2,082,054		567,849		298	270		298
	SHIKARPUR	536824	473608	1,010,433	666,628	588,126	1,254,754		344,079		181	163		181
	SUKKUR	553857	501264	1,055,121	687,779	622,469	1,310,248		354,996		1,609	1,533		1,609
	THARPARKAR	557465	518491	1,075,956	692,260	643,861	1,336,121		357,309		375	346		375
	THATTA	678741	611308	1,290,050	842,860	759,122	1,601,982		435,041		457	415		457
	UMERKOT	404305	362791	767,096	502,066	450,513	952,579		259,140		136	123		136
	NWFP (Khyber Pakhtunkhw	10685978	10249495	20,935,473	13,269,832	12,727,809	25,997,641		6,849,197					
KPK	ABBOTTABAD	530505	497123	1,027,629	658,781	617,327	1,276,108		340,028		153	142		153

SIZE EST BY REGION		Male 15-49	TG (15-49)	% TG among Male 15-49	HSW (15-49)	% HSW among Male 15-49
PUNJAB		28,418,999	26,734	0.09%	26,914	0.10%
SINDH		11,896,030	18,257	0.15%	16,498	0.15%
NWFP (Khyber Pakhtunkhwa - KPK)		6,848,549	3,083	0.05%	2,912	0.05%
BALUCHISTAN		2,670,298	4,351	0.16%	4,274	0.18%
National data		50,232,838	52,424	0.1044%	50,598	0.11%
Estimation of TG SW among TG from 2011 and 2016 mapping results						
<i>(only take data point which # of TG in 2016 > # of TG SW in 2011)</i>						
# of TG (2016)	25,903					
# of TG (2011), adjusted f	24,255					
# of TG SW (2011)	20,846					
% of TG SW among TG	80.5%					

12.1. Size estimates MSW_clients_MSM size_22032017_6.30pm

Estimated numbers of MSM categories by state					AEM input for line 8 in MSM sheet	AEM input for line 9 in MSM	AEM input for line 42 in MSM sheet
REGION	MSW (Adjusted mapping)	MSW clients (calculated below)	Non paying MSM (calculated below)	Total MSM	% of MSW clients and non paying MSM among male 15-49	% of MSM in high risk group	% MSW among male 15-49
PUNJAB	24,744	217,493	80355	322,592	1.05%	73.0%	0.09%
SINDH	22,513	283,749	65611	371,873	2.94%	81.2%	0.19%
NWFP (Khyber Pakhtunkhwa - KPK)	4,015	37,943	38227	80,185	1.11%	49.8%	0.06%
BALUCHISTAN	4,067	38,826	14670	57,563	2.00%	72.6%	0.15%
Total	55,340	578,010	198863	832,213	1.55%	74.4%	0.11%
ROC					1.4019%	59.2049%	0.0874%

Calculation method of Population size estimates by categories by province				
Extrapolated Population size by province adjusting for cities that have not been mapped				
Reference to sheet attached.				
REGION	Total Male 15-49	total MSM (15-49) including MSW	% MSM among Male 15-49	MSW
PUNJAB	28,418,999	29,983	0.11%	24,744
SINDH	11,896,030	27,919	0.23%	22,513
NWFP (Khyber Pakhtunkhwa - KPK)	6,848,549	5,017	0.07%	4,015
BALUCHISTAN	2,670,298	9,337	0.35%	4,067
Total	50,232,838	72,256	0.14%	55,340

IBBS results on clients and non paying partners				
MSW				
Q301. In the last month, approximately how many paying clients have you had?				
Province	Mean	N	Std. Deviation	
Punjab	20.83	2848	14.727	
Sindh	29.87	1758	16.431	
KPK	22.40	509	17.328	
Balochistan	22.62	396	18.675	
Total	23.99	5511	16.352	

Calculating number fo clients of MSW				
Assumptions				
each client buys sex form MSW ever 14 Days				
the average number of clients buys sex = 365 / number of visits				
Number times client buys sex from MSW per year				26
Number of clients= number of total sex acts by MSW / number of times a client buys sex				
Number of months of activity (discounting for Ramadar				11

	Number of MSW	mean Number of clients per month (from IBBS)	Number of acts per year	Number of clients: number of acts / number of times a client buys sex	
PUNJAB					
SINDH	24,744	20.83	5670347	217493	
NWFP (Khyber Pakhtunkhwa - KPK)	22,513	29.87	7397733	283749	
BALUCHISTAN	4,015	22.40	989231	37943	
TOTAL	4,067	22.62	1012237	38826	
	55,340	23.99	14603394	578010	By adding totals
				560130	by applying formula
Total number of Clients of MSW for the country	578010				
Calculating number of non paying MSM					
Assumptions	We consider that the number of non paying partners remains stable				
	We consider that these are long term partners, so we do not need to further multiply				
	We apply the same logic to all MSM mapped, including MSW				
	Number of all MSM	mean Number of clients per month	Total number of non paying MSM		
PUNJAB	29,983	2.68	80355		
SINDH	27,919	2.35	65611		
NWFP (Khyber Pakhtunkhwa - KPK)	5,017	7.62	38227		
BALUCHISTAN	4,923	2.98	14670		
TOTAL	67,842	2.83	191994		by applying formula
			198863		by adding above totals
Total number of non paying MSM	198863				

