

Installation of Gene Xpert Machines for quick diagnosis of resistant TB cases in Khyber Pakhtunkhwa

TB Control Programme, Health Department Khyber Pakhtunkhwa has installed high quality diagnostic machines for the diagnosis of Difficult to diagnose Primary TB cases and also resistant TB cases. This new technology can diagnose Resistant cases within two hrs time in comparison to conventional culture and DST method, which routinely takes 2 to 3 months time. About 45 machines are being managed by Health Department. Out of which 37 machines would be installed by the end of 2017. Till May 2017 20 machines are installed in the high patients burden centres across the Province. Capacity of Technicians is also developed to make these machines operational. Special software installed lap tops computers and UPSs are also provided along with these machines.

Introduction:

GeneXpert is an automated real time PCR machine to diagnose Mycobacterium Tuberculosis (MTB) and also Rifampicin resistance (RR). It is used for semi quantitative test in vitro diagnosis. This machine can detect simultaneously TB Bacilli and Rifampicin Resistance within 02 hours. Rifampicin resistance is commonly considered a surrogate marker of multi-drug resistant TB (MDR-TB). In addition to being faster than traditional smear microscopy, Xpert MTB/RIF can better detect TB in people living with HIV and children. Otherwise without this machine more than 02 months is required to detect TB resistance.



GeneXpert Four (16) Module

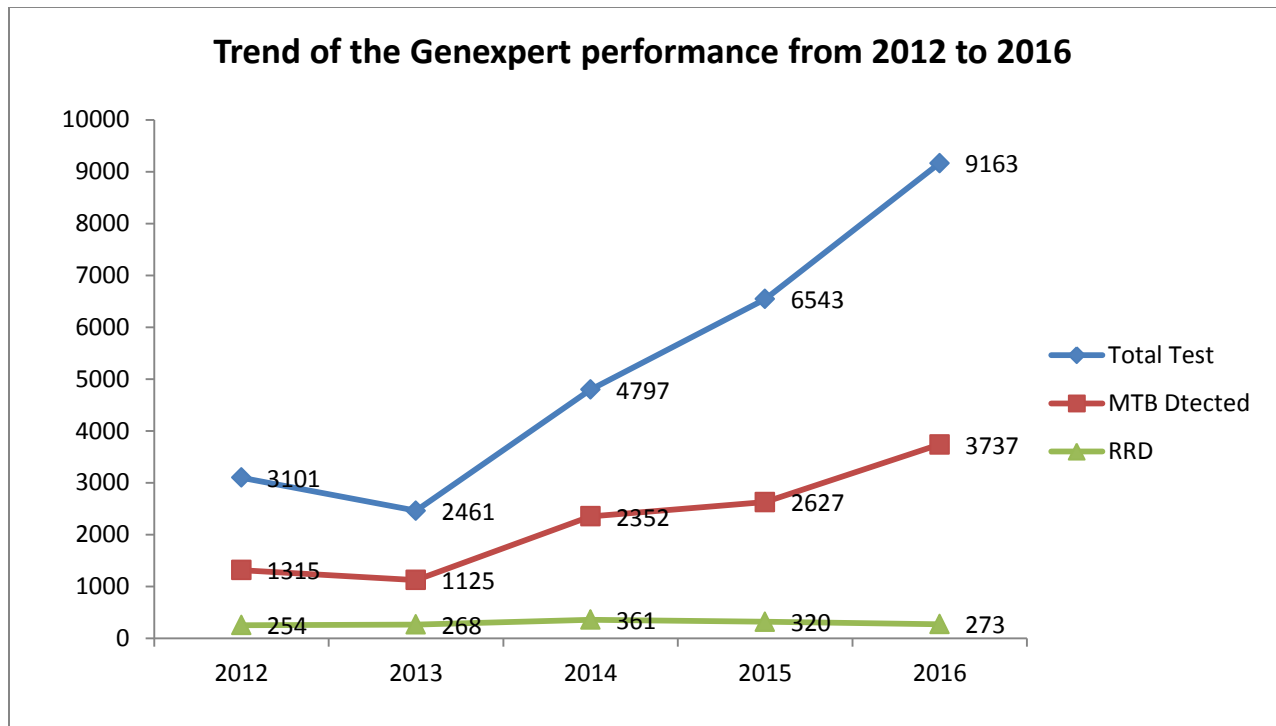
In December 2010 WHO endorsed the GeneXpert technology and released a recommendation and guidance for countries to incorporate the new test into their programs



This is of high importance that TB Control Programme was the first in the country to install these machines. Provincial Tuberculosis Reference Laboratory started function with high skilled experts in 2011 in the premises of Hayatabad Medical Complex premises Peshawar. At the end of 2012 TB control program installed 10 GeneXpert systems in 8 districts of the province for the 1st time in the country. Keeping in mind the advantages of this new technology, expansion was carried out to the other districts to benefit patients.

