

# Emerging Scenario of Criminal Transmission of HIV: An Outbreak of 900+ positive cases

Muhammad Imran<sup>b</sup>, Wadi B. Alonazi<sup>c</sup>, Bin Ni<sup>d</sup>, Guzayel Alaisa<sup>c</sup>, Abdulaziz Alotaibi<sup>c</sup>, Jian Zou<sup>\*a</sup>

## Abstract

HIV has been one of the most important global challenges affecting over 40 million individuals. At this moment Pakistan being the second largest HIV carrier country in South Asia seems to reflect much less prevalence rate in the region, perhaps mainly due to under-reporting. The current study investigates the prevalence of HIV/AIDS outbreaks in Pakistan during last 10 years and in particular its impact on recent cluster of cases appeared in district Larkana of Pakistan. The last ten years data is reviewed to find HIV trend in Pakistan and particularly in District Larkana. Data shows that only 16% of HIV suspects have been tested and only 9% have access to life saving drugs. The remaining are carriers of HIV infections to uninfected and unborn babies. An abnormal increase has been found in 15+ years age group followed by less than 14 years of age children. Larkana District in Pakistan is considered as one of the high risk area and having highest number of register HIV cases i.e. 2016 and 2019. This recent outbreak happened in April-May 2019 where 900 individuals including 75% children were found with positive HIV. To investigate sever HIV incident in Larkana-Pakistan, a special health care center was set up by AIDS Control Program in Tehsil Ratodhero of District Larkana, Sindh Province, Pakistan. More than 10,000 children and their parents were screened extensively. Sample collection, handling, testing and transportation was provided independently by the National AIDS control program Referral Lab as per CDC guidelines. The initial investigation confirmed three scenarios reported which might have caused the outbreak. Firstly, through reused needles, secondly, infected transfusions, which are more commonly known transmission routes confirming the dysfunctional healthcare situation in the country. Thirdly, where the paediatrician, who himself was HIV positive, was arrested for allegedly perpetrating the biocrime of intentionally spreading the HIV among his patients by using contaminated needles repeatedly. The doctor is under judicial trial under Criminal Transmission of HIV. What causes the severe outbreak of HIV is a question mark for health department and HIV/AIDS control program stakeholders. This outbreak gives a lesson that a small negligence or a bad intention of doctors can ending the happiness in many lives. The government should create a moral ethic program for doctors and paramedic stop to avoid such criminal negligence in future. Further details, causes and some policy implications particularly in context of Pakistan has been discussed in the conclusion section of this study.

**Keywords:** HIV/AIDS, Outbreak, Disposable Syringes; Criminal Transmission; Pakistan

## 1. Introduction

According to the United Nations Joint report on HIV/AIDS, approximately 37 million people

including children are living with HIV worldwide. Out of this number, two to three million are estimated to be in South Asia. All countries of the region have a low prevalence of human immunodeficiency virus (HIV). However, it is important to review the current epidemiological data to identify the trends of infection as it would have implications on prevention. Human Immunodeficiency Virus (HIV) is the virus that causes Acquired Immune Deficiency Syndrome

<sup>a</sup>Department of Gastroenterology, The Affiliated Zhangjiagang Hospital of Soochow University, Zhangjiagang 215600, Jiangsu, China

<sup>b</sup>School of Finance and Economics, Jiangsu University, Zhenjiang 20213 Jiangsu, People's Republic of China

<sup>c</sup>College of Business Administration King Saud University, Riyadh 11451, Saudi Arabia

<sup>d</sup>School of Medicine, Jiangsu University, Zhenjiang 212013, Jiangsu, People's Republic of China

\*Corresponding author email: 1472410989@qq.com

(AIDS) and is one of the most serious public health concerns around the world including Pakistan. There has been a constant global commitment not only to prevent the widespread transmission of HIV but also to make sure that every HIV-infected patient has access to HIV treatment. In 2017, approximately 36.9 million people worldwide were infected with HIV/AIDS and among these significant proportions of people living with HIV belong to low- and middle-income countries [1].