Apply national proportion all cities						
Region	Male 15-49	MSM clients + Nonpaying MSM	MSM client	Nonpaying MSM	MSW	
PAKISTAN						
ISLAMABAD	360,619	3,780	2,760	1,020	230	
PUNJAB						
PUNJAB ATTOCK	472,860	4,956	3,619	1,337	170	
PUNJAB BAHAWALNAGAR	793,303	8,314	6,071	2,243	285	
PUNJAB BAHAWALPUR	950,093	9,958	7,271	2,686	2,355	2016 mapping
PUNJAB BHAKKAR	403,870	4,233	3,091	1,142	145	
PUNJAB CHAKWAL	385,113	4,036	2,947	1,089	138	
PUNJAB DERA GHAZI KHAN	385,134	4,036	2,947	1,089	223	2016 mapping
PUNJAB FAISALABAD	2,100,553	22,015	16,076	5,939	1,532	2016 mapping
PUNJAB GUJRANWALA	1,315,561	13,788	10,068	3,720	257	2016 mapping
PUNJAB GUJRAT	762,800	7,995	5,838	2,157	83	2016 mapping
PUNJAB HAFIZABAD	321,862	3,373	2,463	910	116	
PUNJAB JHANG	1,095,363	11,480	8,383	3,097	393	
PUNJAB JHELUM	348,045	3,648	2,664	984	250	
PUNJAB KASUR	924,096	9,685	7,072	2,613	515	2016 mapping
PUNJAB KHANEWAL	797,081	8,354	6,100	2,254	286	
PUNJAB KHUSHAB	335,480	3,516	2,567	949	120	
PUNJAB LAHORE	2,473,213	25,921	18,928	6,993	3,994	2016 mapping
PUNJAB LAYYAH	430,179	4,509	3,292	1,216	154	
PUNJAB LODHRAN	452,713	4,745	3,465	1,280	325	
PUNJAB MANDI BAHAUDDIN	441,433	4,626	3,378	1,248	634	
PUNJAB MIANWALI	393,999	4,129	3,015	1,114	566	
PUNJAB MULTAN	1,215,359	12,738	9,301	3,436	4,052	2016 mapping
PUNJAB MUZAFARGHAR	1,020,418	10,695	7,809	2,885	733	
PUNJAB NAROWAL	472,824	4,955	3,619	1,337	170	
PUNJAB OKARA	867,427	9,091	6,638	2,453	623	

PUNJAB	PAKPATTAN	496,397	5,203	3,799	1,404	178	
PUNJAB	RAHIM YAR KHAN	1,216,356	12,748	9,309	3,439	1,747	
PUNJAB	RAJANPUR	431,757	4,525	3,304	1,221	155	
PUNJAB	RAWALPINDI	1,279,996	13,415	9,796	3,619	1,054	2016 mapping
PUNJAB	SAHIWAL	708,603	7,427	5,423	2,004	254	
PUNJAB	SARGODHA	1,020,257	10,693	7,808	2,885	1,915	2016 mapping
PUNJAB	SHEIKHUPURA	1,284,792	13,465	9,833	3,633	454	2016 mapping
PUNJAB	SIALKOT	1,037,742	10,876	7,942	2,934	124	2016 mapping
PUNJAB	TOBA TEK SINGH	805,619	8,443	6,165	2,278	289	
PUNJAB	VEHARI	618,080	6,478	4,730	1,748	222	
	SINDH		-	-		-	
SINDH	BADIN	443,970	13,038	10,590	2,449	337	
SINDH	DADU	659,994	19,383	15,742	3,640	500	
SINDH	GHOTKI	379,294	11,139	9,047	2,092	144	
SINDH	HYDERABAD	1,130,005	33,186	26,953	6,232	1,708	2016 mapping
SINDH	JACCOBABAD	557,119	16,361	13,289	3,073	845	
SINDH	KARACHI (CENTRAL)	890,224	26,144	21,234	4,910	13,954	2016 mapping
SINDH	KARACHI (EAST)	1,073,153	31,516	25,597	5,919		
SINDH	KARACHI (MALIR)	383,540	11,264	9,148	2,115		
SINDH	KARACHI (SOUTH)	681,968	20,028	16,267	3,761		
SINDH	KARACHI (WEST)	823,003	24,170	19,631	4,539		
SINDH	KHAIRPUR	604,412	17,750	14,417	3,334	229	
SINDH	LARKANA	753,105	22,117	17,963	4,154	1,580	2016 mapping
SINDH	MIRPURKHAS	354,043	10,397	8,445	1,953	264	2016 mapping
SINDH	NAUSHAHRO FEROZE	425,027	12,482	10,138	2,344	161	
SINDH	NAWABSHAH	418,759	12,298	9,988	2,310	698	2016 mapping
SINDH	SANGHAR	567,849	16,676	13,545	3,132	215	
SINDH	SHIKARPUR	344,079	10,105	8,207	1,898	130	
SINDH	SUKKUR	354,996	10,425	8,467	1,958	1,049	2016 mapping
SINDH	THARPARKAR	357,309	10,493	8,523	1,971	271	

SINDH	THATTA	435,041	12,776	10,377	2,399	330	
SINDH	UMERKOT	259,140	7,610	6,181	1,429	98	
	NWFP (Khyber Pakhtunkhwa - KPK)		-	-		-	
KPK	ABBOTTABAD	340,028	3,782	1,884	1,898	231	
KPK	BANNU	261,526	2,909	1,449	1,460	366	2016 mapping
KPK	BATAGRAM	118,641	1,320	657	662	80	
KPK	BUNER	195,387	2,173	1,083	1,091	66	
KPK	CHARSADA	394,738	4,390	2,187	2,203	134	
KPK	CHITRAL	123,047	1,369	682	687	83	
KPK	DERA ISMAIL KHAN	329,344	3,663	1,825	1,838	223	
KPK	HANGU	121,441	1,351	673	678	41	
KPK	HARIPUR	267,272	2,973	1,481	1,492	534	
KPK	KARAK	166,332	1,850	922	928	56	
KPK	KOHAT	217,239	2,416	1,204	1,213	295	
KPK	KOHISTAN	182,461	2,029	1,011	1,018	62	
KPK	LAKKI MARWAT	189,200	2,104	1,048	1,056	64	
KPK	LOWER DIR	277,087	3,082	1,535	1,547	94	
KPK	MALAKAND	174,631	1,942	968	975	59	
KPK	MANSEHRA	445,115	4,951	2,466	2,485	151	
KPK	MARDAN	563,750	6,270	3,123	3,147	382	
KPK	NOWSEHRA	337,599	3,755	1,870	1,884	115	
KPK	PESHAWAR	779,589	8,671	4,319	4,352	350	2016 mapping
KPK	SHANGLA	167,786	1,866	930	937	57	
KPK	SWABI	396,453	4,409	2,196	2,213	134	
KPK	SWAT	485,565	5,401	2,690	2,710	329	
KPK	TANK	91,976	1,023	510	513	31	
KPK	UPPER DIR	222,341	2,473	1,232	1,241	75	
	BALUCHISTAN		-	-		-	
BALUCHISTAN	AWARAN	48,060	963	698.78	264	35	
BALUCHISTAN	BARKHAN	42,111	844	612.28	231	30	

