Journal of Infection and Public Health (2016) xxx, xxx–xxx

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REVIEW

Tuberculosis control in Sindh, Pakistan: Critical analysis of its implementation☆

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Received 13 August 2015; received in revised form 10 February 2016; accepted 20 February 2016

KEYWORDS
Tuberculosis (TB);
Prevention control;
Challenge;
Pakistan

Summary Tuberculosis (TB) remains one of the main health problems despite preventive and control measures that have been taken in the past few decades. It is responsible for almost 8.8 million cases and 1.4 million deaths around the world. Lack of access to TB services is a barrier for empowering TB patients. In a country like Pakistan, controlling TB has become a challenge because of the lack of private sector involvement in a National Tuberculosis Control Program (NTP). Therefore, collaboration is needed between public, private and government sectors in treating TB as well as in improving the quality of the health care system.

Contents

☆ Study was conducted in Leeds Beckett University, Leeds, UK.

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http://dx.doi.org/10.1016/j.jiph.2016.02.007

Please cite this article in press as: Khan AH. Tuberculosis control in Sindh, Pakistan: Critical analysis of its implementation. J Infect Public Health (2016), http://dx.doi.org/10.1016/j.jiph.2016.02.007

Introduction

Tuberculosis (TB) remains one of the main health problems despite preventive and control measures that have been taken in the past few decades [1]. It is responsible for almost 8.8 million cases and 1.4 million deaths around the world [2]. The World Health Organization (WHO) defines TB as ''An infectious bacterial disease caused by Mycobacterium tuberculosis, which most commonly affects the lungs. It is transmitted from person to person via droplets from the throat and lungs of people with the active respiratory disease'' [1]. This paper is divided into four sections. The first section uncovers the nature of TB and its threat to public health in the Sindh province of Pakistan; additionally, a critical analysis of TB data in the National Tuberculosis Control Program report in Pakistan is presented. The second section highlights health protection strategies focusing on the epidemiological triangle. The third section describes a strategic plan for health improvement solutions in the Sindh province and provides suggestions for TB control strategies. Finally, recommendations are provided on how private and public sector collaboration on TB control can enhance TB prevention and control, contributing to strengthening health promotion strategies throughout the entire country.

Nature of the threat to public health

Prevalence and incidence

Pakistan, with 179.2 million people [3], is ranked fifth among the twenty-two countries that are extremely burdened by TB and accounts for 63% of the TB cases in the Eastern Mediterranean Region [4]. Moreover, the National TB Control Program (NTP) [5] estimates that approximately 413,450 TB cases (all types) occur in Pakistan every year, with an incidence of 231/100,000 people. According to the NTP [5], the prevalence of TB in Pakistan is 630,000 cases (at 364/100,000 people), with mortality rates in the range of 60,000 (34/100,000 people). TB cases in different provinces of Pakistan are documented via notifications, and these notifications are considered to be a proxy for incidence rates [6].

The Sindh province, with an estimated population of 42.4 million people in 2010 [7], has roughly equal rural and urban populations (51.2% and 48.8%, respectively). While Sindh has 23 districts, there are very limited studies and data on TB for any of those districts in the WHO, World Bank or any National TB control organizations including provincial health ministries in Pakistan. According to Javaid [8], TB control was almost absent because of a dormant and ineffective NTP until 2001. Javaid [8] notes that this inefficiency is also associated with the lack of government commitment to fund and offer support for conducting TB programs around Pakistan.

Graph 1 shows that the Case Notification Rate (CNR) for National Sample Survey (NSS)[1] + 2 cases in Sindh was 59 per 100,000 during 2011, and the CNR for all type of cases in Sindh remained at 135 during the same year. The data have been investigated by the NTP under the supervision of the provincial government of Pakistan.

According to the NTP report [5], a comparison of the CNR from 2010 to 2011 indicates that among 23 districts in the Sindh province, there was an increase in the CNR of Sputum Smear-positive (SS+) cases in 11 districts and a decrease in 12 districts. Sindh has a higher CNR among males compared to females aged 15 or more years old. However, while the NTP survey in 2011 involves adults 15 years and older, it raises a question about the age group below 15 years old that has not been taken into account.

Studies of TB conducted in different cities of the Sindh province have relied on a very small population, old literature and the NTP data in general [9]. While the NTP is covering a larger population (e.g., Sindh), it also relies on WHO estimates. For example, the NTP is not giving any data in the district level. Perhaps, the reason why NTP has been conducting TB survey by province is because of the high cost and often challenging logistics of conducting TB surveys or studies on the city/town/district level. Hence, the validity of the data remains questionable.

NTP is controlled by the government; therefore, it has some socio-political influence. For example, would the government want to reveal all data? According to Akhtar [10], health sectors in Pakistan base their TB detection on self-reporting, which follows smear testing of several suspected cases [10]. Moreover, in Pakistan, because of the insufficiency of disease inspections, precise data for TB incidence, prevalence and associated mortality are not easily accessed [11]. As per the NTP report [5], updated results on the TB survey were expected in mid-2012; however, there has been no available

[1] ''A sputum smear-positive (ss+) patient is a patient with at least two sputum specimens that give a positive result for acid-fast *M. tuberculosis* bacilli by Ziehl—Neelsen microscopy or with at least one sputum specimen that is positive for acid-fast bacilli, and radiographic abnormalities consistent with active pulmonary TB'' [2].

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