The Epidemiological Profile of Tuberculosis in the Tuberculosis and Respiratory Disease Control Service (TRDCS) of a Coastal City in Western Algeria during the Last Nine Years (2008-2017)

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Abstract

Introduction: Tuberculosis is an endemic disease in Algeria.

Aims: The aims of our work was to analyze the epidemiological characteristics of tuberculosis in a rural area of western Algeria, to determine the socio-demographic distribution of tuberculosis patients, the localization of pulmonary or extra-pulmonary disease and the therapeutic result.

Method and Result: This is a descriptive retrospective study of all patients treated for tuberculosis in the Tuberculosis and Respiratory Disease Control Service (TRDCS) for a period of ten years between 2008 and 2017.

There were a total of 494 cases, ranging from 61 in 2008 to 42 cases in 2017.

Conclusion: Tuberculosis remains endemic in Algeria hence the need to strengthen all means to fight against its spread.

Keywords: Tuberculosis; Pulmonary and Extra-Pulmonary Forms; Therapeutic Evaluation; Rural Area; West Algeria

Introduction

During the period 1962-2010, Algeria, once a country with a high prevalence of Tuberculosis, has since the early 1980s joined the group of countries with prevalence moderated by national tuberculosis programs. There are approximately 20,000 cases of tuberculosis every year, with an annual incidence of tuberculosis of between 20 and 99 cases per 100,000 inhabitants. In Sidi Lakhdar; rural area with a population of more than 72,000 inhabitants in Mostaganem city, a coastal town west of Algeria; as the rest of the country still records cases of tuberculosis with a moderate frequency.

Method

A retrospective descriptive epidemiological study was carried out, covering all the patients followed for tuberculosis at the TRDCS of Sidi Lakhdar for a period of ten years from January 1st, 2008 to December 31st, 2017. Data is collected on active mode from clinical records of patients.

Results and Discussion

There were a total of 494 cases, ranging from 61 in 2008 to 42 in 2017. with a population growth rate ranging from 1.96% (2008) to 2.15% (2015) according to the National Statistics Office.

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New cases of tuberculosis

New cases are patients who have never received anti-tuberculous treatment (or taken less than one month). There is a clear decrease in tuberculosis cases from 2008 to 2010, and a stability between 2016 and 2017.
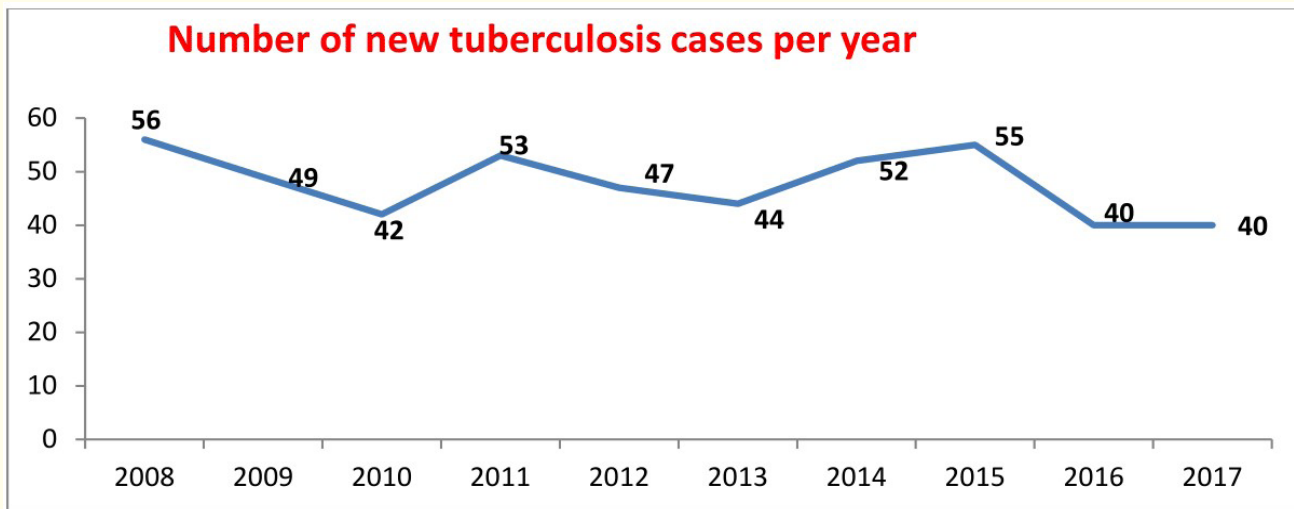

