

Epidemiology of BCG Disease in Iraq 2010–20114

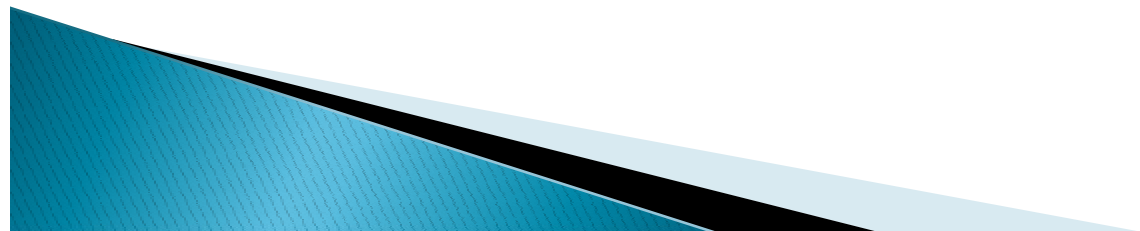
Presented by: Dr Najim Abd Husein, Pulmonologist

Research Team:

Dr Najim Abd, Dr Mahdi M. Azzawi, Dr Layth Al-Salihi

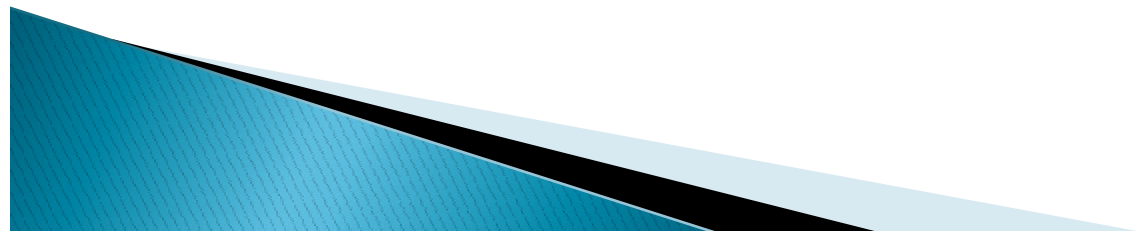
Introduction

- } Tuberculosis (TB) remains one of the world's deadliest communicable diseases. In 2013, an estimated 9.0 million people developed TB and 1.5 million died from the disease.



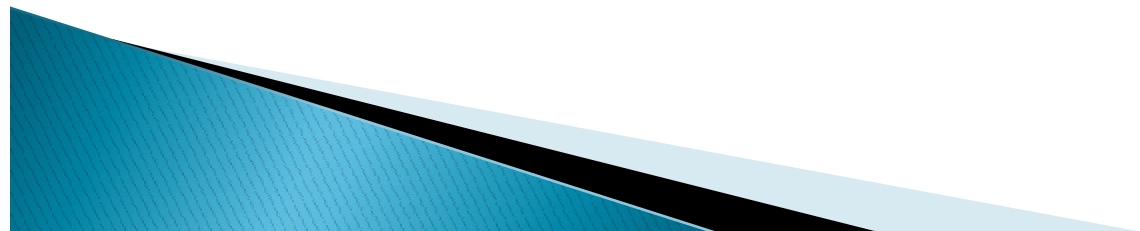
Introduction

- } The BCG vaccine prepared from a strain of attenuated bovine vaccine was first used to immunize humans in 1921. Following its introduction into the WHO Expanded Program on Immunization in 1974, the vaccine soon reached global coverage rates exceeding 80% in countries endemic for TB.



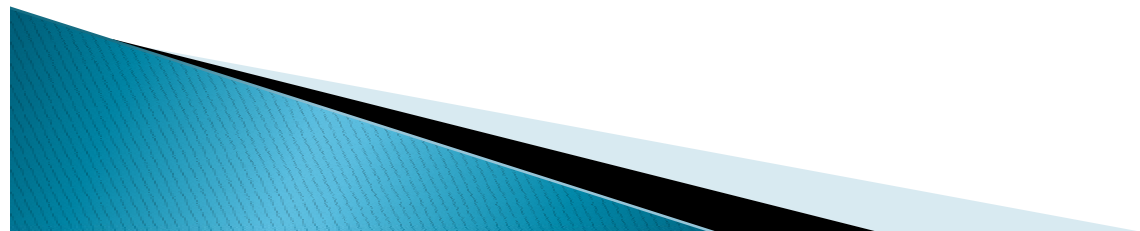
Introduction

Immunization with BCG is thought to reduce } hematogenous spread of *Mycobacterium tuberculosis* (*Mtb*) from the site of primary infection. If it occurs, haematogenous spread may result in serious disease, such as miliary tuberculosis and TB meningitis. Studies of overall efficacy have found statistically significant heterogeneity, against pulmonary and all forms of tuberculosis.



