

How many hospitalised cases are nosocomial or nosocomially linked?

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Infection acquired in hospital (nosocomial infection) is a proportion of total healthcare acquired infection (HCAI). The percentage of hospitalised cases that are due to nosocomial acquisitions (including those detected and missed) on 1st May 2020 was approximately 20%. The cases that were infected in the community due to transmission from a discharged nosocomial infection (including 1st – 4th generation transmission) and subsequently hospitalised (nosocomially-linked) can be estimated. The total nosocomial and nosocomially-linked as the percentage of hospitalised cases on 1st May 2020 was approximately 30%. Since May 1st, as the number of cases in hospital has decreased, the percentage that are nosocomial and nosocomially-linked has increased markedly with the former estimated to be approximately 80% on 1st June.

These numbers are preliminary and will be dependent on the definition of nosocomial (i.e. the 'cut off' of number of days since admission the case became symptomatic), the distribution of length of stay, reproduction number of infectious individuals discharged into the community, as well as model parameters describing the natural history e.g. incubation period and recovery rate.

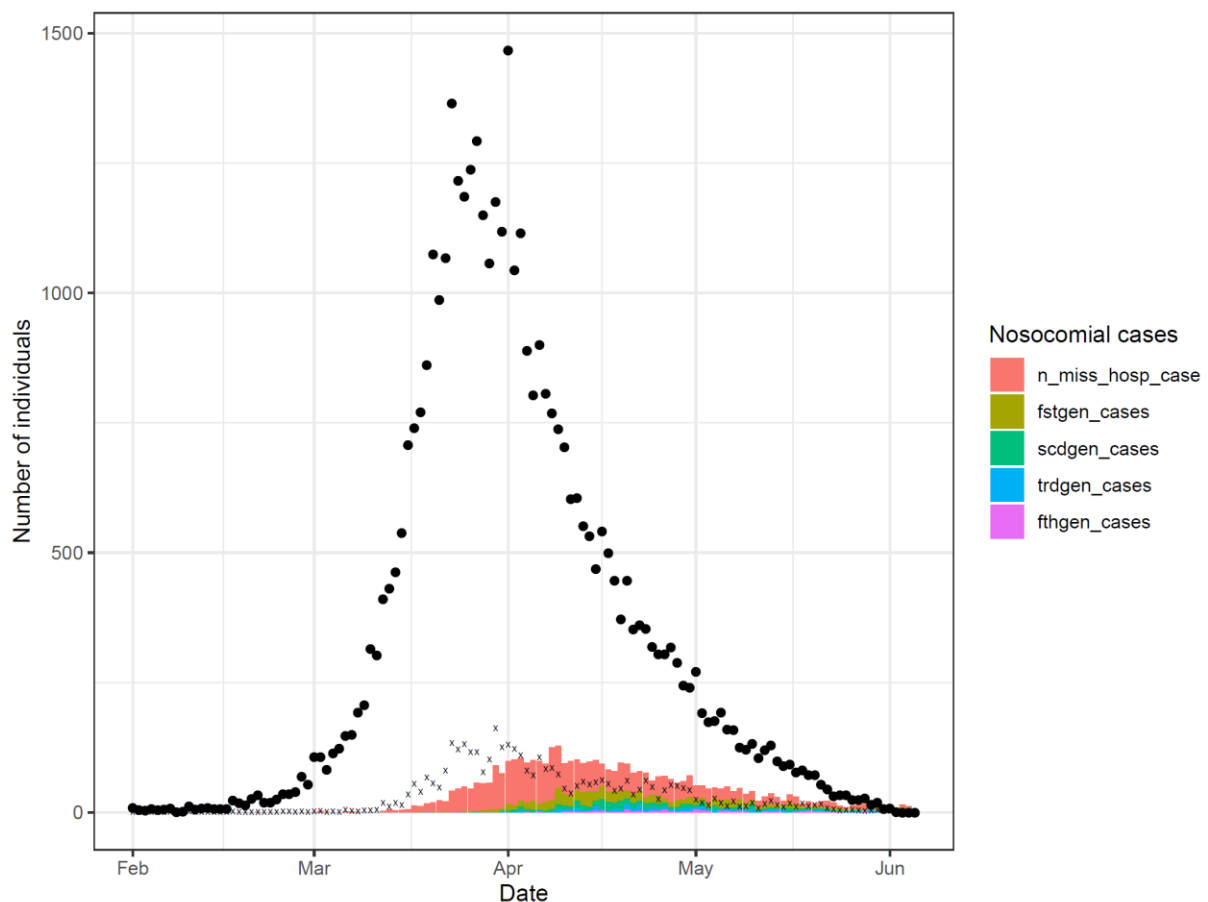


Figure: Number of hospitalised cases and those acquired in hospital or linked to a nosocomial infection. Dots = all cases (CO-CIN). X = nosocomial cases (new and newly diagnosed COVID-19 cases)

in CO-CIN, with nosocomial cases defined by a 5 day from admission cutoff). Bars: Red are the cases in individual infected in hospital that are discharged (“n_miss_hosp_case”: i.e. the nosocomial infections who are discharged prior to diagnosis). First (fstgen: mustard), second (scdgen: green), third (trdgen: blue) and fourth (fthgen: pink) generation transmission cases from these nosocomial cases are then shown. Assumed $R = 0.7$, length of stay exponential with mean 7, approximate time from infection to symptomatic to hospitalisation of 14 days.