Figure 1

Distribution of Tuberculosis Cases by Sex

Male predominance for most years. Rural women are less likely to consult (transportation problem, neglect of symptoms, use of herbal medicine!).
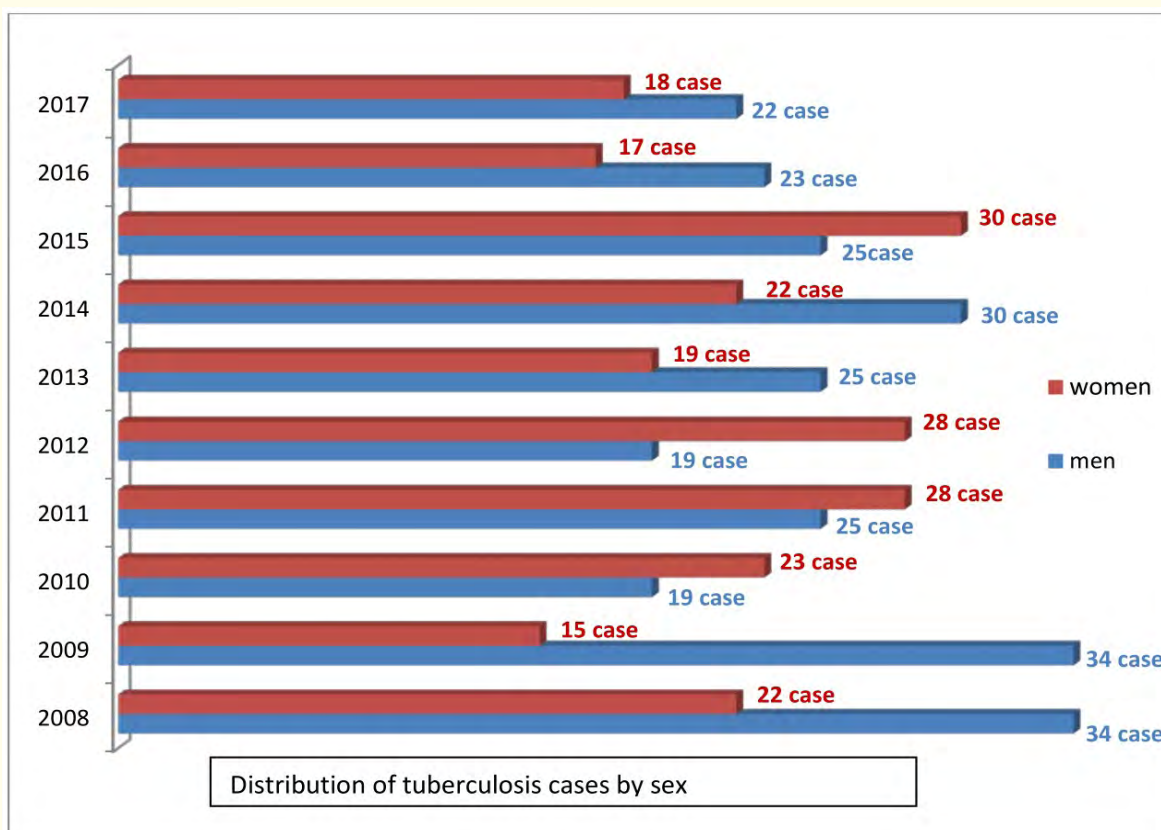

Figure 2

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Distribution of tuberculosis cases with positive smear by age group

The young population is the most affected especially the age group between 25 - 34 years followed by that of 15 - 24 years. This distribution is consistent with that of the rest of the country and other authors [1-4].