The HIV virus has been detected across different age groups notably to significant level among children during the recent outbreak in Pakistan, during April 2019. The initial cases started coming to surface when some of the parents noticed the unusual constant fever trends among their kids in closed community and took them to the nearby health care centre for treatment. After the initial investigation and necessary screening by the medical team of suspected cases, results were unexpectedly shocking when 13 out of 16 (children < 8 years) were found positive for HIV. Recognizing the sensitivity of the matter, health authorities set up an emergency medical camp where they started screening of children and their parents at large scale for the HIV virus during the course of next few weeks. The outcomes of the medical screening suggested that the sick children were found positive for HIV while their parents were HIV negative. However, it is only the tip of the iceberg at the moment. This gives birth to many questions about how so many children became victims of HIV in a particular town of Ratodhero [2]. To answer and review this question, this study is an effort to review the magnitude and possible reason behind April 2019 HIV outbreak in Ratodhero of Larkana,

Pakistan.

In order to understand the pattern of HIV in Pakistan, this study also provide a brief overview of the previous outbreaks in last ten years. This may help the readers and policy makers to keep an eye on such gross negligence while they are working on AIDS control program around the world. Pakistan's first HIV/AIDS case was detected in 1987 [3,4]. According to the annual report of Pakistan National AIDS Control Program (NACP) the number of HIV patient across the country has been increased drastically during the last ten years [5]. Official estimates indicate that since 2010, the rate of new HIV infections in Pakistan has increased by 45% [6]. Furthermore, HIV/AIDS incidences, transmission or epidemics in low socio-economic settings or developing countries like Pakistan is usually labelled with certain group of population such as injectable drug users (IDU), transgender people, prostitution and their clients.. In addition to understand it more clearly, there are several other socioeconomic factors, including low literacy rates, high poverty rates, limited awareness and unsafe blood transfusions, making Pakistan more vulnerable to HIV than other countries in the region. The socioeconomic factors as well as the rapid increase in population growth (Pakistan being on the top of the list with growth rate ~2.9%) compounding the problem [7] . However, these issues can be addressed partly through outreach education and awareness campaigning and partly by providing free health care facilities/checkups to low socio-economic group. The figure 1 shows the incremental increase in new HIV cases during the last eight years. Despite the efforts to control the fatal virus of HIV it's seems to grow rapidly.

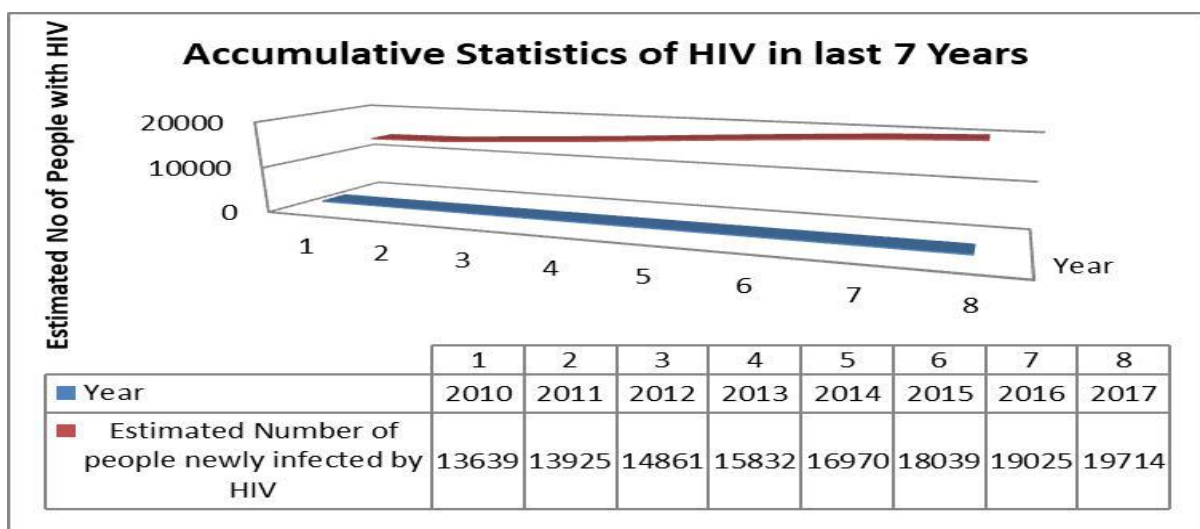


Figure 1. Accumulative Statistics of HIV in last Eight Years  
Source: WHO HIV/AIDS country fact-sheet

According to the latest government data, it is estimated that only 16% of 150,000 HIV-infected people in Pakistan have been tested and only 9% have access to life-saving treatment. The remaining

135,000 people are moving around the community as carriers of HIV/AIDS infections, ready to spread the infection to uninfected people and even unborn babies.

