

Did mass testing in Slovakia really cut infection rates by 60%? (Or why case-based NPI impacts may mislead)

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Background: "Slovakia's mass Covid testing cut infection rate by 60%, researchers say"

<https://www.theguardian.com/world/2020/dec/07/slovakia-mass-covid-tests-cut-infection-rate-by-60-researchers-find>

<https://www.medrxiv.org/content/10.1101/2020.12.02.20240648v1.full.pdf>

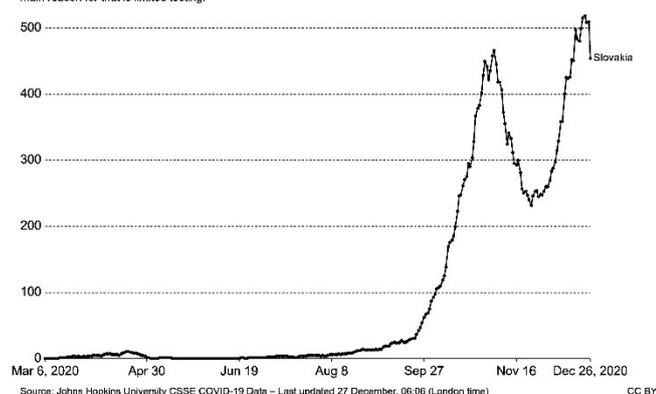
0. Timing: The two rounds of mass testing: Round 1 was Oct 31-Nov 1, and Round 2 was Nov 7-8. Infection topped Nov 2-3 and then rapidly decreased. Incubation time is 5-6 days and it takes time from isolation of cases, infection control etc. to impact real infection dynamics. So some delay vs. real incubation dynamics is expected.

1. Cases identified: Nov 3: 458. Nov 25: 246.

Nearly 50% decrease. (mass testing Oct 31 – Nov 1)

Daily new confirmed COVID-19 cases per million people

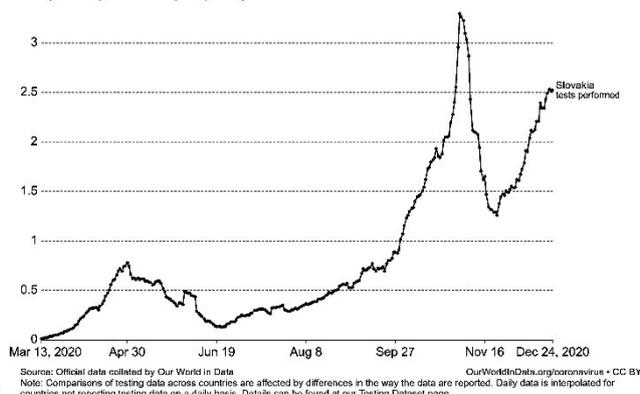
Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.



2. But PCR tests: Also >50% decrease of PCR testing (standard symptomatic+tracing non-mass testing).

Daily COVID-19 tests per thousand people

The figures are given as a rolling 7-day average.



PCR testing that captures normal infection routes declined similarly (reasons could be e.g. understaffing during the mass testing event). Thus when correcting for tests the direct PCR effect mostly disappears.

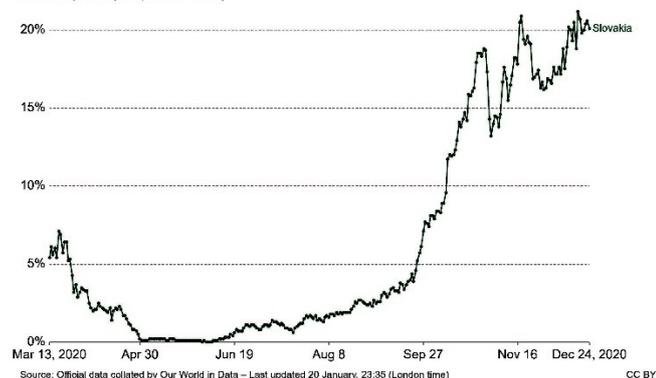
3. Share of tests that are positive:

Correlation to # tests except near mass testing event.

Varies by 15-20% around mass testing.