Extreme ages between 28 months and 87 years of pulmonary tuberculosis were noted.
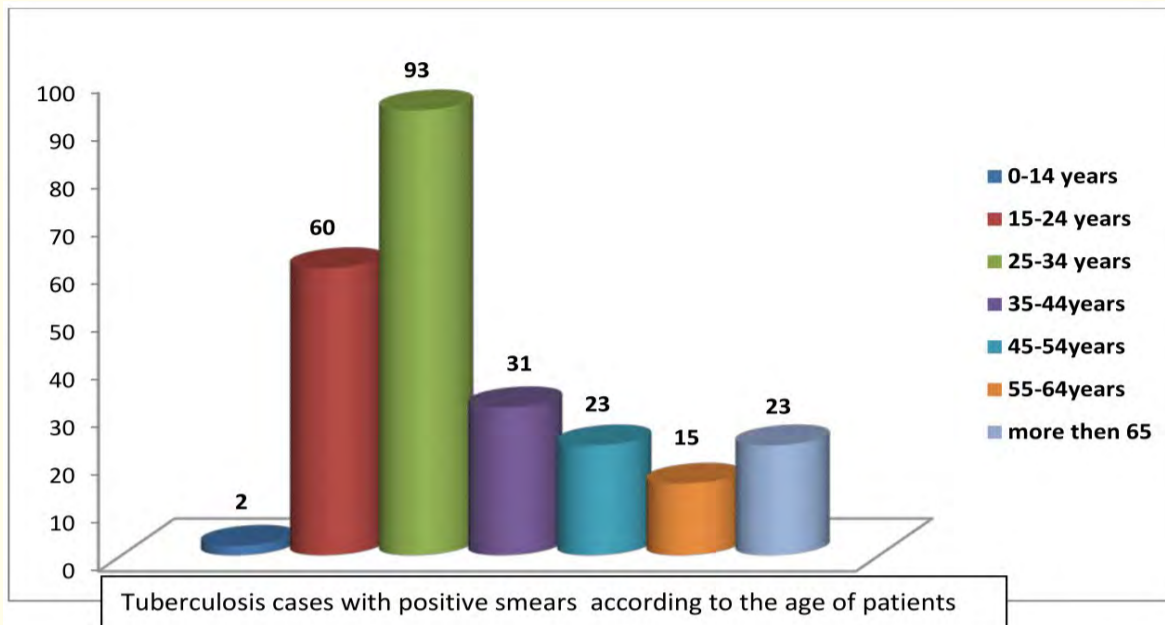

