

c Pertussis

Increased detection of *Bordetella pertussis* in the pneumonia and influenza-like illness surveillance programmes

Introduction

Worldwide, pertussis is an increasingly recognised disease even in countries with high vaccination coverage rates. This increase in disease may be attributed to waning immunity and to the absence of widespread community-level circulation of the organism which may have boosted immunity in the community. In addition there is increasing recognition of the importance of pertussis not only in infants (among whom severe morbidity and mortality risks are highest), but also in adolescents and adults who usually present with atypical clinical manifestations of pertussis and so contribute to a reservoir of infection for younger children. Although it is a notifiable condition in South Africa, there are few data on the seasonality or periodicity of pertussis in South Africa. Available data suggest that there is an annual peak of pertussis detection in the winter months, although the timing of this peak varies year on year. Data also suggest a periodicity of three years, with a higher number of cases every three years. This is comparable to other countries, for example the United States where peaks in disease are seen every 3-5 years.

Methodology

The National Institute for Communicable Diseases (NICD) has been conducting active, prospective, hospital-based sentinel surveillance for severe acute respiratory illness (SARI) since February 2009. In

2012, the surveillance was further expanded at the two enhanced surveillance sites (Edendale and Klerksdorp-Tshepong Hospital Complex (KTHC)) to include expanded testing of specimens (naso- and oropharyngeal swabs and aspirates) for additional pathogens and collection of additional specimens (induced sputum and oral washes) from patients with severe respiratory illness (SRI). Also in 2012, the NICD initiated a programme of systematic influenza-like illness (ILI) surveillance at public health clinics. Two primary health care clinics serviced by the two enhanced SRI surveillance sites (Edendale Gateway clinic and Jouberton Clinic in Klerksdorp) commenced systematically enrolling patients with ILI. All patients are enrolled based on a clinical case definition of SARI and ILI respectively (1). These programmes have been described previously (7).

Results

A total of 152 cases of pertussis have been identified in the surveillance programme. (April 2012 to May 2015). In 2012 and 2014 the peak months were July and August (detection rates between 3% and 6%) but in 2013 the peak was later in the year (November, peak detection rate 6%). The detection rate in 2015 has been above 2% since January 2015 (Figure 3). Cases were identified in individuals of all age groups, except for the >65 year age group where no cases have been detected to date. The highest detection rate is in the under-3-months of age group. (Figure 4).

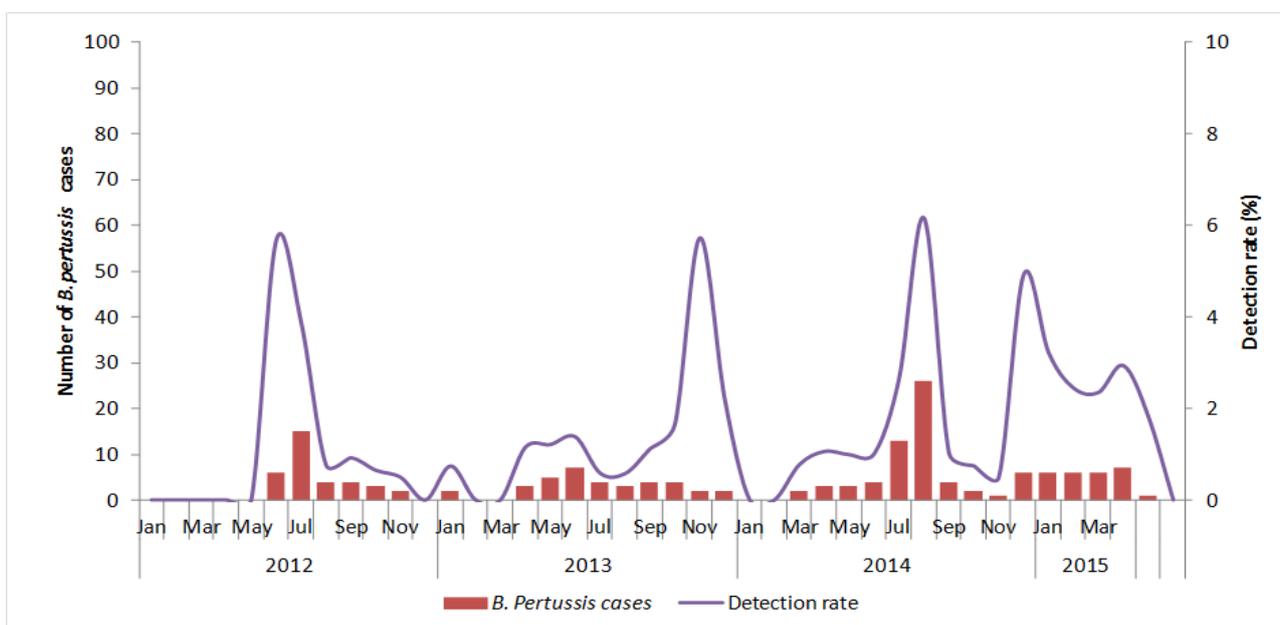


Figure 3. Number of cases of *B. pertussis* by month, year and detection rate, South Africa 2012 to 2015

Cases were detected at both surveillance sites and the majority of cases were SARI/SRI patients (62%, 104/168) while 28% of patients had influenza-like illnesses (ILI) (48/168).