BALUCHISTAN	BOLAN	117,150	2,347	1,703.34	644	84	
BALUCHISTAN	CHAGHI	82,381	1,650	1,197.81	453	59	
BALUCHISTAN	DERA BHUGHTI	73,737	1,477	1,072.13	405	53	
BALUCHISTAN	GAWADAR	75,441	1,511	1,096.89	414	108	
BALUCHISTAN	JAFARABAD	176,024	3,526	2,559.34	967	126	
BALUCHISTAN	JHALMAGSI	44,712	896	650.11	246	32	
BALUCHISTAN	KALAT	96,725	1,938	1,406.36	531	69	
BALUCHISTAN	KECH/Turbat	168,047	3,367	2,443.37	923	300	Updated on 22032017
BALUCHISTAN	KHARAN	84,148	1,686	1,223.50	462	60	
BALUCHISTAN	KHUZDAR	169,780	3,401	2,468.57	933	488	
BALUCHISTAN	KILLA ADULLAH	150,586	3,017	2,189.48	827	108	
BALUCHISTAN	KILLA SAIFULLAH	78,717	1,577	1,144.52	432	57	
BALUCHISTAN	KOHLU	40,607	813	590.41	223	29	
BALUCHISTAN	LASBELA	127,171	2,548	1,849.03	699	91	
BALUCHISTAN	LORALAI	121,013	2,424	1,759.51	665	87	
BALUCHISTAN	MASTUNG	66,960	1,341	973.58	368	48	
BALUCHISTAN	MUSAKHAIL	54,520	1,092	792.70	300	39	
BALUCHISTAN	NASIRABAD	100,003	2,003	1,454.03	549	72	
BALUCHISTAN	PISHIN	149,331	2,992	2,171.23	820	215	
BALUCHISTAN	PUNJGUR	95,187	1,907	1,384.00	523	273	
BALUCHISTAN	QUETTA	309,062	6,192	4,493.70	1,698	1,292	Updated on 22032017
BALUCHISTAN	SIBI	73,367	1,470	1,066.73	403	211	
BALUCHISTAN	ZHOB	111,898	2,242	1,626.98	615	80	
BALUCHISTAN	ZIARAT	13,559	272	197.15	74	19	
SIZE EST BY REGION							
	PUNJAB	28,418,999	297,848	217,493	80,355	24,744	
	SINDH	11,896,030	349,359	283,749	65,611	22,513	
	NWFP (Khyber Pakhtunkhwa - KPK)	6,848,549	76,170	37,943	38,227	4,015	
	BALUCHISTAN	2,670,298	53,496	38,826	14,670	4,067	

National data	776,873	578,010	198,863	55,340	832,213
Check	(0)	(0)	(0)	-	

B.1. Coverage_Biz as usual_Final

IBBS	Province	coverage		Total	Source		Numerator	Denominator	Coverage
		0	received free condom and HIV tested in 12 mths						
Gujranwala	P	303	1	304	IBBS 2016	Punjab	430	4096	10.50%
DGK	P	363	1	364		Sindh	123	2207	5.57%
Gujrat	P	249	3	252		ROC	9	897	1.00%
Sialkot	P	193	0	193		total	562	7200	7.81%
Sheikhupura	P	344	19	363					
Rawalpindi	P	356	8	364		KPK	0	461	0.00%
Bahawalpur	P	351	1	352		Balochistan	9	436	2.06%
Multan	P		13	383	IBBS 2014				
Faisalabad	P		235	382					
Sargodha	P		82	383					
Lahore	P		64	392					
Kasur	P	361	3	364	IBBS 2016				
Karachi	S	380	7	387					
Hyderabad	S	285	79	364					
Sukkur	S	360	4	364					
Larkana	S	334	30	364					
Nawabshah	S	361	3	364					
Mirpurkhas	S	364	0	364					
Peshawar	R	265	0	265					
Bannu	R	196	0	196					
Quetta	R	357	7	364					

Turbat	R	70	2	72
Total		5492	168	5660

IBBS	Province	coverage	received free condom and HIV tested in 12 mths	Total	Source	Numerator	Denominator	Coverage	
Lahore	P	161	150	311	IBBS 2016				
Multan	P	315	35	350		Punjab	597	4391	13.60%
Faisalabad	P	273	58	331		Sindh	392	1872	20.94%
Sargodha	P	216	131	347		ROC	15	1007	1.49%
Gujranwala	P	209	0	209		total	1004	7270	13.81%
DGK	P	286	3	289					
Gujrat	P	105	2	107		KPK	0	545	0.00%
Sialkot	P	17	0	17		Balochistan	15	462	3.25%
Sheikhupura	P	53	0	53					
Rawalpindi	P	331	0	331					
Bhahwalpur	P	245	1	246					
MUltan			5	380	IBBS 2014				
Faisalabad			71	380					
Sargodha			80	388					
Lahore			46	380					
Kasur	P	257	15	272	IBBS 2016				
Karachi	S	80	260	340					
Hyderabad	S	243	96	339					
Sukkur	S	341	0	341					
Larkana	S	302	23	325					
Nawabshah	S	270	3	273					
Mirpurkhas	S	244	10	254					
Peshawar	R	279	0	279					