Figure 3

Distribution of Tuberculosis Cases according to their anatomical site

Unlike the rest of Algeria where extra-pulmonary tuberculosis predominates, there has been a predominance of pulmonary tuberculosis cases in our series.
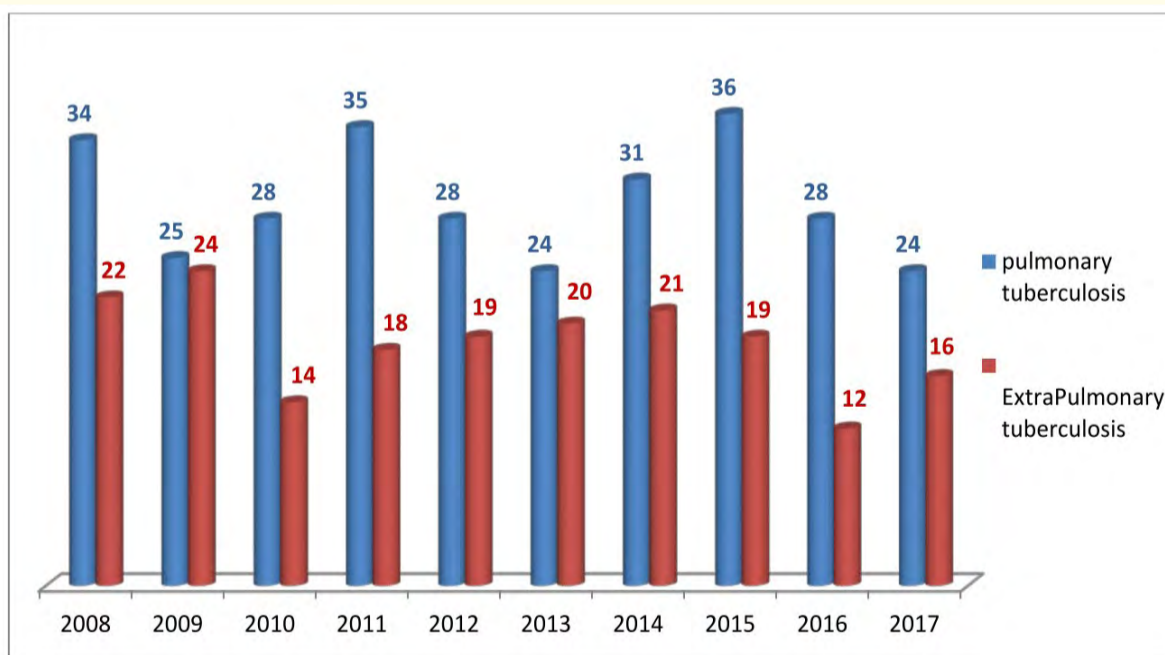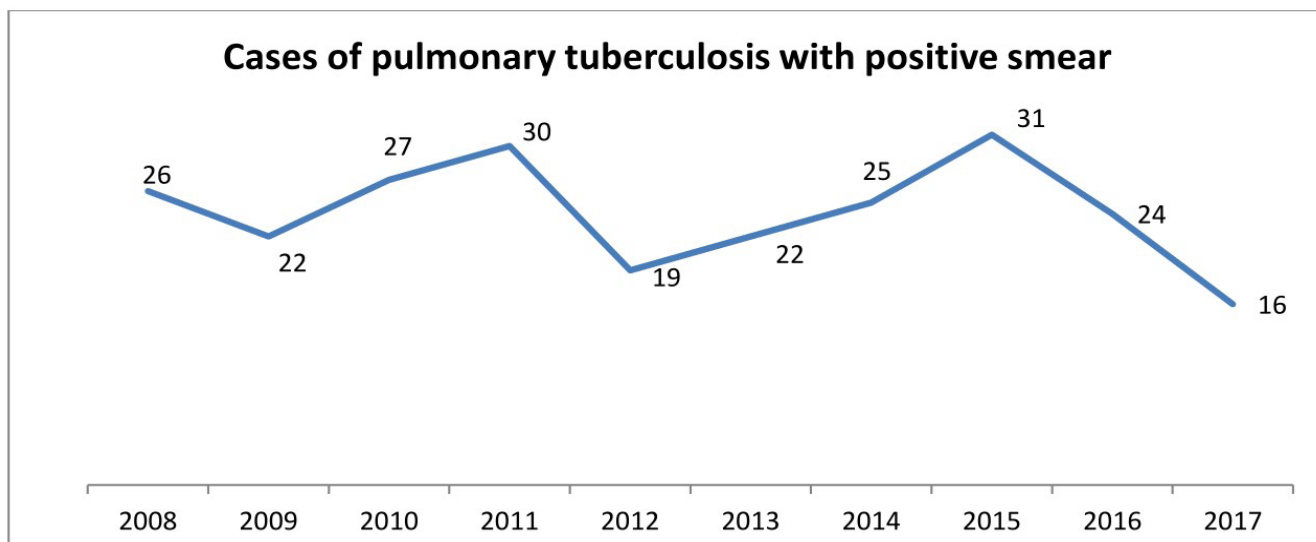

Figure 4

Distribution of pulmonary and extrapulmonary tuberculosis cases between 2008 and 2017.

Tuberculosis case with positive smear

In our laboratory we use only the sputum smear microscopy, and we don't use the culture (hence the interest of creation of reference laboratory with rapid and reliable results for early detection of mycobacterium tuberculosis to prevent ongoing transmission and continuous training of the microscopists).

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In 2016, there was a case of lung tuberculosis of occupational origin (case of a nurse working at our health institution).

Figure 5

Distribution of extra-pulmonary tuberculosis cases by site

- Prevalence of pleural localization unlike the rest of Algeria and Tunisia, where lymph nodes localization predominates [1].