Conclusion

Our surveillance suggests that the number of pertussis cases may be increasing in 2015, as the detection rate has remained above 2% between January and April in 2015. It is too early to comment on whether this increase is part of the expected periodicity of pertussis infections or whether it is independent of periodicity. We encourage healthcare workers throughout South Africa to familiarise themselves with the broad clinical presentation of pertussis and consider the diagnosis in patients meeting the case definition.

Pertussis case definition

In the absence of a more likely diagnosis, a cough illness lasting ≥ 2 weeks, with at least one of the following signs or symptoms:

- Paroxysms of coughing; OR
- Inspiratory whoop; OR
- Post-tussive vomiting; OR

- Apnoea (with or without cyanosis) (for infants only)

In infants the definition may be applied to acute illness of any duration.

The diagnosis of pertussis should be considered in persons of all ages and in all infants with apnoea. It is essential for healthcare workers to familiarise themselves with patient treatment, infection prevention and control, and post-exposure prophylaxis recommendations (available on the NICD website at <http://www.nicd.ac.za/?page=guidelines&id=73>)

The SARI and ILI programmes will continue to describe the detection of pertussis in South Africa. Ongoing systematic collection of surveillance data will be helpful to monitor future trends.

Source: Centre for Respiratory Diseases and Meningitis, NICD-NHLS

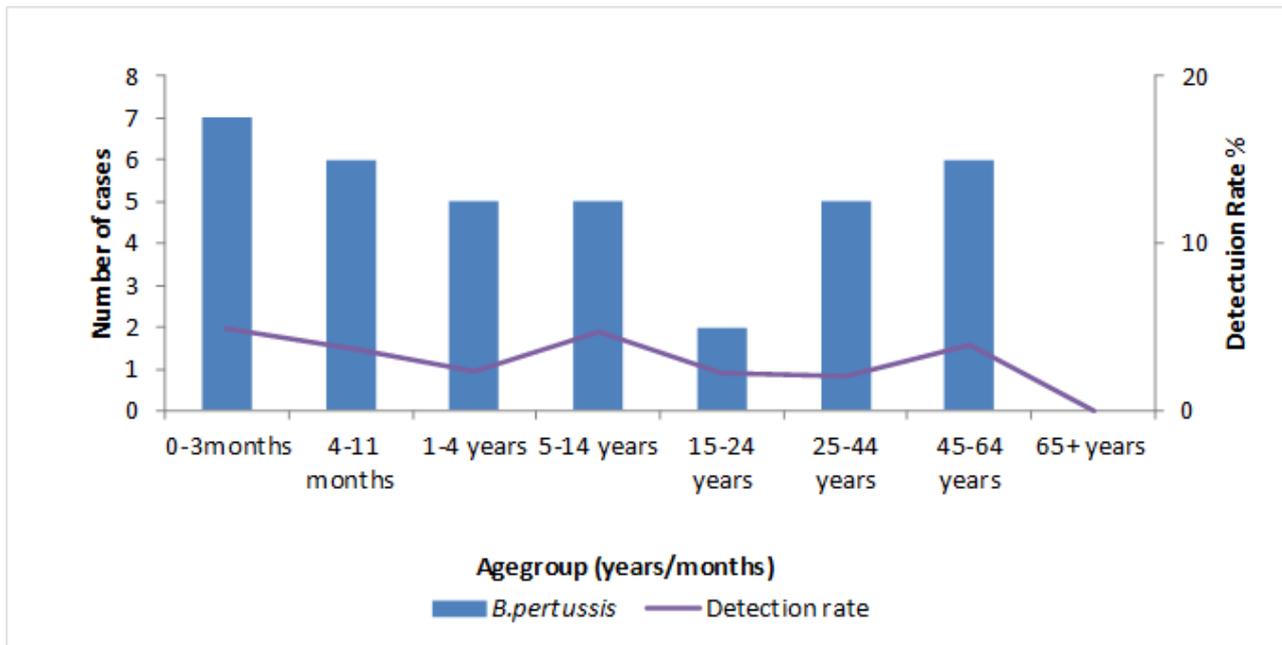


Figure 4. Number of *B. pertussis* cases by age group and detection rate, South Africa 2012 to 2015