Bannu	R	266	0	266
Quetta	R	295	1	296
Turbat	R	152	14	166
		4940	802	5742

City	Province	coverage 0	received free condom and HIV tested in 12 mths	Total	Source				
Lahore	P	136	106	242	IBBS 2016		Numerator	Denominator	Coverage
Multan	P	261	19	280		Punjab	686	4072	16.85%
Faisalabad	P	198	81	279		Sindh	327	1470	22.24%
Sargodha	P	149	131	280		ROC	7	590	1.19%
Gujranwala	P	273	0	273		total	1020	6132	16.63%
DGK	P	124	7	131					
Gujrat	P	97	0	97		KPK	0	269	0.00%
Sialkot	P	120	0	120		Balochistan	7	321	2.18%
Sheikhupura	P	92	0	92					
Rawalpindi	P	248	26	274					
Bhahwalpur	P	166	8	174					
Kasur	P	249	31	280					
MUItan			17	378	IBBS2014				
Faisalabad			94	375					
Sargodha			74	378					
Lahore			88	390					
Jehlum	P	25	4	29	IBBS 2016				
Karachi	S	107	188	295					
Hyderabad	S	133	116	249					
Sukkur	S	211	0	211					
Larkana	S	263	16	279					
Nawabshah	S	276	4	280					
Mirpurkhas	S	153	3	156					
Peshawar	R	230	0	230					
Bannu	R	39	0	39					
Quetta	R	260	6	266					
Turbat	R	54	1	55					
		3864	747	4611					

		coverage2	Total						
City	Province	0	needle and HIV testing	Source		Numerator	Denominator	Coverage	
Rawalpindi	P	247	55	302	IBBS 2016				
Bahawalpur	P	194	98	292		Punjab	1509	5038	29.95%
Kasur	P	89	213	302		Sindh	113	1510	7.48%
Jhelum	P	103	199	302		ROC	26	1052	2.47%
Karachi	S	199	103	302		total	1648	7600	21.68%
Hyderabad	S	294	8	302					
Sukkur	S	301	1	302		KPK	0	448	0.00%
Larkana	S	302	0	302		Balochistan	26	604	4.30%
Nawabshah	S	301	1	302					
71 (code in IBBS)	P		63	382	IBBS2014				
	72	P	187	385					
	86	P	15	383					
	87	P	78	382					
	88	P	149	382					
	89	P	210	386					
	90	P	10	381					
	91	P	141	389					
	92	P	10	382					
	94	P	81	388					
Mirpurkhas	S	83	219	302	IBBS 2016				
Peshawar	R	302	0	302					
Bannu	R	146	0	146					
Quetta	R	290	12	302					
Turbat	R	288	14	302					
		3139	923	4062					

B.2. Unit cost_Biz as usual_Final

FSW	Sindh	Punjab (\$)	ROC
Received a free condom in the past 12 months			
Tested for HIV in the past 12 months	49.3	4.2	
Outreach + commodity		69.6	
Management cost		0.2	
Total cost	62	92	97.5
MSW			
	Sindh	Punjab (\$)	ROC
Received a free condom in the past 12 months			
Tested for HIV in the past 12 months	55.1	4.2	
Outreach + commodity		69.6	
Management cost		0.2	
Total cost	69	92	112.5
TG			
	Sindh	Punjab (\$)	ROC
Received a free condom in the past 12 months			
Tested for HIV in the past 12 months	55.1	4.2	
Outreach + commodity		69.6	
Management cost		0.2	
Total cost	69	92	112.5
MSM			
	Sindh	Punjab (\$)	ROC
Received a free condom in the past 12 months			
Tested for HIV in the past 12 months	55.1	4.2	
Outreach + commodity		69.6	
Management cost		0.2	
Total cost	69	92	112.5
PWID			
	Sindh	Punjab (\$)	ROC

Received a free condom in the past 12 months				
Received a new needle and syringe past 12 months		15.6	68.32	
Tested for HIV in the past 12 months	118.8	7.0	7	
Outreach		104.3	70	
Management cost	0.3	0.3	25%	
Total cost	158	169	193	198

Direct costs	Cost	Per unit cost						
Needles & syringes purchased	348,988	0.06						
Dereciation of Incineration Containers (for used syringes)	22,895	0.01						
Condoms	41,424	0.07						
Health care consumables	208,098	0.02						
Syringe Exchange Services	NZ Trust	AI Nijat	Pak Society	PLYC	WFF	Bridge	PAVHNA	Total
Syringe IN (Number of used syringes returned by PWID)	436,843	201,466	485,754	401,366	348,273	154,695	625,551	2,653,948
Syringe OUT (Number of new syringes distributed to PWID)	723,129	792,228	783,319	1,115,854	835,533	225,330	1,209,348	5,684,741
Condoms (Number of condoms distributed to PWID)	23,963	96,587	92,289	139,977	109,289	59,384	112,059	633,548
Sunny Plasts (Number of band-aids distributed to PWID)	722,797	760,213	733,676	1,099,256	814,222	217,609	794,375	5,142,148
Spirit Swabs (Number of spirit swabs distributed to PWID)	717,787	752,457	775,492	1,077,437	814,940	210,449	995,502	5,344,064
Direct cost allocated to SR								
Syringe OUT (Number of new syringes distributed to PWID)	44,393	48,635	48,088	68,503	51,294	13,833	74,242	
Syringe IN (Number of used syringes returned by PWID)	3,769	1,738	4,191	3,463	3,004	1,335	5,397	
Condoms (Number of condoms distributed to PWID)	1,567	6,315	6,034	9,152	7,146	3,883	7,327	
Sunny plasts, spirit swabs	28,588	30,019	29,949	43,196	32,331	8,495	35,520	
OUTPUT 2 Number of client contacts	216483	270304	262834	325137	299407	374028	79873	

Cost per contact							
New syringes distributed to PWID	0.21	0.18	0.18	0.21	0.17	0.04	0.93
Used syringes returned by PWID	0.02	0.01	0.02	0.01	0.01	0.004	0.07
Condoms distributed to PWID	0.01	0.02	0.02	0.03	0.02	0.01	0.09
Sunny plasts, spirit swabs distributed to PWID	0.13	0.11	0.11	0.13	0.11	0.02	0.44
Total	0.36	0.32	0.34	0.38	0.31	0.07	1.53
Average	0.47						
Frequency (12 times/month x 12 months)	68.32						