The share of daily COVID-19 tests that are positive

Shown is the rolling 7-day average. The number of confirmed cases divided by the number of tests, expressed as a percentage. Tests may refer to the number of tests performed or the number of people tested – depending on which is reported by the particular country.

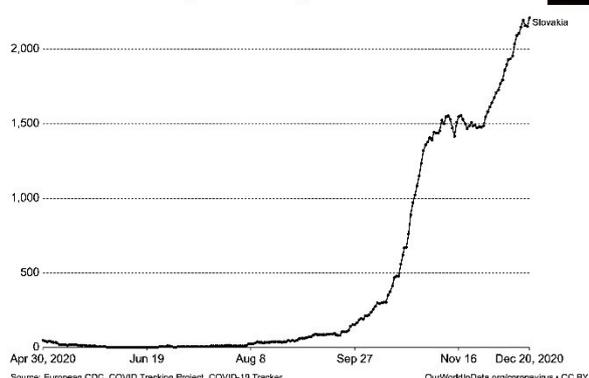


4. Hospitals (right) do not show decrease:

Let's check the PCR data vs. objective indicators:

Only stagnation for a short period of two weeks.

Number of COVID-19 patients in hospital



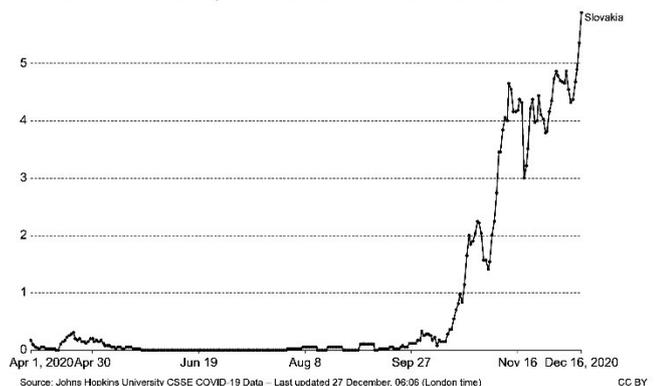
5. Deaths curves: Let's confirm by the final objective

indicators: Death. Weekend decrease (reporting).

A 2-3 day weekend-low near Nov 17 but not after.

Daily new confirmed COVID-19 deaths per million people

Shown is the rolling 7-day average. Limited testing and challenges in the attribution of the cause of death means that the number of confirmed deaths may not be an accurate count of the true number of deaths from COVID-19.



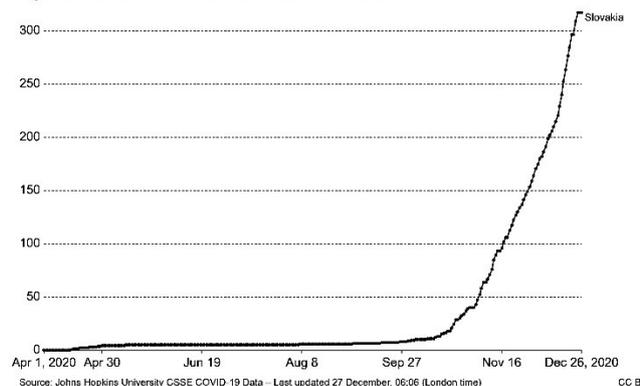
6. Smoothed cumulative deaths: No general decline.

Only stagnation for a short period of perhaps 2 weeks.

Very similar to hospitaliz.-> independent confirmation.

Cumulative confirmed COVID-19 deaths per million people

Limited testing and challenges in the attribution of the cause of death means that the number of confirmed deaths may not be an accurate count of the true number of deaths from COVID-19.



Conclusion: PCR cases alone indeed suggest a 50% reduction. However, relates to a lower test activity in the normal testing regime. Test-corrected PCR cases, hospitalizations, and deaths all independently suggest a 2-week stagnation, but only marginal declining infection. **Data do not support infection lowered by 50%.**

Take home message: *Relying only on observed cases or case-based R_t when evaluating NPIs can be very misleading, because identified PCR positives are sensitive to the testing strategy. The same probably holds true for R_t values based solely on PCR positives (although not shown here). More analysis of this warranted, also for papers claiming effects or no effects of NPIs based solely on cases or case-based R_t values.*