

# Transmissibility and severity of COVID-19 in a humanitarian setting: First Few X investigation of cases and contacts in Juba, South Sudan, 2020.

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## Abstract

**Background** First Few “X” (FFX) studies provide evidence to guide public health decision making and resource allocation. The adapted WHO Unity FFX protocol for COVID-19 was implemented to gain an understanding of the clinical, epidemiological, virological, and household transmission dynamics of the first cases of COVID-19 infection detected in Juba, South Sudan. **Methods** Laboratory-confirmed COVID-19 cases were identified through the national surveillance system, and an initial visit was conducted with eligible cases to identify all close contacts. Consenting cases and close contacts were enrolled between June 2020 and December 2020. Demographic, clinical information and biological samples were taken at enrolment and 14–21 days post-enrolment for all participants. **Results** Twenty-nine primary cases and 82 contacts were included in analyses. Most primary cases (n=23/29, 79.3%) and contacts (n=61/82, 74.4%) were male. Many primary cases (n=18/29, 62.1%) and contacts (n=51/82, 62.2%) were seropositive for SARS-CoV-2 at baseline. The secondary attack rate among susceptible contacts was 12.9% (4/31; 95% CI: 4.9%–29.7%). All secondary cases and most (72%) primary cases were asymptomatic. Reported symptoms included coughing (n=6/29, 20.7%), fever or history of fever (n=4/29, 13.8%), headache (n=3/29, 10.3%) and shortness of breath (n=3/29, 10.3%). Of 38 cases, two were hospitalised (5.3%) and one died (2.6%). **Conclusions** These findings were used to develop the South Sudanese Ministry of Health surveillance and contact tracing protocols, informing local COVID-19 case definitions, follow-up protocols and data management systems. This investigation demonstrates that rapid FFX implementation is critical in understanding the emerging disease and informing response priorities.

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