

Smart tests as essential elements in the fight against COVID-19

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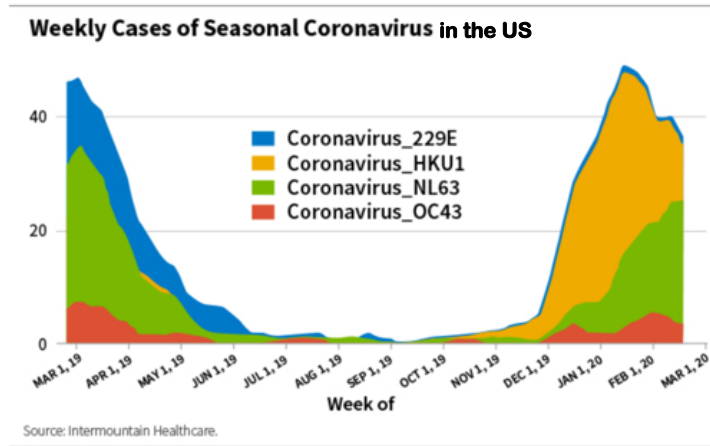
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Seasonality of common cold coronaviruses



<https://intermountainhealthcare.org/health-information/germwatch/germ-school/coronavirus/>

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In my opinion Germany, Austria and many other countries did not chose the right strategy....

Stellungnahme der Helmholtz-Initiative

„Systemische Epidemiologische Analyse der COVID-19-Epidemie“

Szenario 2: Kontaktbeschränkungen und andere Maßnahmen werden so gewählt, dass R_t im Bereich von 1 bleibt.

Hauptnachteil dieses Szenarios ist, dass sich die Kontaktbeschränkungen, die notwendig sind, um R_t im Bereich von 1 zu halten...über Jahre hinziehen dürften.

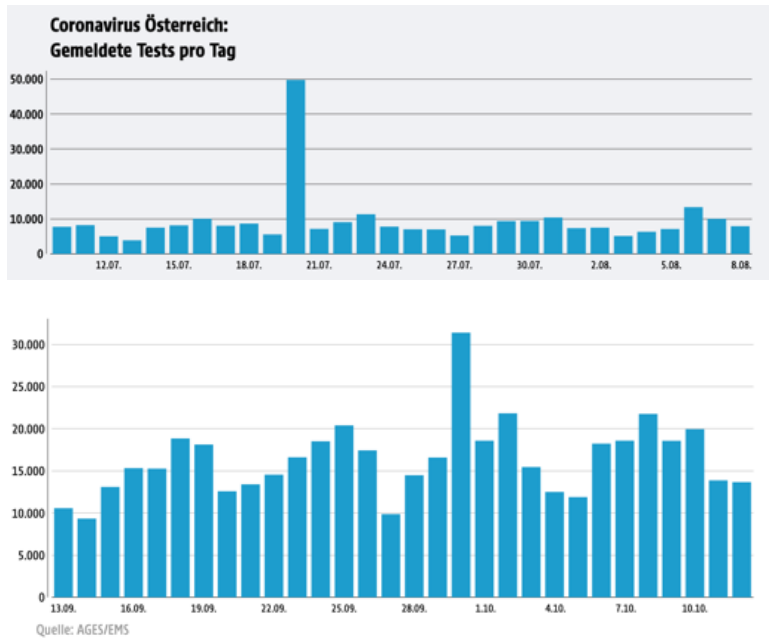
Szenario 3: Die Kontaktbeschränkungen werden zunächst weitergeführt und durch flankierende Maßnahmen begleitet, so dass R_t dauerhaft und deutlich unter den Wert von 1 sinkt.

Nach Erreichen des Zielwerts könnte man die Maßnahmen schrittweise aufheben. Aber auch dann muss mit geeigneten Maßnahmen eine erneute Ausbreitung verhindert werden. Dazu ist eine deutlich ausgeweitete Test-Strategie unerlässlich, um neue Fälle früh entdecken und gegebenenfalls wirksam gegensteuern zu können.

https://www.helmholtz.de/fileadmin/user_upload/01_forschung/Helmholtz-COVID-19-Papier_02.pdf

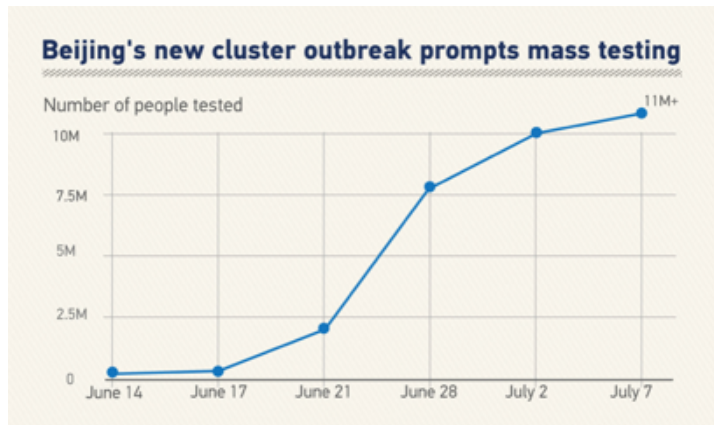
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Austria needs more and smarter testing



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For a comparison...