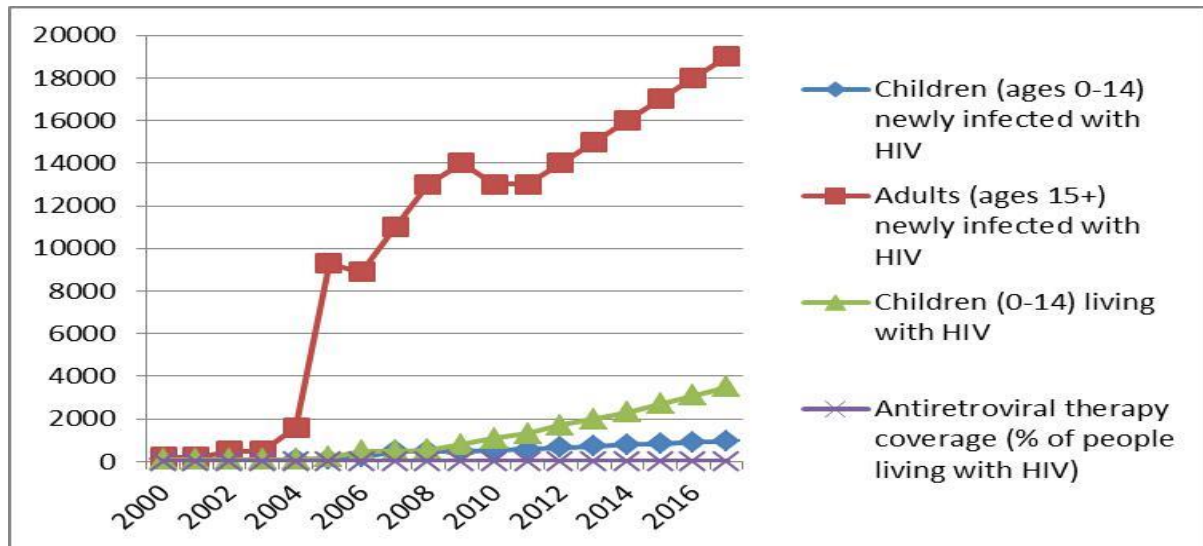


Figure 2. Graphical Representation of newly HIV/AIDS infected patients in Pakistan among different age groups in last 17 years

Source: World bank development indicators, Data of Pakistan

Figure 2 shows the increase in newly diagnosed HIV cases among different age groups. The graph shows that adults population are more vulnerable to HIV infection followed by children under fourteen years of age. However, the current single event of large scale transmission of HIV reported for this study involving mainly children population below 14 years of age. This make this study a unique review to understand that why more than 900 children have HIV positive in a particular small town.

Most residents of rural Pakistan are not educated about the possible causes of HIV transmission. One of the reasons may be the use of contaminated syringes, drips and surgery equipments, lack of effective sterilization in medical facilities or dental clinics and contaminated reused razors at barber shops. Moreover, in order to cater the needs of health of ever expanding population of Pakistan with highest growth rate and besides the fact that ~30%-40% of its population living below poverty level, unqualified medical practitioners or quacks are filling the gap.

## 2. Significance of the Study

In this research note we tried to investigate the prevalence of HIV/AIDS outbreaks in Pakistan in last 10 years and in particular its impact on recent cluster of cases appeared in district Larkana of

Pakistan. Apropos to HIV, as of this moment District Larkana has the highest number of HIV patients than any other District in the country. This make it unique to study and discuss the possible reason of the second outbreak in Larkana, Sindh.