Till Dec 2016, more than 9000 thousand patients were benefited in 20 districts. Thus TB control program has demonstrated and continued its commitment to the care of the patients and ensured provision of quality health care services in TB diagnosis and care, at par with international standards.

TB control program (KP) in 2012 tested 3101 patients and diagnosed 254 MDR patients. Gradual increase was observed in 2014 where 4797 patients received GeneXpert services and enrolled 361 new MDR patients. In the last two years more than 16000 patients have been tested and diagnosed 350 MDR patients. Complete details are given in table 1.



Advantages of Gene Xpert Technology:

- Easy to perform technology
- Safe to perform
- Rapid result within 2-3 hrs(rather than 2 to 3 months by conventional methods)
- As sensitive as culture
- As specific as culture
- Detection of rifampicine resistance
- Robust technology with international recognition

List of installed GeneXpert instruments and future schedule in the Province

S.#	Site Installed	DISTRICT NAME	Date installed
1	PTRL	PESHAWAR	29/11/2011
2	LRH	PESHAWAR	16/03/2012
3	KTH	PESHAWAR	18/04/2012
4	MMC MARDAN	MARDAN	4/11/ 2017
5	ATH ABBOTTABAD	ABBOTTABAD	30/04/2013
6	DTO BATTAGRAM	BATTAGRAM	4/12/ 2012
7	DHQ TIMERGARA	LOWER DIR	4/1/2013
8	DTO SWAT	SWAT	11/4/13
9	DTO D.I.KHAN	D.I.KHAN	19/08/2013
10	DTO BANNU	BANNU	27/12/2013
11	PTRL	PESHAWAR	4/12/2013
12	DTO SWABI	SWABI	20/1/02016
13	DTO KOHAT	KOHAT	19/1/2016
14	ATH ABBOTTABAD	ABBOTTABAD	15/3/2016
15	DTO HARIPUR	HARIPUR	28/3/2016
16	DHQ BATKHELA	MALAKAND	23/5/2016
17	DHQ NOWSHEHRA	NOWSHEHRA	16/4/2017
18	DHQ HOSPITAL	KARRAK	26/4/2017
19	DTO OFFICE	MANSHRA	4/12/2015
20	DHQ DAGGAR	BUNER	UPCOMING IN 2017
21	CHITRAL	DHQ CHITRAL	UPCOMING IN 2017
22	DHQ CHARSADDA	CHARSADDA	UPCOMING IN 2017
23	DTO OFFICE PESHAWAR	PESHAWAR	UPCOMING IN 2017
24	DHQ LAKKI	LAKKI MARWAT	UPCOMING IN 2017

25	DHQ HANGU	HANGU	UPCOMING IN 2017
26	DHQ SHANGLA	SHANGLA	UPCOMING IN 2017
27	DHQ UPPER DIR	DIR(UPPER)	UPCOMING IN 2017
28	DRUSH	CHITRAL	UPCOMING IN 2017
29	DHQ TANK	TANK	UPCOMING IN 2017
30	DHQ TOORGAHAR	TORGHAR	UPCOMING IN 2017
31	SAIDU TEACHING HOSPITAL	SWAT	UPCOMING IN 2017
32	KING ABDULLAH HOSPITAL	MANSERA	UPCOMING IN 2017
33	LMH KOHAT	KOHAT	UPCOMING IN 2017
34	DHQ HARIPUR	HARIPUR	UPCOMING IN 2017
35	KHALIFA GULNAWAZ HOSPITAL	BANNU	UPCOMING IN 2017
36	DTO OFFICE MARDAN	MARDAN	UPCOMING IN 2017
37	SHAH MANSOOR MEDICAL COMPLEX SWABI	SWABI	UPCOMING IN 2017

Cost of Xpert Machines are follows:

S/N	ITEM	Open market COST(PKR)
1	Gene Xpert – IV Module	3.6 Million PKR per machine
2	Gene Xpert – XVI Module	7.1 Million PKR per machine