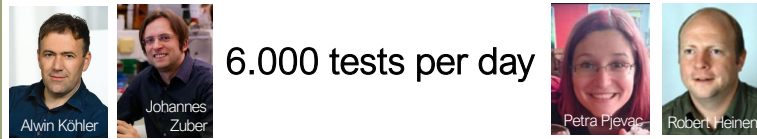
11 Mio tests in 5 days by pooling & RT-qPCR

<https://news.cgtn.com/news/2020-07-08/One-Million-Tests-a-Day-How-Beijing-stemmed-new-COVID-19-outbreak-RXqRcu3r4k/index.html>

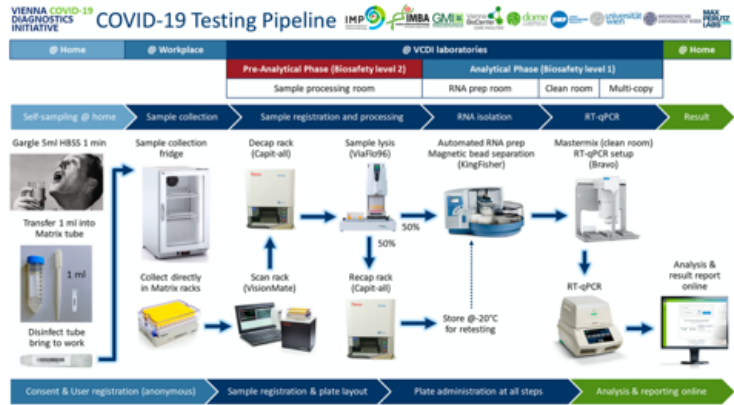
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VCDI Large scale coronavirus monitoring at Vienna

Smart design to
use RT-qPCR for
screening



6.000 tests per day



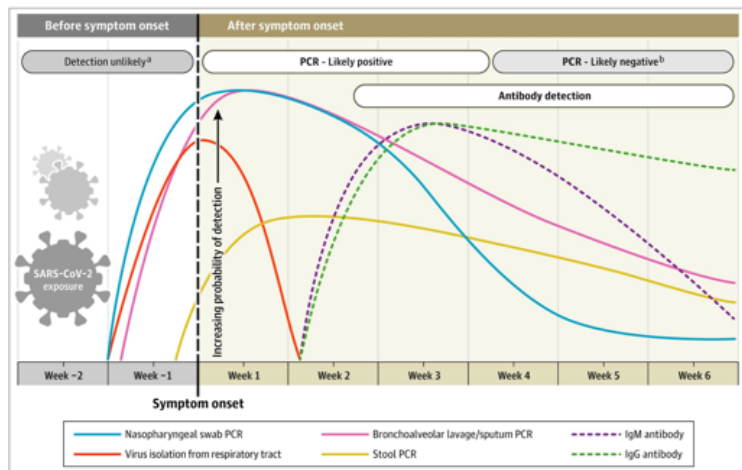
Turnaround time: 24 h (faster possible)

<https://www.maxperutzlabs.ac.at/vcdi>

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RT-qPCR with
multiple primer
pairs has *no*
*problem with false
positive results*