Unfortunately, this new wave of Ratothero HIV, where 80% affected population screened during the screening from one city has not caught much attention perhaps due to the 18<sup>th</sup> amendment in the constitution of Pakistan<sup>1</sup>. It appears that provincial government healthcare systems at districts levels are not in a position to deal with such kind of emergencies where the timely screening of HIV cases and maintaining their record can help in ameliorating the devastating impacts of the disease including their spread.

District Larkana is one of the major district in Sindh Province and center of Indus valley civilization, Moen Jo Daro, Mount of Dead is designated as UNESCO world heritage sites located in this city. Larkana is the 17<sup>th</sup> largest city in Pakistan. It has four Talukas/Tehsils. The Talukas of Larkana are Rato Dero, Dokri and Bakrani. The April 2019 HIV/AIDS outbreak happened in Taluka Rato Dero of district Larkana which is the main focus of this article. Table 1 shows the basic statistics of District Larkana where this fatal incident of HIV/AIDS outbreak happened.

**Table 1. Demographic Structure of District Larkana**

S. No	Description	Numbers
1	Total population	1,927,066
2	Number of Male	993,576
3	Number of Female	933,576
4	Urban Population	557,012
5	Rural Population	1,370,054
6	Number of Tehsil	4
7	Number of Union Councils	47

Source: Pakistan Bureau of Statistics

### 3. History of HIV/AIDS outbreaks in Pakistan

Since 2004, the distribution of HIV incidence in Pakistan has developed from high-risk groups to concentrated epidemics. According to an estimate by UNAIDS, Pakistan contains approximately 130000 people living with HIV. Several factors, including low literacy, high poverty, and unsafe blood transfusions have made Pakistan more vulnerable to HIV spread than other countries [8].

The first major HIV/AIDS outbreak in Pakistan was also reported from the same district i.e. Larkana in June 2003. This was the first outbreak of HIV reported among injectable drug users (IDUs) where 17 out of 175 IDUs were found HIV positive [9]. In June–July 2008 a non-governmental organization (NGO) in Jalalpur Jattan (JPJ), Gujrat, Pakistan conducted volunteer medical camp and reported 246 positive HIV/AIDS cases giving alerts to relevant health care organizations in the country [10]. In 2016, another severe outbreak occurred in same district i.e. Larkana, where 50 out of 205 patients were confirmed HIV positive among kidney patients undergoing routine dialysis. There was another relatively recent outbreak of HIV/AIDS which took place in March 2018 in Punjab and that outbreak was erupted in a small village in Punjab, Pakistan where a total of 35 out of 2,718 screened individuals were confirmed positive for HIV/AIDS.

This current study is different in two ways from all the previous reports focusing on HIV/AIDS outbreak which occurred most recently i.e. April–May 2019. It mainly involves children population belonging to the closed community and it is strongly believed to be transmitted by a medical practitioner who himself was also the carrier of HIV [11]. It was just the start of screening test and can be called tip of the iceberg. According to the Incharge of HIV control program in the area, the children infected with HIV positive are of age between four months to fourteen years only. The government established an emergency screening camp in the area to investigate suspected population at larger scale over the course of next few months/weeks. More recently, a total of

10,000 screening test has been completed and 604 individuals including 75% children were found infected with HIV. Among the 604 positive HIV cases, 13 are infants and 102 children of the age group between 2 to 5 years.

In order to control the fast spread of HIV virus the government started crackdown against the quacks in the area and sealed 17 clinics. According to economic survey of Pakistan 2017-18 reports, more than 4500 HIV cases are registered from around the country. However, the UNAIDS report shows as many as more than 150,000 individuals are living with HIV in Pakistan.

There are number of well-known routes of transmissions of HIV ranging from sexual contact, occupational exposure, drugs use through injectable, transmission through infected mothers, blood transfusions and organ transplants. The identified high risk target groups of HIV include; female commercial sex workers (CSWs) and their clients, long distance truck drivers, men have sex with men (MSM), recipients of paid blood donors and IDUs. The official view of Pakistan is that sexual risks due to prostitution are the prime cause of HIV transmission with MSM also playing its considerable role. Low literacy and lack of awareness of safe sex practices encourage transmission of not only HIV but other sexually transmitted diseases (STDs). eHealth interventions in promoting HIV-preventive behaviors among MSM. Features of treatment content and eHealth technology might best predict the intervention effects on UAI and HIV testing, respectively. Most importantly, intervention adherence tended to play an important role in achieving better effectiveness [12]. These findings could help inform the development of efficacious interventions for HIV prevention in the future.

