

# Study of Tuberculosis Related Topics in Baghdad, Iraq 2012-2016

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## Abstract

**Objective(s):** The present study designed to explore topics related to Tuberculosis, such as new smear positive cases, causes, treatment and new pulmonary positive cases in Baghdad City, Iraq for 2012-2016.

**Method:** A descriptive “retrospective” design was performed throughout the present study from the period of November 12<sup>th</sup> 2017 to February 13<sup>th</sup> 2018. All registered tuberculosis patients in Baghdad, Iraq for the period of 2012-2016. An instrument was constructed for the purpose of the study. Data were collected from the health records at the National Tuberculosis Center, State TB center, and district TB center for the period of 2012 to 2016 with the use of the study instrument. Data were analyzed through the application of descriptive statistical data analysis approach of frequency, percent, incidence rate and ratio.

**Results:** The study findings depicted that most of the new smear positive cases are accounted for the age group of (15-24) year old during the years of 2012-2016. Causes of Tuberculosis in the rural area were accounted for poverty (39.95%), smoking (22.39%), untreated cases (12.4%), alcoholism (11.32%), malnutrition (10.30%) and overcrowded (3.57%) respectively, and accounted for alcoholism (27.77%), overcrowded (27.16%), malnutrition (24.69%), smoking (11.93%), poverty (7.62%) and untreated cases of Tuberculosis (0.80%) respectively in the urban area.

**Conclusion:** The study concluded that Most of the new smear positive cases are accounted for the age group of (15-24) year old during the years of 2012-2016. Patients, in 2014, had benefited out of the Tuberculosis Program more than others based on the success rate.

**Key Word:** Study, Topics, Tuberculosis, Baghdad City, Iraq

## Introduction

Roughly one-third of the world’s population has been infected with *M. tuberculosis*, and new infections occur at a rate of one per second <sup>(1)</sup>. However, not all infections with *M. tuberculosis* cause tuberculosis disease and many infections are asymptomatic <sup>(2)</sup>. In 2007 there were an estimated 13.7 million chronic active cases, and in 2010 there were 8.8 million new cases, and 1.45 million deaths, mostly in developing countries <sup>(3,4)</sup>. 0.35 million of these deaths occur in those co-infected with HIV. In 2015, across the world 1.8 million out of 10.4 million people affected by the disease died <sup>(5,6)</sup>.

Any person who coughs and who was in contact with smear positive index case (smear positive pulmonary

TB patient) should have three sputum examinations. Children aged less than 5 years: any contact aged less than 5 years who has a positive tuberculin that not previously vaccinated with BCG with signs or symptoms of TB should be treated as suffering from active TB. Those without signs or symptoms of disease should be given preventive chemotherapy (INH for 6 months) Children under one year of age with mothers who are being treated for smear positive pulmonary TB should be given Isoniazid if the tuberculin test is negative at the end of three months, INH may be stopped and BCG may be given <sup>(7,8,9)</sup>.

Drug Resistance Tuberculosis is a man -made disease (due to non - compliance, improper drug regimen, etc.). Primary resistance is prevented by giving

the patient combination of drugs. Secondary (acquired) TB resistance is expected to be developed in <sup>(10-12)</sup>:

1. A large bacillary population such as patient with cavitations.

2. Inadequate drug regimens (inappropriate drugs, insufficient dosage), drug side effects and complications.

3. Treatment of DR TB should be done by or in close consultation with an expert in the

management of these cases and on hospitalization bases.

4. A single new drug should never be added to a failing regimen.

5. Treatment duration for DR TB patient may last 18 -24 months by using 4 -6 drugs (capriomycin, cyclocerin, ethionamide, levofloxacin, and PAS).

6. Second line regimens often represent the patient's last hope for being cured inappropriate management can thus have life threatening sequences.

Based on the early stated facts, the present study ought to carry out a retrospective study to investigate related issues to detected cases of tuberculosis in Baghdad, Iraq for 2012-2016..

### Method

A descriptive "retrospective" design was employed throughout the present study from the period of November 12<sup>th</sup> 2017 to February 13<sup>th</sup> 2018 in order to investigate related topics to Tuberculosis, such as new smear positive cases, causes, treatment and new pulmonary positive cases in Baghdad City, Iraq for 2012-2016. A convenient sample of (11680) registered patients with tuberculosis in Baghdad, Iraq for the period of 2012-2016. These patients were males and females and they were one year to over than 65 year of age.