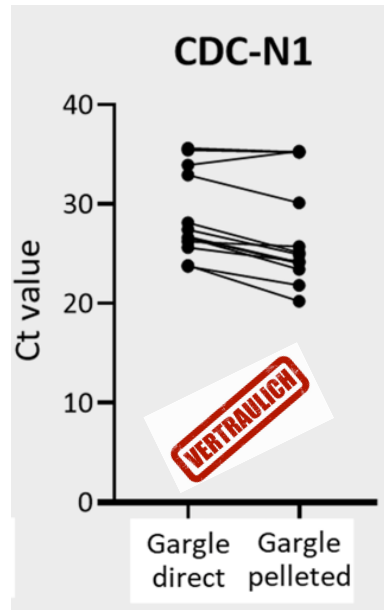
*but false negatives
occur*



<https://jamanetwork.com/journals/jama/fullarticle/2765837>

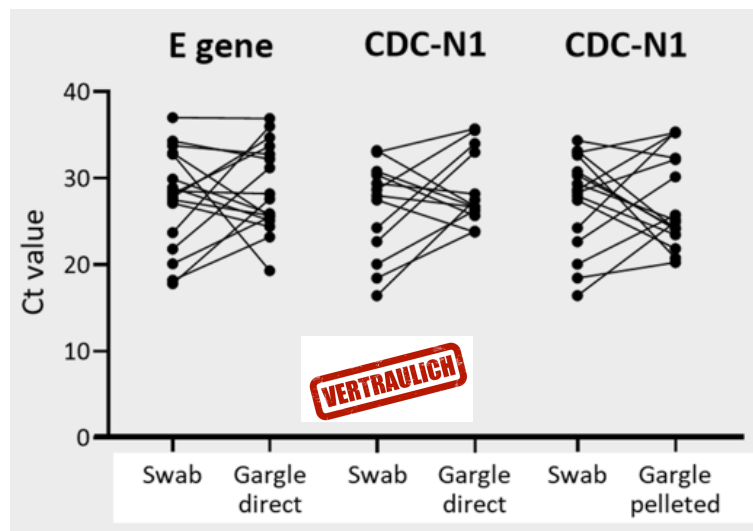
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Gargling works as well as swabs, but has many advantages



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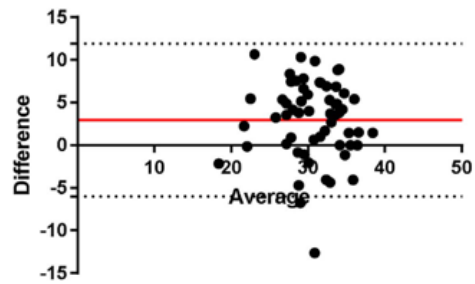
Gargling works as well as swabs, but has many advantages



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Gargling works as well as swabs, but has many advantages

Difference plot of Ct values of throat swab versus gargle samples



Journal of Virological Methods 248 (2017) 83–86

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Gargling works as well as swabs, but has many advantages

SPIEGEL Wissenschaft Abonnement Anmelden >

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Suche nach Corona-Erreger

Was kann der Gurgeltest aus Österreich?

Mit einem neuen Gurgeltest will Österreich unter Tausenden Schülern nach dem Coronavirus fahnden. Ist der Ansatz auch für Deutschland interessant?

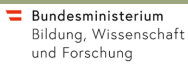
Von **Christoph Seidler**
18.08.2020, 18:34 Uhr

<https://www.spiegel.de/wissenschaft/medizin/corona-erreger-kann-gurgel-test-aus-oesterreich-sars-cov-2-nachweisen-a-63242a94-d936-4a37-a8dd-2f93ab2251e0>

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5.100 gargling tests performed in pilot school study

Pooling increases test capacity



KURIER PLUS ANMELDEN

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15.06.2020

WISSEN GESUNDHEIT

Coronavirus: Tausende Schüler werden zum Gurgeln gebeten

An elf Schulstandorten wollen die Initiatoren rund 3.000 Schüler und Pädagogen zwei Mal testen.

<https://kurier.at/wissen/gesundheits/coronavirus-studie-in-wien-tausende-schueler-werden-zum-gurgeln-gebeten/400940687>

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Sentinel surveillance system based on 250 Austrian Schools

Pooling increases test capacity



News & Updates

VCDI leads Austrian SARS-CoV-2 monitoring initiatives at Austrian schools

To close the knowledge gap on the role of school children in the COVID-19 pandemics the VCDI has initiated large-scale monitoring projects at Austrian schools using gargling in combination with pooling and RT-qPCR.

[Read more](#)



14.000 pupils and 1200 teachers will be tested 10 times in the next school year

<https://www.maxperutzlabs.ac.at/vcdi>

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RT-qPCR

Antigen tests

| | Diagnostic | Screening |
|---------------------------------|---|--|
| Predominant type of test | RNA amplification  | Antigen testing  |
| Turnaround time | Days | Minutes |
| Cost | \$\$\$ | \$ |
| Accuracy | High | Moderate |

