

PRESS RELEASE: Findings and recommendations of the investigation into the Covid-19 outbreak at Netcare St Augustine's Hospital led by UKZN team

20 May 2020

The findings of the investigation into the coronavirus disease 2019 (COVID-19) outbreak that led to the closure of Netcare St Augustine's Hospital in Durban will be released today, 20 May 2020.

The investigation found that between 9 March and 30 April 2020, there were 119 confirmed cases identified at St. Augustine's Hospital (39 patients and 80 staff). Fifteen of the 39 patients died (case fatality rate 38.5%). The most plausible explanation for the outbreak is that there was a single introduction of the severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2) to the hospital in early March, most likely through transmission from a patient being assessed for COVID-19 in the emergency department to another patient being admitted at the same time with a suspected stroke. The virus then spread widely through the hospital, involving patients and health care workers on at least five different wards.

The investigation was led by Dr. Richard Lessells, Professor Yunus Moosa and Professor Tulio de Oliveira, bringing together expertise in infectious diseases, epidemiology and viral genomics. The investigation harnessed the genomics expertise of the KwaZulu-Natal Research Innovation & Sequencing Platform (KRISP), a research centre in the College of Health Sciences at UKZN. Genetic sequences of SARS-CoV-2 were generated and analysed to help understand the spread of the virus through the hospital.

Investigation methods included medical record reviews, ward visits, and interviews with health care workers and management. Dr. Lessells explained: "Through detailed analysis of the timelines – which wards patients were on, when their symptoms started, when they tested positive for SARS-CoV-2 – we were able to build a hypothesis of the most likely chain of events and understand how the virus spread around the hospital. Our genetic analysis supported this hypothesis and gave us confidence that our explanation was correct. To us our findings highlighted how easily and quickly this virus can spread through a hospital. The initial spread of the virus was not recognised at the time, because the first patient who we think was infected in the emergency department was not initially suspected of having COVID-19. She did not have any of the typical risk factors and only presented with a single episode of fever without cough

or other respiratory symptoms. By the time she was diagnosed with COVID-19 and the hospital began responding to the outbreak, several other patients and health care workers had already been infected." Investigations into the outbreak at the hospital began on 4 April after the identification of 13 confirmed COVID-19 cases and three deaths at the hospital.

The investigation also revealed that the outbreak at St. Augustine's Hospital led to clusters of COVID-19 cases in a local nursing home (four residents) and in an outpatient dialysis unit operated by National Renal Care on the hospital campus (nine patients and eight staff members). "Overall, we estimate that the hospital outbreak and its spread to these other institutions accounted for about 14% of COVID-19 cases in KwaZulu-Natal reported up to 30 April. This highlights the risk that outbreaks like this become what we call 'amplifiers' of transmission, that is they fuel transmission in the wider community", explained Prof de Oliveira.

Although the case fatality rate was very high, almost all the deaths were associated with the recognized risk factors such as older age and chronic health conditions such as diabetes, hypertension, heart disease and kidney disease.

The hospital performed systematic testing of all staff members as part of their response to the outbreak. The 80 staff cases represent approximately 5% of all staff members tested for SARS-CoV-2. Fourteen staff members required hospital admission but none was admitted to intensive care and none died. Although the majority were nurses or nursing students, there were a few cases in staff not involved in direct patient care. Whilst the investigation cannot rule out that some of these infections were acquired in the community, the phylogenetic analysis showed that all 18 DNA sequences from the outbreak were almost identical, pointing to a single source of infection and widespread transmission in the hospital.

"Many of the core recommendations to reduce the risk of similar outbreaks come back to the strengthening of infection prevention and control (IPC) systems and practices throughout all hospitals and health care facilities. We call on management at these facilities to promote a culture in which IPC is everyone's responsibility and that everyone has a role to play", explained Prof Moosa.

Specific recommendations include:

- Hospitals need to establish separate zones (and separate entry points) for people who have confirmed COVID-19 (red zone),

- people who might have COVID-19 (yellow zone), and people who are unlikely to have COVID-19 (green zone).
- Vigilance throughout hospitals for acute respiratory illness, especially in green zones where patients considered low risk for COVID-19 have been admitted.
 - Limiting the non-essential movement of patients between and within wards and limiting the movement of staff between different wards
 - Training on COVID-19, especially on infection prevention & control, should be mandatory for all staff and implementation of IPC practices should be monitored closely.
 - The importance of hand hygiene needs to be continually emphasised and hand hygiene practices need to be monitored.
 - Environmental cleaning practices need to be aligned with the national COVID-19 IPC guidelines and the national IPC framework manual.
 - Physical distancing inside and outside the hospitals should be promoted.
 - Consideration should be given to weekly PCR testing of all frontline staff

The report has been shared with the University of KwaZulu-Natal executive management team; the KwaZulu-Natal Department of Health; the Chair of the Ministerial Advisory Committee on COVID-19, Professor Salim Abdool Karim; Netcare management; and National Renal Care management. Feedback sessions have been run at St. Augustine's Hospital with hospital managers, unit managers and doctors and the findings have also been presented to the Ministerial Advisory Committee and the National Institute for Communicable Diseases (NICD). The report is also being made public today, together with the data generated and analyzed.

"The COVID-19 epidemic is an unprecedented challenge for the health system and the community in South Africa. We hope that lessons learnt from this nosocomial outbreak can be used to highlight areas that can be strengthened across the private and public health system, so as to prevent nosocomial outbreaks becoming a major amplifier of COVID-19 transmission," concludes Lessells.

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