**Incidence calculations at Soweto site: supplementary information**

Calculation of incidence was conducted at this surveillance site as population denominator data were available. Chris Hani Baragwanath Academic Hospital (CHBAH) is the only public hospital serving the Soweto community amongst whom ~10% have private medical insurance.1 The vast majority (>80%) of uninsured individuals and approximately 10% of medically-insured individuals seek care at public hospitals, consequently the majority of individuals requiring hospitalisation from this community are admitted to CHBAH.

During February 2009 to December 2012, enrolment of adult patients was limited to two of every five working days due to high patient numbers and limited resources. Enrolment days varied systematically according to the intake days of the two participating wards. In 2013 enrolment at the Soweto site was further down-scaled, with enrolment of paediatric patients limited to two of the five working days and adult patients to one of the five working days. Incidence estimates were calculated for the period 2009−2012 (2013 was not included as enrolment was down-scaled in this year).

The daily total number of hospitalisations, number meeting eligibility criteria and number enrolled were recorded throughout the study period by means of study logs. We estimated the total number of SARI hospitalisations from the number of enrolled individuals adjusting for non-enrollment in three of five adult wards, as well as non-enrolment during weekends and refusal to participate (for adults and children) using information from the study logs.

The total number of SARI hospitalizations at CHBAH was obtained using the following formula:

Adults: *SARITotali,j = SARIEnrolledi,j\* (5/2)\*(7/5)\*(1/Xi,j)*

Children: *SARITotali,j = SARIEnrolledi,j\*(7/5)\*(1/Xi,j)*

Where *SARITotali,j* is the estimated total number of SARI hospitalisations in year *i* (2009-2012) and age group *j* (<1, 1, 2−4, 5−17, 18-44, 45-64 and ≥65 years of age); *SARIEnrolledi,j* is the number of SARI cases enrolled in year *i* and age group *j*; 5/2 is the coefficient used to adjust for enrolment of patients in 2/5 adult wards; 7/5 is the coefficient used to adjust for non-enrolment over weekends; and *Xi,j* is the proportion of all eligible cases that were enrolled in year *i* and age group *j*. The adjustment factor varied from 2.2 to 7.9 depending on the age-group and year of enrolment. We estimated incidence of SARI hospitalisations per 100 000 person-years by age groups and HIV status using the adjusted number of SARI hospitalisations divided by the mid-year total population estimates for each year,2 multiplied by 100 000.

1. Day C and Gray A (2013) Health and Related Indicators. South African Health Review.
2. Statistics South A (2008) STATSSA, Mid-year population estimates 2003-2008. Statistics South Africa.