Introduction

- } Estimates of efficacy against tuberculosis ranged from negative to more than 90%. Protection provided by BCG vaccine has been found to have 5–14% annual decrease in relative risk of TB in unvaccinated compared with vaccinated individuals.



Complications from BCG Vaccination

BCG vaccine is considered to be safe and has a low incidence of serious adverse reactions. }

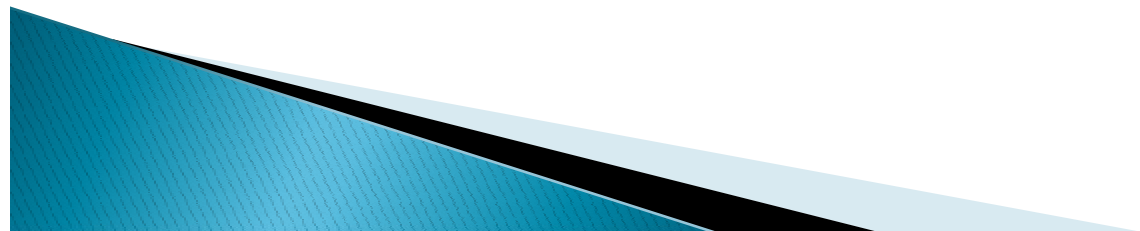
The most common complications after receiving BCG are local reactions and regional lymphadenopathy. }

The local reactions at the inoculation site can range from erythema and induration, to the formation of papule, discharging ulcer or abscess. }

Regional lymphadenopathy arises as a result of enlargement of ipsilateral lymph nodes, principally involving the axillary, and rarely, the lower cervical chain. }

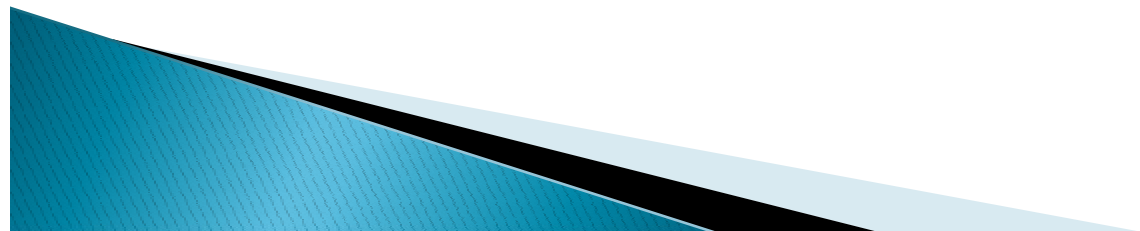
Complications from BCG Vaccination

- } Serious complications such as regional or distant soft tissue granulomas, osteomyelitis and disseminated disease (disseminated BCGosis) are rare, which mainly affect patients with impaired immunity.
- } However, similar complications can rarely occur in previously healthy or immunocompetent individuals.

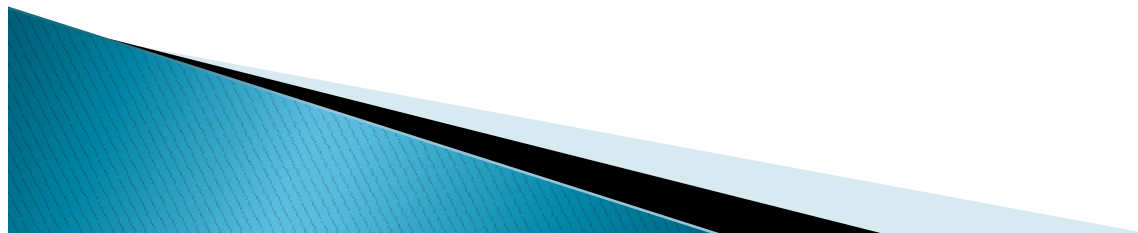


Complications from BCG Vaccination

- } There are two forms of BCG lymphadenitis. The nonsuppurative form (simple form) is characterized by a benign clinical course and the lesion resolves spontaneously without any sequelae over a period of weeks.
- } The suppurative form is marked by the progressive enlargement of regional lymph nodes leading to a collection of suppurative material, with recognizable fluctuation in the swelling.