An instrument was constructed for the purpose of the study. It was comprised of items that focused on patients' characteristics of age, gender and type of Tuberculosis. A pilot study was conducted for the determination of the study instrument's content validity, internal consistency reliability and adequacy. The study was carried out for the period of December 10<sup>th</sup> -20<sup>th</sup> 2017. Content validity of the instrument was determined through panel of (15) experts. These experts were (5) faculty members at the College of Nursing University of Baghdad, (5)

Faculty members at the College of Medicine University of Baghdad and (5) epidemiologists at the Ministry of Health and Environment. They were presented with copy of the study instrument and asked to review it and provide comments for its modification to be more appropriate measure of the study. They had reviewed the instrument and presented their comments with an agreement that the instrument is content valid. Internal consistency reliability was determined for the study instrument through the use of split-half technique and measurement of Cronbach alpha correlation coefficient. The results indicated that Cronbach alpha correlation coefficient was  $r=0.85$  which adequately reliable measure for the problem underlying the present study.

Data were collected from the health records at the National Tuberculosis Center, State TB center, and district TB center for the period of 2012 to 2016 with the use of the study instrument. Data were analyzed through the application of descriptive statistical data analysis approach of frequency, percent, incidence rate and ratio.

### Results

Results out of table (1) indicate that most of the new smear positive cases are accounted for the age group of (15-24) year old during the years of 2012-2016.

Table (2) depicts that causes of Tuberculosis in the rural area are accounted for poverty (39.95%), smoking (22.39%), untreated cases (12.4%), alcoholism (11.32%), malnutrition (10.30%) and overcrowded (3.57%) respectively, and accounted for alcoholism (27.77%), overcrowded (27.16%), malnutrition (24.69%), smoking (11.93%), poverty (7.62%) and untreated cases of Tuberculosis (0.80%) respectively in the urban area. So, poverty and smoking are considered the most effective causes for patients in the rural area. In contrast, alcoholism, overcrowded and malnutrition are considered as the most effective causes for patients in the urban area.

Results of treatment out of table (3) reveal that success rate are (69%) in 2014, (61%) in 2013 and (51%) in 2012 respectively. Such rate can present evidence that patients in 2014 have benefited out of the program more than others.

Table (4) shows that age specific incidence numbers, percentage and incidence rate by gender. The percentage and the numbers in age group 15-24 years old was the highest and declined thereafter while age was increasing

for both male and female. But the incidence cases in age group 0-14 in both male and female were almost the same.

Though the incidence rate of both male and female cases the same in the age group 0-14 years old and difference was much higher as age groups increased from 15-24, 25-34, 35-44, and the highest was found among the age group 55-64 years old while the rapid decreasing was found in the age group 65 + years old.

**Conclusion**

The study concluded that Most of the new smear positive cases are accounted for the age group of (15-24) year old during the years of 2012-2016. The urban

zone’s incidence rate was greater than that of the rural zone. Poverty and smoking were considered the most effective causes for patients in the rural area. In contrast, alcoholism, overcrowded and malnutrition were considered as the most effective causes for patients in the urban area. Patients in 2014 had benefited out of the Tuberculosis Program more than others based on the success rate. The incidence rate of both male and female cases the same in the age group of (0-14) years old and difference was much higher as age groups increased from (15-24), (25-34), (35-44), and the highest was found among the age group (55-64) years old while the rapid decreasing was found in the age group 65 + years old.

**Table (1). Percentage of New Smear Positive Cases in Different Age Groups (2012-2016)**

Age Group (years)	Number of Cases	Percentage
0-14	102	2.5
15-24	1025	24.9
25-34	815	19.8
35-44	676	16.5
45-54	642	15.6
55-64	479	11.6
65+	366	8.9

**Table (2). Causes of Tuberculosis in Urban and Rural Areas**

Causes	Rural		Urban	
	Frequency	Percentage	Frequency	Percentage
Poverty	380	39.95%	818	7.62%
Alcoholism	108	11.35%	2980	27.77%
Malnutrition	98	10.30%	2650	24.69%
Smoking	213	22.39%	1280	11.93%
Overcrowded	34	3.57%	2915	27.16%
Untreated cases of Tuberculosis	118	12.40%	86	0.80%
Total	951		10729	

**Table (3). Results of Treatment of Drug Resistance Cases Detected among Tuberculosis****Patients during (2012-2016)**

Years	Total Enrolled	Cure	Completed Treatment	Defaulted	Died	Failure	Treatment Extended	NA	Success Rate
2012	114	47	11	26	20	10	0	0	51%
2013	79	38	10	21	8	1	1	0	61%
2014	55	12	3	16	8	0	1	15	69%
2015	58	2	0	2	7	0	0	47	.....
2016	63	1	0	2	5	0	0	56	.....
Still Positive after 24 months of treatment (and extended is extended) Not applicable, Result should appear after following two years									

**Table (4). New Pulmonary Positive Cases by Age Groups and Gender in Baghdad during (2012-2016)**

Age groups (Year)	Male	Female	Total
0-14	29	73	102
15-24	392	633	1025
25-34	478	336	814
35-44	479	197	676
45-54	385	257	642
55-64	278	201	479
65+	190	176	366
Total	2231	1873	4104

**Ethical Clearance:** The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq

**Conflict of Interest:** The authors declare that they have no conflict of interest.

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