- There were 15 cases of association of pulmonary and extra pulmonary tuberculosis and 4 cases of multifocal tuberculosis (defined by the involvement of two extra-pulmonary sites with or without pulmonary involvement).

- Pulmonary tuberculosis associate with diabetes was found in 7 cases, while co-infection Mycobacterium tuberculosis/HIV (Human Immunodeficiency Virus) in two other cases (the importance of pre-therapeutic test for screening HIV for rapid diagnosis and treatment of both diseases).

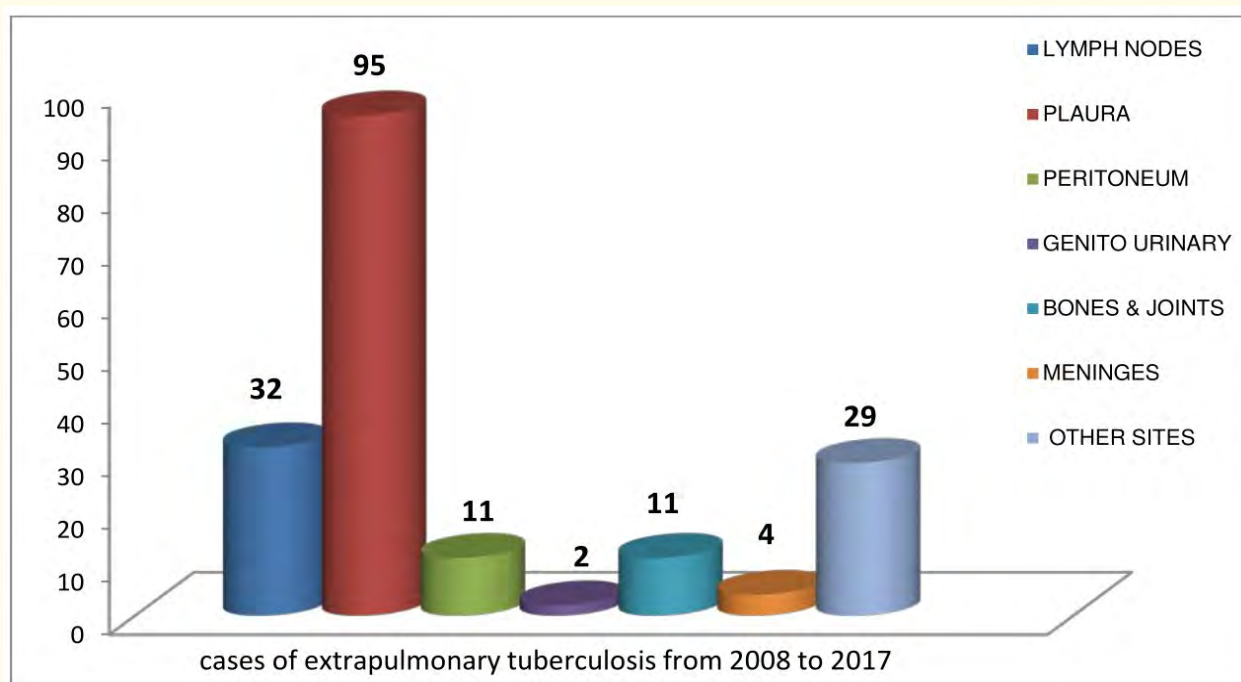- We had a case of bronchial adenocarcinoma revealed by pulmonary tuberculosis with positive smears.