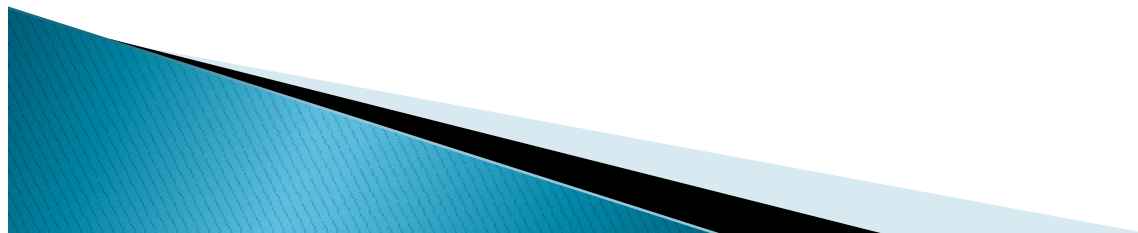


} Although, the use of BCG vaccine may be associated with side effects, the potential morbidity and mortality from tuberculosis outweighs that from BCG related complications.



Aim of this study

- } In this study we try to shed a light on the trend of BCGosis disease regarding age and strain type change , on the other hand , to outline the outcome of treatment



Methods

- } This is a cross-sectional study conducted at the national specialized center for chest and respiratory disease in Baghdad.
- } It is a record based study that collected data from reviewing the electronic registers of national tuberculosis program (Electronic Nominal Recording System-ENRS) for all Iraq for the years 2010-2014.
- } In addition, review of the surveillance data related to BCG disease epidemic during 2011.

Methods

- } Targeted patients were patients presented in their first two years of life with Extrapulmonary TB disease (axillary/cervical lymphadenopathy or cutaneous manifestations) and were recorded as TB disease complicating the immunization with BCG.
- } Statistical Analysis: Crude analysis was done using cross tabulation and simple plotting.

Table 1: Number and proportions of BCG disease cases in Iraq, 2010–2015.

| Year | Recorded cases of BCG disease | Percent out of All recorded TB patients | % out of U5 cases | % out of U5 EPTB cases |
|-------|-------------------------------|---|-------------------|------------------------|
| 2010 | 42 | $42/10,097=0.4\%$ | $42/188=22\%$ | $42/106=40\%$ |
| 2011 | 84 | $84/9248=0.9\%$ | $84/270=31\%$ | $84/144=48\%$ |
| 2011 | 42 | $42/9099=0.5\%$ | $42/178=24\%$ | $42/108=39\%$ |
| 2013 | 65 | $65/8883=0.7\%$ | $65/218=30\%$ | $65/144=45\%$ |
| 2014 | 46 | $46/8288=0.4\%$ | $46/171=27\%$ | $46/122=38\%$ |
| Total | 279 | $279/45615=0.6\%$ | $279/1025=26\%$ | $279/654=41\%$ |

During this 5 year period, BCG disease constituted 6/1000 of total patients and around one forth of U5 patients