Treatment Cost Per PLHIV											
<u>ARV Cost</u>											
S#	Drugs Cat.	Description	Per pack cost			Cost(USD)/Month	ARV per year	CD4 twice a yr	VL Twice a yr	Total (USD)	G.Total inclusive overheads @ 20%
1	1st Line Adult	Efavirenz/Lamivudine/Tenofovir [FDC]	7.99	0	0	7.99	95.88	27.2	26	149.08	178.896
		Efavirenz+Lamivudine+Zidovudine [FDC]	13.6	0	0	13.6	163.2	27.6	0	190.8	228.96
		Nevirapine+Lamivudine+Zidovudine [FDC]	8.05	0	0	8.05	96.6	26	0	122.6	147.12
2	2nd Line Adult	Kaletra + Lamivudine+Tenofovir	18.41	2.25	3.5	24.16	289.92	27.2	26	343.12	411.744
3	3rd Line Adult	Lamivudine+Didanosine+Raltegravir	2.25	16	116.3	134.55	1614.6	27.2	26	1667.8	2001.36
4	1st Line Pediatrics	Syp.Nevirapine+Syp.Lamivudine+Syp.Zidovudine	1.3	1.2	2.15	4.65	55.8	27.2	26	109	130.8
5	2nd Line Pediatrics	Syp (Kaletra+Lamivudine+Zidovudine)	32.44	1.2	2.15	35.79	429.48	27.2	26	482.68	579.216
									0.003	0.0025	
									28.98550725	24.15458937	

Side Working for Health items							
S#	Catgr	Item Description	Pert test cost(USD)			Per test Cost(USD)	
1	Rapid Test1	Determine Combo	1.55	1.6	0.84	3.99	USD155/100 tests, 32/25 tests, 21/20test
2		CD4 Test PIMA	5.9			5.9	USD595/100tst
3		CD4 Presto	8.8			8.8	USD880/100tst
4		CD4 Count	13.6			13.6	USD680/50tst
5		CD4 Calliber	13.8			13.8	USD690/50tst
6	VL test	VL test Qiagen	13			13	DSP Ext Kit USD 60/50tst, PCR: USD 1135/96tst

B.3. List of prioritized cities. Prevention and Treatment coverage. high impact

PWID		%	Coverage	Weighted average	Coverage	2021	MSW		# of KP	Coverage	Weighted average	Coverage	2021
Punjab	Prioritized cities	38,735	85%	37,252	70%	70%	Punjab	Prioritized cities	19,608	85%	17,365	70%	add rawalpindi 70%
	Maintenance	14,446	30%					Maintenance	5,136	14%			1054
Sindh	Prioritized cities	31,604	70%	23,953	48%	add Larkana	Sindh	Prioritized cities	17,940	70%	13,516	60%	
	Maintenance	18,299	10%					Maintenance	4,573	21%			
Balochistan	Prioritized cities	819	85%	1,221	48%	50%	Balochistan	Prioritized cities	1,292	85%	1,931	47%	50%

	Maintenance	1,749	30%					Maintenance	2,775	30%				
National					55%		National							59%
Curent coverage					21.7%		Curent coverage							13.8%
FSW		%	Coverage	Weighted average			HSW	# of KP	Coverage	Weighted average				
Punjab	Prioritized cities	46,085	90%	47,195	47%	add faisalabad and multan	Punjab	Prioritized cities	16,630	85%	14,959	70%	70%	
	Maintenance	54,468	10%					Maintenance	4,884	17%				
Sindh	Prioritized cities	39,207	70%	28,616	56%	add NAWABSH AH	Sindh	Prioritized cities	10,126	70%	8,104	55%		
	Maintenance	11,711	10%					Maintenance	4,567	22%				
Balochistan	Prioritized cities	4,121	85%	4,697	58%	50%	Balochistan	Prioritized cities	1,147	85%	1,681	48%	50%	
	Maintenance	3,981	30%					Maintenance	2,354	30%				
National					46%		National							59%
Curent coverage					7.8%		Curent coverage							16.6%

PWID		%	Coverage	Weighted average	Coverage	2021	MSW	# of KP	Coverage	Weighted average	Coverage	2021	
Punjab	Prioritized cities	38,735	85%	37,252	70%	70%	Punjab	Prioritized cities	19,608	85%	17,365	70%	70%
	Maintenance	14,446	30%					Maintenance	5,136	14%	1054		
Sindh	Prioritized		70%		48%	add	Sindh	Prioritized		70%		60%	

	cities	31,604		23,953		Larkana		cities	17,940		13,516					
	Maintenance	18,299	10%					Maintenance	4,573	21%						
KPK	Prioritized cities	3,004	85%	3,983	51%	50%	KPK	Prioritized cities	1,632	85%	2,102	52%	50%			
	Maintenance	4,765	30%					Maintenance	2,383	30%						
National					57%		National					60%				
	Curent coverage				21.7%			Curent coverage				13.8%				
FSW	%	Coverage	Weighted average			HSW	# of KP	Coverage	Weighted average			Karachi	7341.932	multan	2518.935	
Punjab	Prioritized cities	46,085	90%	47,195	47%	add faisalabad and multan	Punjab	Prioritized cities	16,630	85%	14,959	70%	larkana	909.392	faisalabad	2202.66
	Maintenance	54,468	10%					Maintenance	4,884	17%			jabccobabad	941.5427	Rahim Yar khan	1664.111
Sindh	Prioritized cities	39,207	70%	28,616	56%	add NAWABSH AH	Sindh	Prioritized cities	10,126	70%	8,104	55%	dadu	557.7017	lahore	3167.581
	Maintenance	11,711	10%					Maintenance	4,567	22%			badin	375.1596	rawalpindi	1271.539
KPK	Prioritized cities	3,759	85%	6,230	45%	50%	KPK	Prioritized cities	974	85%	1,280	52%	50%	sargodha	976.188	
	Maintenance	10,115	30%					Maintenance	1,507	30%						
National					47%		National					58%				
	Curent coverage				7.8%			Curent coverage				16.6%				