### 4. Methodology

To better understand the current scenario. We reviewed the last ten years data to find HIV trend in Pakistan and particularly in District Larkana of Sindh Province. Data shows that only 16% of HIV suspects have been tested and only 9% have access to live saving drugs. The remaining are carriers of HIV infections to uninfected and unborn babies. An abnormal increase has been found in 15+ years age group followed by less than 14 years of age children. Larkana is consider as second highest number of register HIV cases i.e. 2016 and 2019. This recent outbreak happened in April–May 2019 where 604 individuals including 75% children were found with positive HIV.

In order to cope with better understanding of

the outbreak and keeping the target area under the consideration a special health care center was set up by AIDS Control Program in Tehsil Ratodhero of District Larkana, Sindh Province, Pakistan. The children and their parents were screened extensively. To encourage the public to come for screening voluntarily/freely by breaking existing social taboos associated with the disease in society, the health care center encouraged them to visit them for free check up services. Sample collection, handling, testing and transportation was provided independently by the National AIDS control program Referral Lab as per CDC guidelines. During 20 April 2019 - 25 May 2019 a total of 10,000 screened tests have been completed and number of diagnosed individual reached to as many as 900 including 75% children age below 15 years [13].

## 5. Conclusion

During the last one and half decade the incidence of HIV/AIDS is reportedly increasing in Pakistan. There are many reasons of being getting infected by HIV ranging from blood transfusions, injectable drug users, transgender, prostitution, reuse of razors in street barber shops and reused of syringes in hospitals and quacks. In addition to this there are several other socioeconomic factors, including low literacy rates, high poverty rates and unsafe blood transfusions. These factors make Pakistan more vulnerable to HIV than other countries in the region. The socioeconomic factors are under the controlled of government and other health agencies. However, the former one's may need time to address these issues through education and awareness. The current outbreak demonstrates that there is a significant cause for concern regarding the spread of HIV in the District Larkana of Sindh province in Pakistan. As this is the third time and there is no evidence of concrete measure taken by the government to overcome this hazard in District Larkana.

The review of this recent outbreak of the HIV in Larkana district of Pakistan help us to bring out and take necessary measure of negligence at different level in health care. During April 2019, a handful number of parents realized the constant fever of their kids and took them to the nearby medical center for treatment. After the initial investigation, the medical team suspect the possibility of HIV and suggest them for HIV tests. Unexpectedly, 13 out of 16 patients were found with positive HIV. This give birth to many questions regarding the health care policy in the country. Many of the children who originally tested positive for HIV had been treated in a Larkana clinic run by a local doctor in his private

clinic. While investigating the cause of this severe outbreak, a doctor has been taken into custody and found positive with HIV and suspect that he is the source of spreading HIV in their client kids through reuse of syringes. It was intentionally or not but he went under the custody of police under criminal act of spreading HIV intentionally. However, the doctor denied the charges and termed the case a "conspiracy" against him. The local government also the charges of intentionally spreading of HIV by that particular doctor and label the doctor is innocent but under the police for criminal negligence in medical practices. Overall, during the desired investigation period of 35 days a total of 10,000 suspected cases screening has been completed where 604 including 455 children were confirmed with positive HIV. According to World Health Organization (WHO) prior to this outbreak, there were only 1200 children diagnosed with HIV and receiving antiretroviral treatment in the country. The government need to take necessary measure to shutdown quacks in different parts of the country, make proper implementation of SOPs for blood transfusion centers, barber shops and sex workers. Public relation department of government and non-governmental organizations need to create mass awareness of HIV spread and necessary measure to save precious lives. Additionally, internet based HIV testing is a new phenomena and can help people to test it while setting at home and keeping privacy. E-testing proved highly feasible and acceptable in Brazil [14]. This outbreak gives a lesson that a small negligence or a bad intention of doctors can ending the happiness in many lives. The government should create a moral ethic program for doctors and paramedic stop to avoid such criminal negligence in future.