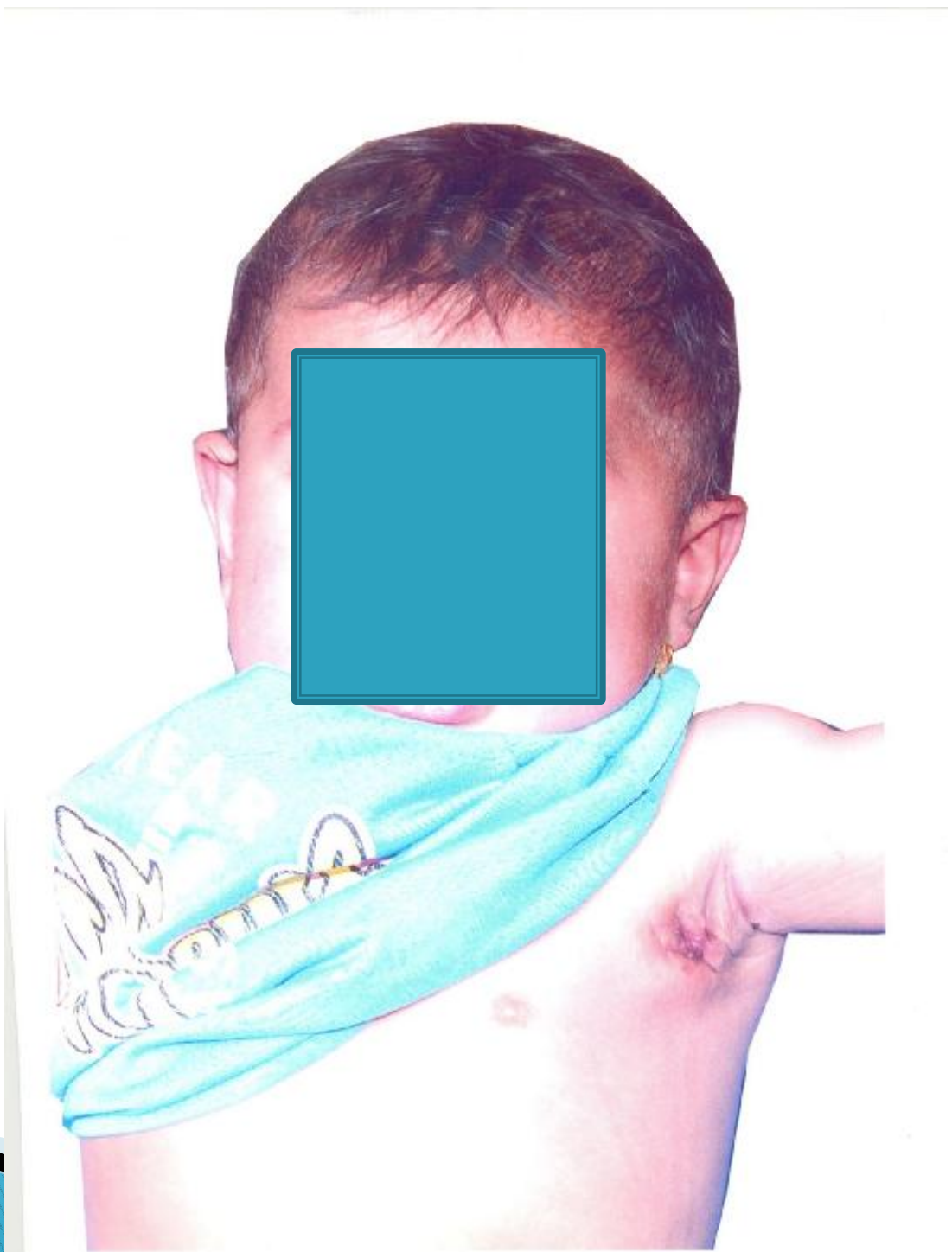








Figure 1: Distribution of BCG disease cases according to method of diagnosis, Iraq 2010–2015.