KP	Size of KP 2016	Size of KP 2021	HIV prevalence 2021	KP Covered by intervention 2021	KP+ identified 2021	Linked to care	Initiated treatment	PLHIV+ 2021	Treatment coverage	Treatment coverage	Treatment coverage
	<i>PSE</i>	<i>PSE</i>	<i>AEM baseline</i>	<i>C x coverage</i>	<i>E x D</i>	90%	90%	<i>AEM baseline</i>	<i>Using adjusted case report</i>	<i>Assume coverage in KP = non KP</i>	<i>Using case report (non adjusted)</i>
Punjab											
FSW	100,553	99,573	0.74	46,735	347	312	281	739	38%		
PWID	45,645	51,723	33.57	36,230	12,162	10,946	9,851	17,362	57%		
MSW	24,744	38,792	22.59	27,224	6,151	5,536	4,982	8,770	57%		
HSW	21,514	25,311	7.07	17,598	1,244	1,119	1,007	1,789	56%		
Other populations							8,750	71,643	12%		
Total							24,872	100,303	25%	56%	36%
Sindh											
FSW	50,918	60,200	2.93	33,833	993	893	804	1,766	46%		
PWID	42,831	46,940	39.40	22,531	8,877	7,989	7,190	18,494	39%		
MSW	22,513	24,774	11.94	14,873	1,775	1,598	1,438	2,960	49%		
HSW	14,693	18,776	13.25	10,356	1,372	1,235	1,111	2,487	45%		
Other populations							4,927	48,809	10%		
Total							15,471	74,516	21%	41%	32%
KP & Balochistan											
FSW	21,975	24,130	0.66	11,998	79	71	64	158	40%		
PWID	8,872	9,781	26.82	4,924	1,321	1,188	1,070	2,623	41%		
MSW	8,082	8,910	5.42	4,446	241	217	195	483	40%		
HSW	5,982	6,594	5.22	3,264	170	153	138	344	40%		
Other populations							3,512	15,208	23%		

Total						4,978	18,816	26%	41%	92%
National						45,321	193,635	23%	49%	40%
KPK										
FSW	15,234	0.66	6,840.17	45	40	36	115			
PWID	7,351	26.82	3,768.78	1,011	910	819	1,910			
MSW	4,426	5.42	2,287.57	124	112	100	352			
HSW	2,735	5.22	1,410.97	74	66	60	251			
Other populations							11,073			
Total							13,700		39%	
Balochistan										
FSW	8,896	0.66	5,157.56	34	30	27	43			
PWID	2,430	26.82	1,155.08	310	279	251	713			
MSW	4,484	5.42	2,128.53	115	104	93	131			
HSW	3,860	5.22	1,853.36	97	87	78	94			
Other populations							4,135			
Total							5,116		46%	
Population										
KPK	25,997,641	0.72810124								
Balochistan	9,708,439	0.27189876								

2016 (Till Nov)							
Provinces	Total on ARVs	IDUs on ARVs	TGs on ARVs	MSM on ARVs	%KP reported/all	%KP estimated/all	NonKP/all
Punjab	3637	1467	37	85	44%	64%	36%
Sindh	2491	827	37	206	43%	63%	37%
KP	1411	99	8	13	8%	28%	72%
Balochistan	289	16	0	3			
Federal	787	180	4	1			
Total	8615	2589	86	308			

B.4. Unit cost_High impact_Final

Program	Unit cost (USD)
FSW	Taken from Fast Track unit cost
PWID	218
MSW/HSW	
Annual cost of MSW/HSW intervention in 6 sites	735104.1379
Number of clients reached in 2016	47623
Program unit cost/head/year	15.43590572
Adding cost of other components that provided for free of charge to clients of the program	
Add cost for testing: 4.2\$/head/year	4.2
Lack of cost for: commodity (28.2), IEC (0.4), STI (12.14)	40.74 (Unit cost estimated for fast track scenario)
20% management cost	
Total additional unit cost	56.175
Total unit cost	71.6
Other MSM	Assume to be equal to MSW/HSW

ART	
Business-as-usual unit cost, taken out CD4 count test	202
Link to care	5
Adherence support	40
Total unit cost	247

0	1	1,450	87%
181.58	217.90	431,995	

B.5. Best practice assumptions

KP	Define intervention package of the best practices (what intervention, frequency of service delivery)	Year	Highest coverage	Achievement of the best practice		Input for the model	Actual use	Source of information	Unit cost of intervention package
				Indicator	Before intervention				
FSW		2016	90%	% condom use with clients		80%	80%	Expert opinion and consensus	141.56
				% condom use with IDUs		80%	80%		
				% condom use with MSM		80%	80%		
				STI prevalence	35%	13%	Reduce by 0.37 times from baseline	Reduce by 0.37 times from baseline	

Male PWID	PWID intervention in Karachi that includes Needle Exchange Program (NEP) but not OST NSEP Services · Registration of PWID · Provision of new syringes, needles, band-aids and alcohol swabs · Collection of used syringes and needles · Provision of condoms · Provision of hygiene services · Behavior change communication messages on HIV, Safer Sexual practices, safer injecting practices and STIs HIV Testing & Counseling · Pre-test counseling · HIV testing on rapid diagnostic kits · Post-test counseling Spouse Prevention Program · Registration of spouses of HIV+ PWID · Provision of condoms · Counseling on HIV and safer sexual practices	2016	70%	% sharing	Punjab:	Punjab:	Punjab:	IBBS	218	Note: NGO reached 8800 in Karachi in 2016. Estimated size of PWID in Karachi is 28,004. Coverage is 31.4%
					16.6%	16.6%	16.6%			

- Pre-test counseling
- HIV testing on rapid diagnostic kits
- Post-test counseling
- Provision of Living Support package
- Referral to PPTCT centers

Social Mobilizer (Plus Component)

- Counseling for ART and AAU referral
- Point of care CD4 testing
- Referral and registration at ART centers
- Referral to ART Adherence Unit
- Follow-up and ARV refills
- Adherence monitoring

Paramedic and Basic Medical Care

- Antiseptic dressing for wounds and abscesses
- Referral to private medical practitioners for basic medical care

ART Adherence Unit

- Residential care for 8 weeks for detoxification, Initiation and maintenance on ART and adherence support

