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## POSTER ABSTRACT

### Effectiveness of contact tracing for COVID-19 in Belgium

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Contact tracing and investigation can prevent infectious disease transmission when carried out promptly. Data obtained from contact tracing also provides unique information on transmission dynamics that can be useful for policy making. The proportion of secondary infections arising from index cases that were previously identified as a close contact, hence “known index cases”, has been indicated by ECDC as a key performance indicator for contact tracing. Few empirical studies have been published on the effectiveness of contact tracing and investigation during the COVID-19 pandemic.

Using data from the Belgian COVID-19 contact tracing (Sept 2020 – Dec 2021), we investigated the impact of contact tracing on onward transmission. Known index cases were compared to those not previously identified as close contact. More specifically, we compared their traced contacts and secondary cases as well as the serial interval, representing the time from illness onset in the primary case to illness onset in the secondary case. In addition, we investigated contact and transmission characteristics by age.

Known index cases, previously informed about their exposure, were linked to fewer high-risk contacts and secondary infections. In addition, they presented a lower secondary attack rate compared to those not previously identified by contact investigation, suggesting behavioural changes. Also, a shorter serial interval was observed for known index cases. In addition to breaking transmission chains, contact tracing provides important information on transmission characteristics. When exploring age-specific data, we observed increased transmission rates from children to adults during the circulation of Delta and Omicron variants without an increase in contact rates between these age groups.

The lower secondary attack rates for known index cases suggest that contact tracing in Belgium has been effective in reducing onward transmission. Their lower number of traced contacts and shorter serial interval are indicative that individuals aware of their exposure to SARS-CoV-2 were more reserved in their social contact behaviour. This reflects the mandatory quarantine for high-risk contacts. Our study also shows that in times of high burden on the healthcare system, key performance indicators of contact tracing should be interpreted with caution in light of changing

intervention strategies. Many external factors influence the effectiveness of contact tracing like testing policy and compliance, the cooperation of index cases, and the imposed and adopted quarantine and isolation policies.