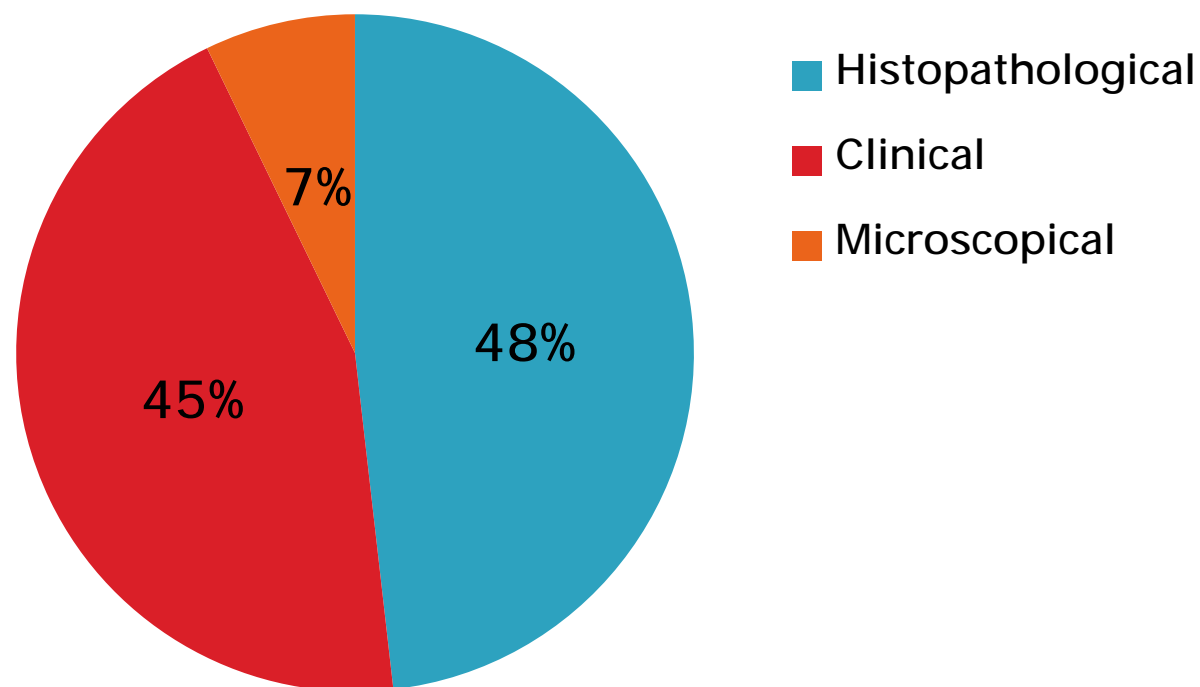
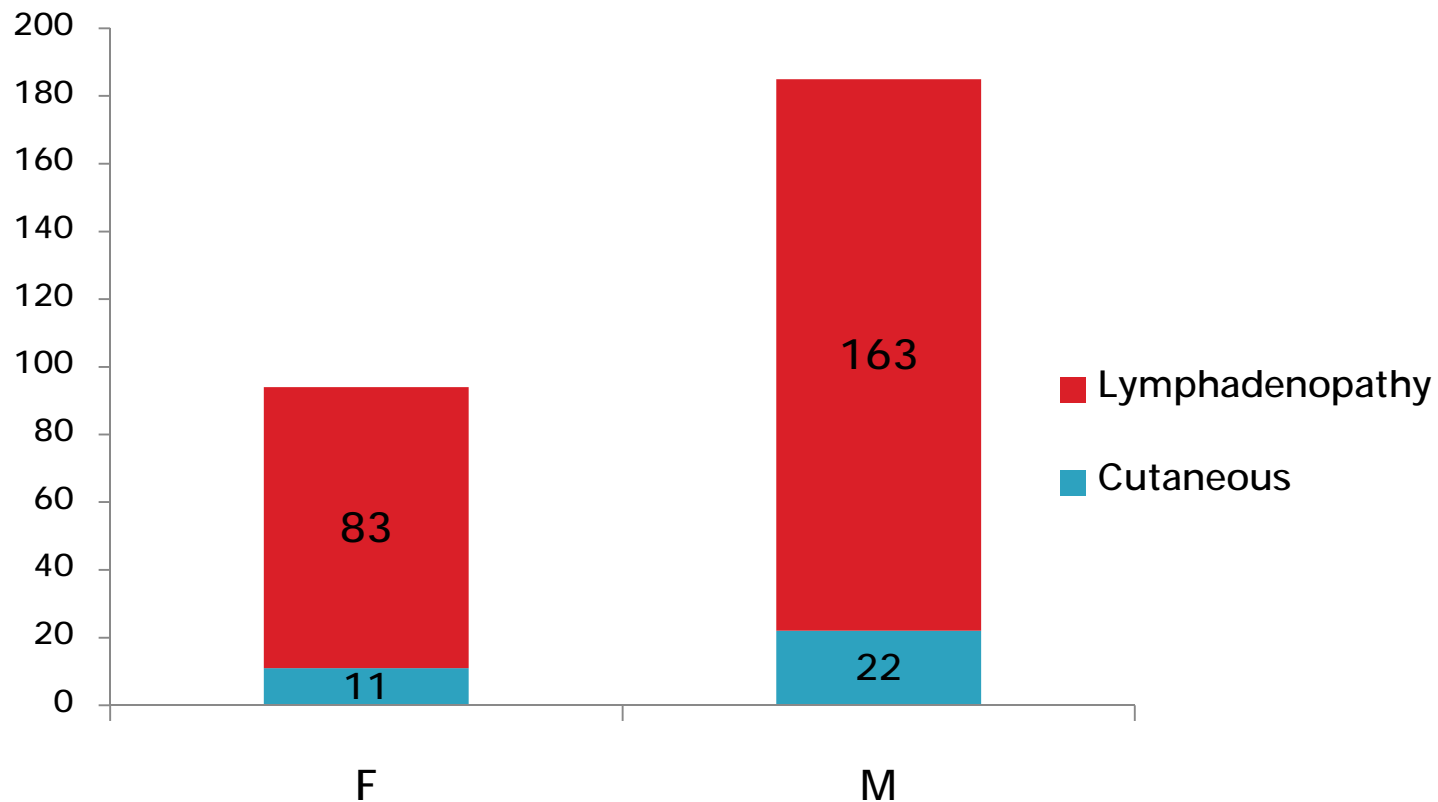


Figure 2: Distribution of BCG disease cases according to method of diagnosis, Iraq 2010-2015.