				% injection shared	54%	54%	= Baseline	Reduction from 50% to 30%	
				Injections per day	2.9	3.1	= Baseline	Reduction form 2.7 to 2	
				Reduction in males who inject		0	= Baseline	= Baseline	
	Opioid Substitution Therapy (OST)	2013	40%	% sharing	1/2 of baseline		No scenario with only OST	OST report	\$363.00
				% injection shared	1/2 of baseline				
				Injections per day	1/2 of baseline				
				Reduction in males who inject		0.8%			
	Both NEP and OST		70%	% sharing	Punjab: 36.7% Sindh: 44.5% ROC: 61.5%	Punjab: 6.1% Sindh: 7.5% ROC: 9.3%	Punjab: 6.1% Sindh: 7.5% ROC: 9.3%	Assumptions in separated file	297.08
				% injection shared	1/2 of baseline	1/2 of baseline			
				Injections per day	1/2 of baseline	1/2 of baseline			
				Reduction in males who inject		0.8%	0.8%		
MSM clients		2016	70%	Frequency of anal sex	15	13	Reduce by 0.87 times of baseline	Reduce by 0.87 times of baseline	Assumption: Use data from MSW from Dostana
									71.61090572

				% condom use	23%	56%	Increase by 2.43 times of baseline	Increase by 2.43 times of baseline		
				STI prevalence	21%	18%	Reduce by 0.84 times of baseline	Reduce from 2.5% to 1.5% (Punjab), 9.5% to 4% (Sindh), 2% to 1% (KPK&Bal)		
Non-paying MSM		2016	70%	Frequency of anal sex	15	13	Reduce by 0.87 times of baseline	Reduce by 0.87 times of baseline	Assumption: Use data from MSW from Dostana	71.61090572
				% condom use	23%	56%	Increase by 2.43 times of baseline	85%		
				STI prevalence	21%	18%	Reduce by 0.84 times of baseline	Reduce by 0.84 times of baseline (Punjab), from 2.5% to 1.5% (Sindh), 0.5% to 0.3% (KPK&Bal)		
MSW	1- BCC - Behavioral change communication through outreach (includes Condom & Lubes, IEC material) 2- Drop Inn Center facility (for repeat BCC /Psycho social support & Counselling) 3- VCCT with pre & post counselling & psychological counselling 4- STI diagnosis & Treatment 5- Referral support to PLHIV clients with strong followup 6- Condoms & lubes distribution 7- Career counselling and family counselling in DIC	2016	70%	Frequency of anal sex	15	13	Reduce by 0.87 times of baseline	Reduce by 0.87 times of baseline	Dostana	71.61090572
				% condom use	23%	56%	Increase by 2.43 times of baseline	Increase by 2.43 times of baseline		
				STI prevalence	21%	18%	Reduce by 0.84 times of baseline	Reduce from 10% to 4% (Punjab), from 15% to 5% (Sindh), 7% to 2% (KPK&Bal)		
HSW	1- BCC - Behavioral change communication	2016	70%	Frequency of anal sex	15	18	= baseline	= baseline	Dostana	71.61090572

	through outreach (includes Condom & Lubes, IEC material) 2- Drop Inn Center facility (for repeat BCC /Psycho social support & Counselling) 3- VCCT with pre & post counselling & psychological counselling 4- STI diagnosis & Treatment 5- Referral support to PLHIV clients with strong followup 6- Condoms & lubes distribution 7- Career counselling and family counselling in DIC						
		% condom use	18%	57%	Increase by 3.17 times of baseline	80%-85%	
		STI prevalence	24%	18%	Reduce by 0.75 times of baseline	Reduce from 9.8% to 4% (Punjab), 12.2% to 5% (Sindh), 9.2% to 3% (KPK&Bal)	
Treatment	81%	Viral load suppression		90%		90% Best practice in other countries	Fast track unit cost

Annual cost of MSW/HSW intervention in 6 sites	735104.1379
Number of clients reached in 2016	47623
Program unit cost/head/year	15.43590572
Adding cost of other components that provided for free of charge to clients of the program	
Add cost for testing: 4.2\$/head/year	4.2
Lack of cost for: commodity (28.2), IEC (0.4), STI (12.14)	40.74 (Unit cost estimated for fast track scenario)
20% management cost	
Total additional unit cost	56.175
Total unit cost	71.61090572

Category of Intervention	Investment framework category	Population	Region	Country	Cost data years	Sector	Unit of Measurement	Economic Unit Cost-2011 USD	Financial Unit Cost-2011 USD	Patient cost-2011 USD	Income level	HIV category	Quality score / review link	Time series avbl.	More Info	
Drug substitution	Basic Programs	IDU	ASIA	Indonesia	2006-2007	Public	Cost per person reached		\$346.94	\$6.18	LMIC	CON	45.25	NO		
Drug substitution	Basic Programs	IDU	SSA	Ang. Afr-GRNE	2009		Cost per person reached		\$987.66				12			
Drug substitution	Basic Programs	IDU	SSA	Fr. Afr-GRNE	2009		Cost per person reached		\$957.32				12			
Drug substitution	Basic Programs	IDU	ASIA	GRNE	2009		Cost per person reached		\$565.06				12			
Drug substitution	Basic Programs	IDU	LAC	GRNE	2009		Cost per person reached		\$975.25				12			
Drug substitution	Basic Programs	IDU	ASIA	China	2008-2010	Public	Cost per person reached		\$235.55		UMIC	IDU	31	YES		
Drug substitution	Basic Programs	IDU	ASIA	Vietnam	2008	Public	Cost per person reached		\$260.80		LMIC	CON	34.5	NO		
Drug substitution	Basic Programs	IDU	ASIA	China	2006-2007	Public	Cost per person reached	\$171.60		\$12.81	UMIC	IDU	46	NO		
ASIA									2009							
									\$352.09							
Source: http://www.avenirhealth.org/policytools/UC/app.php																

Category of Intervention	Investment framework category	Population	Region	Country	Cost data years	Sector	Unit of Measurement	Economic Unit Cost-2011 USD	Financial Unit Cost-2011 USD	Patient cost-2011 USD	Income level	HIV category	Quality score / review link	Time series avbl.	More Info
Drug substitution	Basic Programs	IDU	ASIA	Indonesia	2006-2007	Public	Cost per person reached		\$346.94	\$6.18	LMIC	CON	45.25	NO	
Drug substitution	Basic Programs	IDU	SSA	Ang. Afr-GRNE	2009		Cost per person reached		\$987.66				12		
Drug substitution	Basic Programs	IDU	SSA	Fr. Afr-GRNE	2009		Cost per person reached		\$957.32				12		