This event highlights the importance of using high-impact interventions to reduce vulnerability and prevent transmission mainly in health care settings. It also takes into consideration the prevention of sexual transmission in high risk groups, transmission through injecting drug use and mother-to-child transmission (WHO July 2019).

## Ethical Approval

As this study is review of the continuous HIV outbreak in the region and we didn't conduct any first hand experiments or interviews. Therefore, no ethical approval was required.

## Acknowledgments

The authors extend their appreciation to the editorial board and reviewers for reviewing our paper and provide us more insightful comments to

make it more better. We also knowledge Research Center in the College of Business Administration and the Deanship of Scientific Research at King Saud University for supporting this research project.

#### Conflict of Interest

There is no conflict of interest among authors regarding publication of this paper.

#### References

- [1] The Global HIV/AIDS Epidemic <https://www.hiv.gov/hiv-basics/overview/data-and-trends/global-statistics>. Date accessed on 10 Nov 2019.
- [2] Khanani RM, Hafeez A, Rab SM, Rasheed S. Human immunodeficiency virus-associated disorders in Pakistan. *AIDS Res Hum Retroviruses* 1988; 4:149–154
- [3] Abdul S Mujeeb, Hashmi MR. A study of HIV-antibody in sera of blood donors and people at risk. *J Pak Med Assoc* 1988; 38:221–222
- [4] National AIDS Control Program Report Is Islamabad. Pakistan National Institute of Health Government of Pakistan. 1995.
- [5] Pakistan Today, HIV/AIDS outbreak in Kot Momin village alarms residents, health officials. <https://www.pakistantoday.com.pk/2018/03/01/hiv-aids-outbreak-in-kot-momin-village-alarms-residents-health-officials>, Date accessed: May 4, 2018
- [6] Gulf News, ASIA, <https://gulfnews.com/world/asia/pakistan/pakistan-grips-in-pakistans-larkana-after-13-children-tested-hiv-positive-1.1556178484693>, Dated accessed 25 April 2019
- [7] National AIDS Control Programme Pakistan, May 23'2019
- [8] United Nations program on HIV/AIDS. <http://www.unaids.org/en/regionscountries/countries/pakistan> (accessed March 24, 2018).
- [9] Ansari A, Salman M, Safdar M, et al., HIV/AIDS outbreak investigation in Jalalpur Jattan (JPJ), Gujrat, Pakistan. *Journal of Epidemiology and Global Health* 2013; 3:261– 268
- [10] Shah SA, Altaf A, Mujeeb SA, Memon A. An outbreak of HIV infection among injection drug users in a small town in Pakistan: potential for national implications. *Int J STD AIDS*. 2004;15: 209.
- [11] Samma TV, <https://www.samaa.tv/news/2019/05/larkana-doctor-denies-injecting-patients-with-hiv>/Larkana doctor denies injecting patients with HIV. Date accessed 10 May 2019.
- [12] Xin M, Viswanath K, Li AYC, CAO W, HU Y, Lau JTF, Mo PKH (2020). The Effectiveness of Electronic Health Interventions for Promoting HIV-Preventive Behaviors Among Men Who Have Sex With Men: Meta-Analysis Based on an Integrative Framework of Design and Implementation Features. *Journal of Medical Internet Research* 2020;22(5): e15977, URL: <https://www.jmir.org/2020/5/e15977>, DOI: 10.2196/15977
- [13] Online, New York Times, <https://www.nytimes.com/2019/10/26/world/asia/hiv-aids-pakistan-ratodero.html>, Published Oct. 26, 2019; Updated Oct. 30, 2019
- [14] De Boni, Veloso G, Fernandes M, et al., An Internet-Based HIV Self-Testing Program to Increase HIV Testing Uptake Among Men Who Have Sex With Men in Brazil: Descriptive Cross-Sectional Analysis. *J Med Internet Res*. 2019; 21(8): 14145

<sup>i</sup> According to 18th amendment in the constitution, relevant clause of which the public health programs have to be looked after by the provinces.