Males are affected as twice as females
Lymphadenopathy is the presentation in 88% of cases

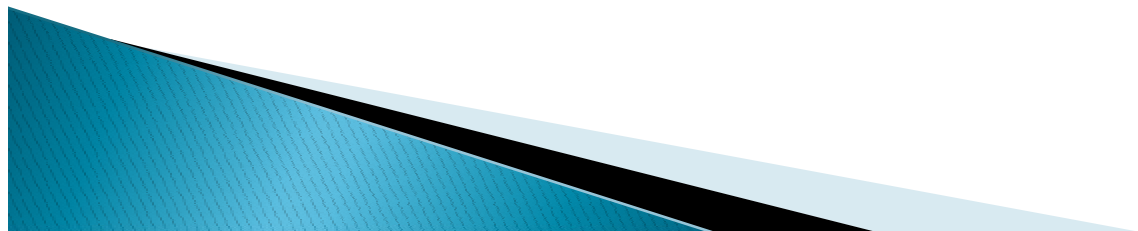
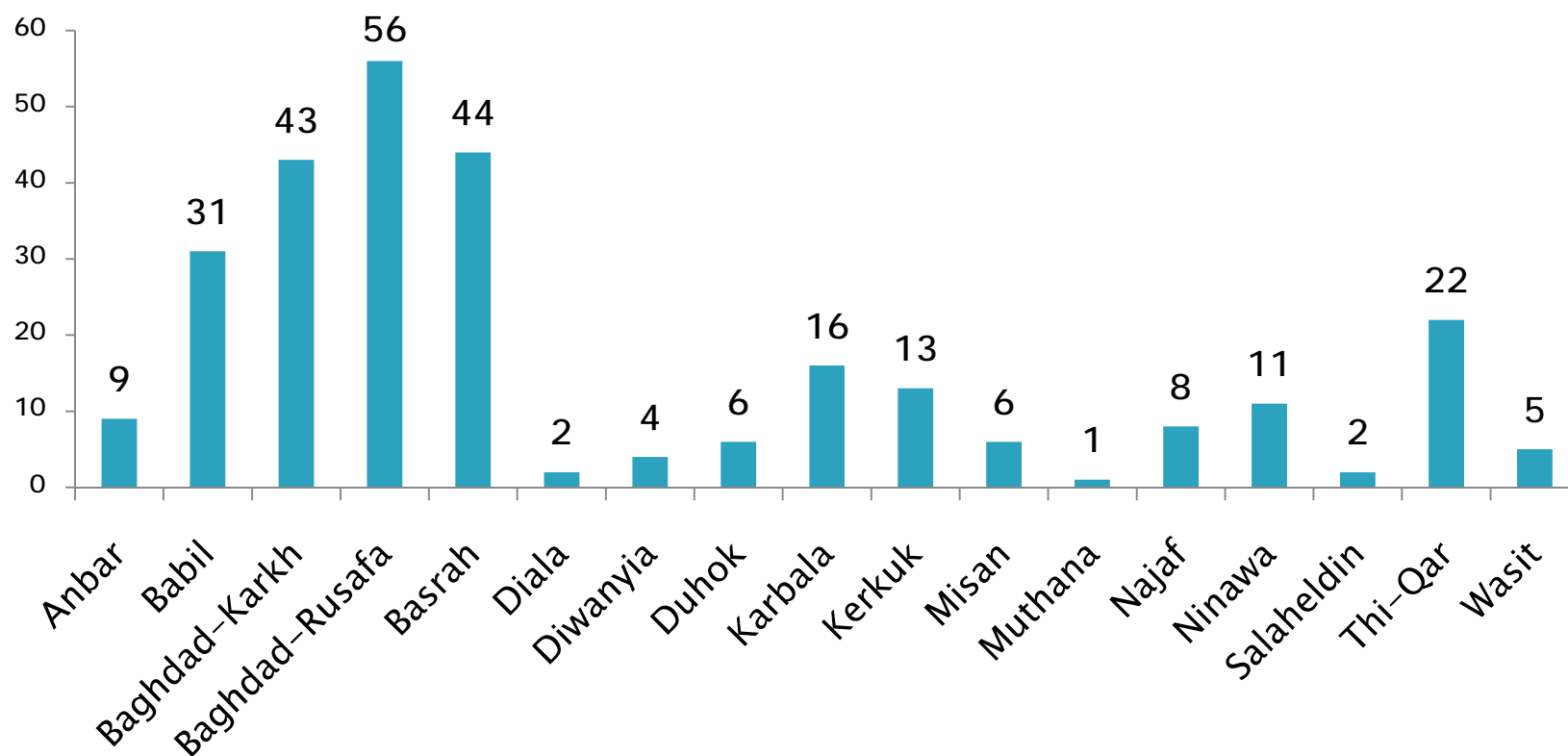
