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Title: Epidemiology of influenza and respiratory syncytial virus among individuals presenting with influenza-like illness at two outpatient health facilities in South Africa, 2012 to 2019

ABSTRACT

Introduction: Influenza and respiratory syncytial virus (RSV) are the main causes of viral-associated acute respiratory illnesses. Respiratory tract infections may cause mild illness warranting outpatient care or severe illness warranting hospitalisation. Although cases with mild illness may not be hospitalised, attending to illness may be costly and affect time off work and productivity. To my knowledge, there are a few data comparing demographic and clinical characteristics of RSV and influenza among outpatients with influenza-like illness (ILI) in South Africa. This study aimed to describe the epidemiology of influenza and respiratory syncytial virus among individuals presenting with ILI at two outpatient health facilities in South Africa. This was done by comparing the seasonality, demographic and clinical characteristics associated with influenza and RSV among outpatients presenting with ILI at Edendale Gateway and Jouberton clinics in South Africa.

Methods: This cross-sectional study examined secondary data from active surveillance for outpatient ILI at two public health clinics in South Africa during 2012-2019. Univariate analysis was conducted to estimate the detection rate of RSV and influenza infections, as well as clinical and demographic characteristics of infected individuals. The average start and duration of influenza and RSV season by age group was estimated using the Moving Epidemic Method (MEM) web application. Logistic regression was employed to investigate risk factors associated with influenza- compared to those of RSV-associated ILI.

Results: RSV and influenza were detected in 5% and 14% of individuals enrolled with ILI from 2012 to 2019, respectively. The RSV season preceded the influenza season, with RSV occurring between January and May and influenza between May and September. Among individuals of all ages with ILI, individuals with laboratory confirmed influenza were more likely to be aged ≥5 years and less likely to be enrolled in summer, autumn, or spring, in Jourberton Clinic or infected with HIV than individuals with laboratory confirmed RSV. In the age-stratified analyses among individuals aged <5 years, individuals with laboratory confirmed influenza were less likely to be enrolled in either summer, autumn, or spring, or in Jourberton

Clinic and more likely to be aged 3-4 years old than individuals with laboratory confirmed RSV. Among individuals aged ≥5 years, individuals with laboratory confirmed influenza were less likely to be aged 25-64 years old, enrolled in either summer, autumn or spring, Jourbeton Clinic, or in 2017 than individuals with laboratory confirmed RSV.

Conclusion: Influenza had a higher detection rate than RSV among individuals of all ages enrolled with ILI. The RSV season fell in autumn each year preceding the winter influenza season, this may be helpful to guide the timing of vaccination programmes and assist clinicians treating patients with respiratory illness. Influenza was more common in individuals aged ≥5 years. In contrast, RSV was more common in young infants, which can be helpful to guide who to target with interventions.

Keywords: influenza, respiratory syncytial virus, influenza-like illness, outpatient, South Africa