Drug substitution	Basic Programs	IDU	ASIA	GRNE	2009		Cost per person reached	\$565.06			12			
Drug substitution	Basic Programs	IDU	LAC	GRNE	2009		Cost per person reached	\$975.25			12			
Drug substitution	Basic Programs	IDU	ASIA	China	2008-2010	Public	Cost per person reached	\$235.55	UMIC	IDU	31	YES		
Drug substitution	Basic Programs	IDU	ASIA	Vietnam	2008	Public	Cost per person reached	\$260.80	LMIC	CON	34.5	NO		
Drug substitution	Basic Programs	IDU	ASIA	China	2006-2007	Public	Cost per person reached	\$171.60	\$12.81	UMIC	IDU	46	NO	
					ASIA	2009			\$352.09					
Source: http://www.avenirhealth.org/policytools/UC/app.php														

2010	1.60%	101.60%
2011	3.20%	103.20%
2012	2.10%	102.10%
2013	1.50%	101.50%
2014	1.60%	101.60%
2015	0.10%	100.10%
2016	1.30%	101.30%
		111.94%

B.6. Intervention and unit cost Fast Track

PAKISTAN

THE HIV EPIDEMIC

	2005	2010	2016
New HIV infections	5 000	11 000	13 000
	(20 000–10 000)	(12 000–14 000)	(17 000–11 000)
HIV incidence per 1000 population	0.06	0.08	0.10
	(0.10–0.02)	(0.11–0.05)	(0.16–0.11)
AIDS-related deaths	<100	1000	1000
	(<100–<100)	(<1000–1000)	(1000–1000)
People living with HIV	12 000	60 000	100 000
	(11 000–12 000)	(50 000–70 000)	(120 000–120 000)

90-90-90

People living with HIV who:	2016	
Know their HIV status	–	–
Are on treatment	5.00%	7%
Adults on antiretroviral therapy	100%	7%
		(75–75%)
Are virally suppressed	5.00%	2%
		(75–75%)

CHILDREN AND PREGNANT WOMEN

	2010	2016
New HIV infections—children	<1000	<1000
	(<1000–<1000)	(<1000–1100)
Antiretroviral therapy coverage—children	2%	10%
	(2%–5%)	(7%–12%)
Coverage of pregnant women living with HIV accessing antiretroviral medicines	2%	2%
	(2%–2%)	(2%–2%)

HIV COMORBIDITIES

Estimated number of incident TB cases among people living with HIV (2015)	1000
	(1000–12 000)
Proportion of people living with HIV with active TB in HIV care	–
Cervical cancer screening of women living with HIV	–

HIV PREVENTION

Knowledge of HIV prevention among young people (15–24)	1.2%
Condom use at last higher-risk sex (with a non-marital, non-cohabiting partner)	
Males	–
Females	–
Women aged 15–49 who have their demand for family planning satisfied with modern methods	10%
Men aged 15–49 who are circumcised	100/1000
Male circumcisions performed according to national standards (2014)	100/1000
People on PrEP (2014)	–

STIGMA AND DISCRIMINATION

People who report they would not buy vegetables from a shopkeeper living with HIV	10%
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POLICIES AND REGULATIONS

	2016
Community delivery of treatment	to
Laws requiring parental consent for adolescents to access sexual and reproductive health services	to
TRIPS flexibilities incorporated in national legislation	to

Laws or policies restricting entry, stay and residence of people living with HIV	to
Criminalization of transmission of, nondisclosure of, or exposure to HIV	to
Recommended CD4 level for treatment initiation	700/144

HIV EXPENDITURE

	2013
Total expenditure	US\$ 0 000 000
Domestic public expenditure	US\$ 1 000 000
Domestic private expenditure	–
International expenditure	US\$ 0 000 000

KEY POPULATIONS

SEX WORKERS	
Estimated size of population	200 000
HIV prevalence	2.0%
Know HIV status	20.0%
Antiretroviral therapy coverage	1.0%
Condom use	20.0%
Condoms distributed to sex workers enrolled in prevention programmes (2014)	–
Coverage of HIV prevention programmes	0.7%
Avoidance of services due to stigma and discrimination	–

PEOPLE WHO INJECT DRUGS

Estimated size of population	112 770
HIV prevalence	2.0%
Know their HIV status	20.0%
Antiretroviral therapy coverage	1.0%
Condom use	10.0%
Clean needle use at last injection	72.0%
Needles and syringes distributed per person who injects (2014)	5
Coverage of HIV prevention programmes	1.0%
Coverage of opioid substitution therapy (2014)	–
Naloxone available (2014)	to
Safe injection rooms available (2014)	to
Avoidance of services due to stigma and discrimination	–

GAY MEN AND OTHER MEN WHO HAVE SEX WITH MEN

Estimated size of population	100 210
HIV prevalence	2.7%
Know their HIV status	22.0%
Antiretroviral therapy coverage	2%
Condom use	22.0%
Condoms distributed to men who have sex with men in prevention programmes (2014)	101
Coverage of HIV prevention programmes	1.2%
Avoidance of services due to stigma and discrimination	–

TRANSGENDER PEOPLE

Estimated size of population	10 000
HIV prevalence	1.0%
Know their HIV status	20%
Antiretroviral therapy coverage	2.0%
Condom use	20.0%
Coverage of HIV prevention programmes	1.0%
Avoidance of services due to stigma and discrimination	–

PRISONERS

Estimated size of population	77 000
HIV prevalence	–
Antiretroviral therapy coverage	–
HIV prevention programmes in prisons (2014)	–
Condoms distributed	–
Clean needles distributed	–
Prisoners on opioid substitution therapy	–

Unless indicated otherwise, data are from the most recent survey available between 2011 and 2015. Financial data are currently being validated and may be revised. For updates, please see <http://aichinfo.unaids.org>.