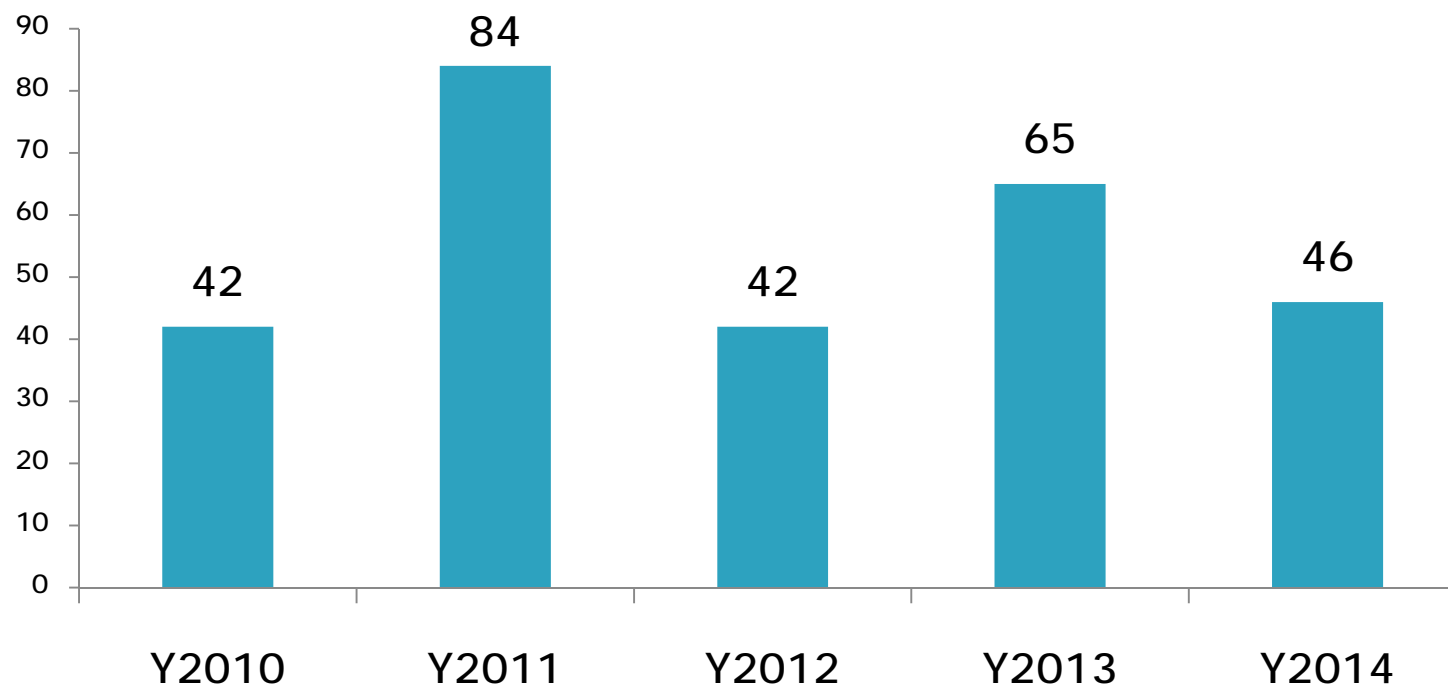


Figure 3: Distribution of BCG disease cases according to reporting governotate, Iraq 2010–2015.