Figure 6

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Tuberculosis cases recorded according to the month

The majority of cases were recorded during the summer months.
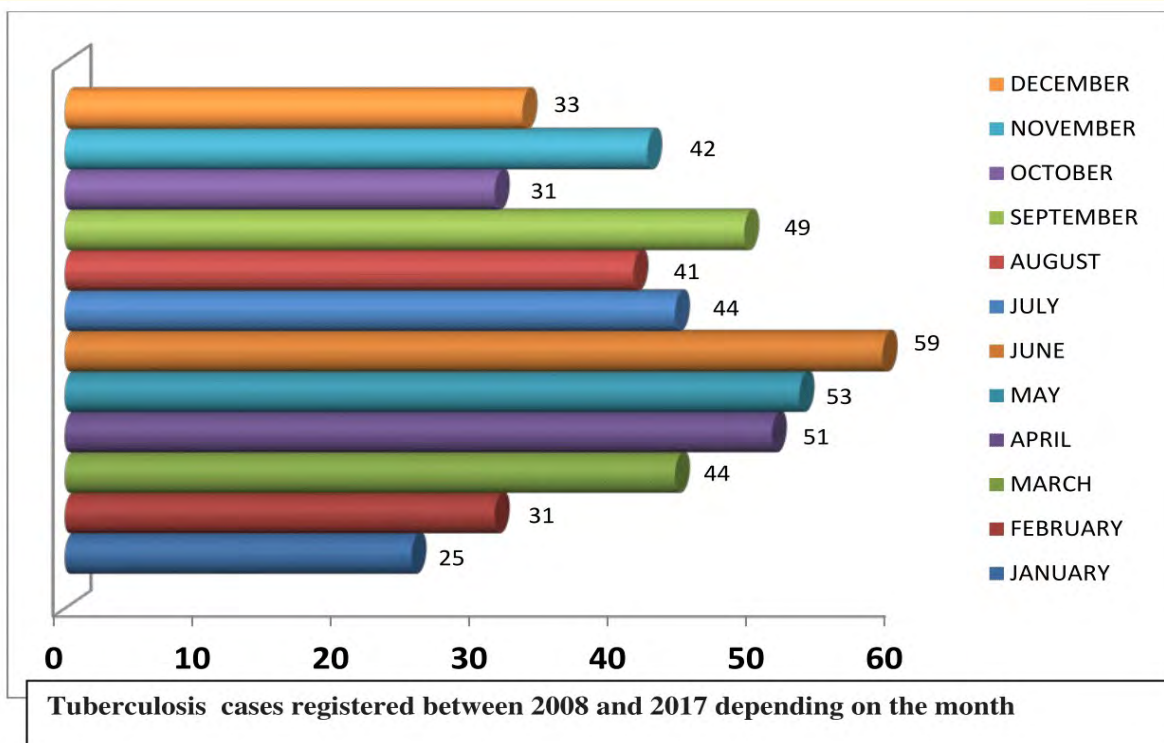

Figure 7

The evolution of cases registered between 2008 and 2016

- The anti-tuberculosis treatment (standard regimen) includes intensive phase with quadritherapy (RIFAMPIN-ISONIAZID-PIRA-ZINAMIDE-ETHAMBUTOL) for 2 months followed by continuation phase with RIFAMPICINE-ISONIAZIDE during 4 months.

- The duration of treatment may be extended in some cases.

- Ethambutol is not used for these extrapulmonary localizations: lymph node, pleural, bone, peritoneal and cutaneous

Anti-tuberculosis Treatment Outcomes [1]:

- Recovered (treatment success) : two negatives smears: one during the last month or after and the other at another time during the treatment.

- Treatment completed: not having two negative smear (initially negative or patient don't have sputum).

- Failure: any positive smears at the 5th month of treatment or after.

- Death: during treatment, whatever the cause.

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In our series we noted 2 patients who had relapsed (already treated and declared cured who have positive smears again).

Two cases of multidrug-resistant tuberculosis (MDR) have also been reported who have started MDR-TB treatment but died during treatment.

	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Success	45	42	37	40	45	38	44	44	31
Faillure	00	00	01	02	01	00	00	00	01
Death	02	01	02	01	00	03	01	01	01

Table: *The evolution of cases registered between 2008 and 2016.*

Conclusion

The prevention of tuberculosis by vaccination with BCG: Bacillus Calmette and Guerin (obligatory at birth in Algeria since 1969) which effectively protects against infant tuberculosis and especially the deadly forms (meningoencephalitis and miliary). The elimination of this disease requires strengthening the means of screening and diagnosis in order to achieve local and national objectives with the improvement of the socioeconomic conditions of our population which is an essential cause of this endemic.

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