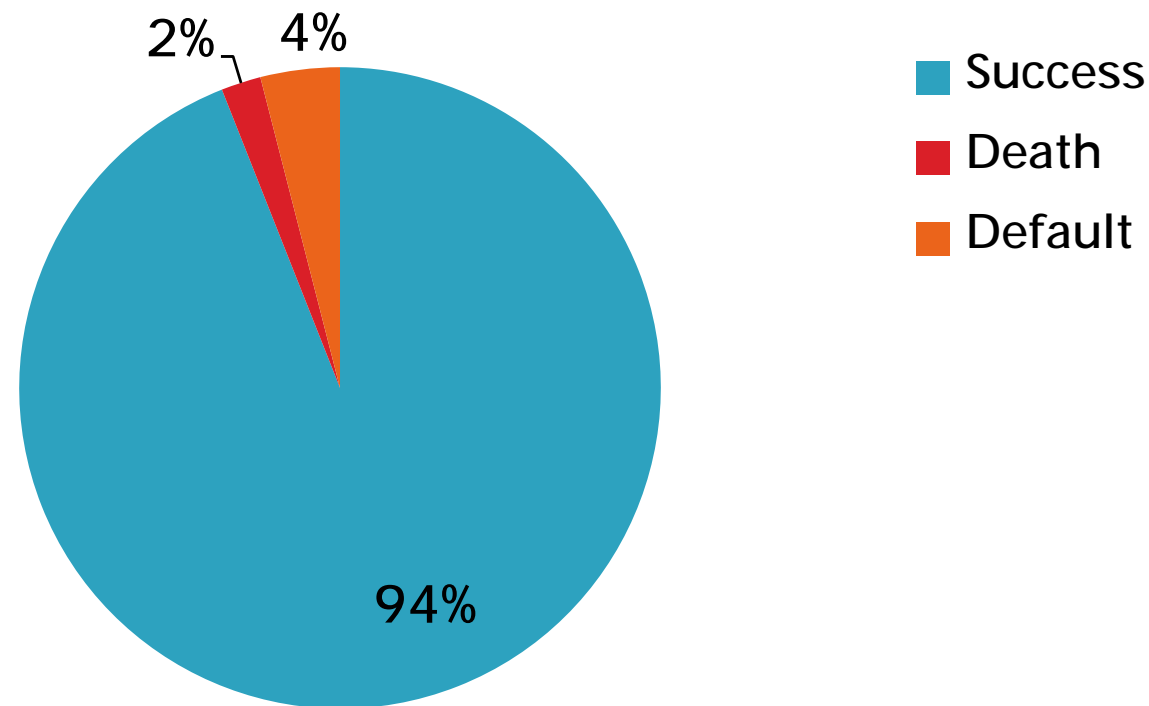
•Number of reported cases is proportional to the size of population of the governorate

Figure 4: Distribution of BCG disease cases according to year, Iraq 2010–2015.



- } Peak in 2011 is associated with shifting to a new BCG vaccine strain (BCG-SSI).
- } This is occurred as well in the same period in Saudia, Jordan and Egypt with the use of the same vaccine strain (BCG-SSI).
- } In Saudia during 2010, occurrence BCG disease jumped into 5 folds after using BCG-SSI.

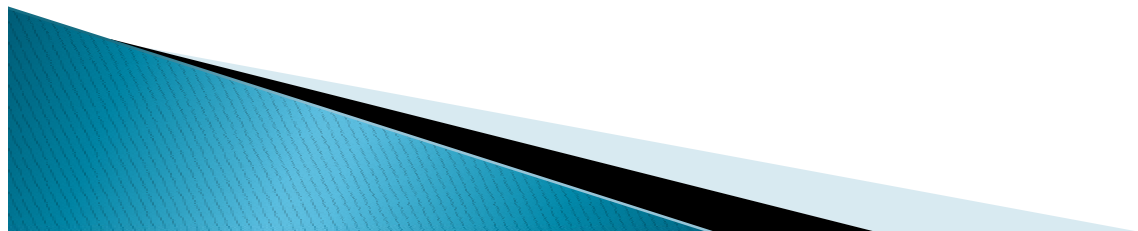
Figure 6: Documented Treatment outcomes for some BCG disease cases, Iraq 2010–2014.



- } Treatment outcome was documented for 200 patients only.
- } Iraq NTP treats such cases with full anti-TB treatment.
- } Same outbreak of SSI vaccine in KSA, anti-TB was given the course was benign as well.

Conclusion

- } BCG disease constitutes a considerable proportion of annually detected under five TB patients.
- } The course of this disease is usually benign.



Thank You