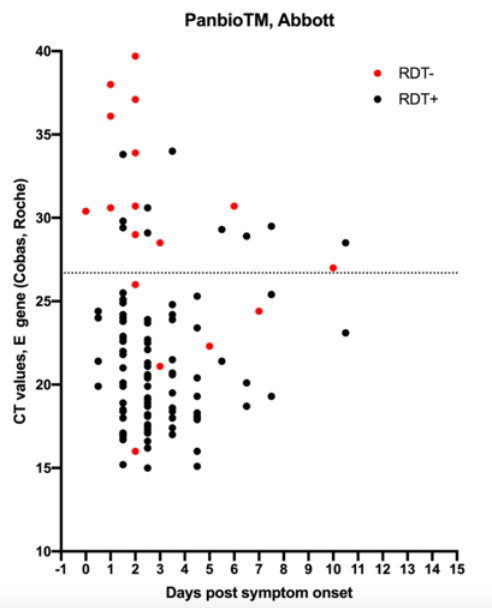
RT-qPCR
Antigen testing

<https://science.sciencemag.org/content/sci/369/6504/608.full.pdf>

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RT-qPCR

Antigen tests



https://www.hug.ch/sites/interhug/files/structures/laboratoire_de_virologie/documents/Centre_maladies_virales_infectieuses/ofsp_rdt_report_gcevd_27.10.2020.pdf

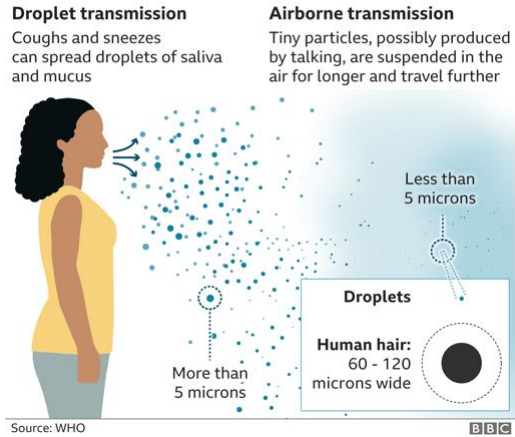
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Avoid indoor meetings (especially without masks)

Wear masks -
Distance alone is insufficient



SARS-CoV-2 is infectious via droplets, aerosols and smear infection

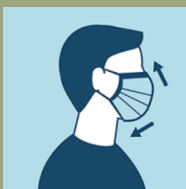


Gyms, bars, indoor dining, churches, choirs, cruise ships etc. are hotspots of infection

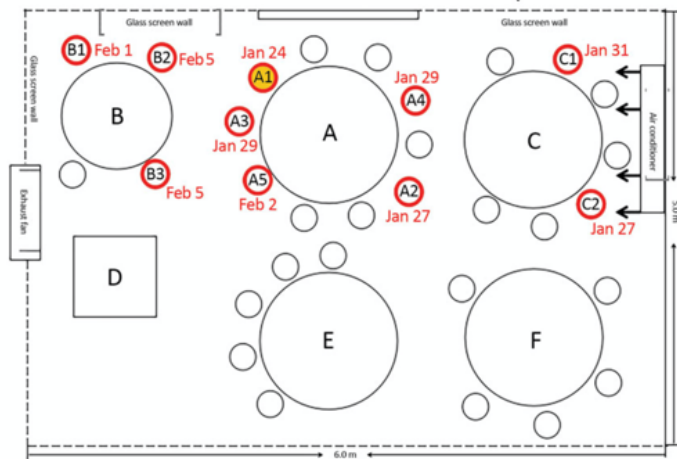
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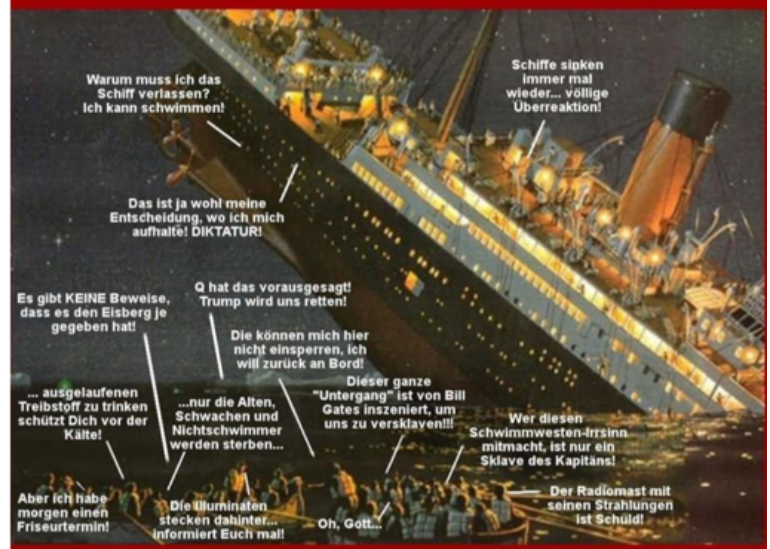
Gyms, bars, indoor dining, churches, choirs, cruise ships etc. are hotspots of infection

https://wwwnc.cdc.gov/eid/article/26/7/20-0764_article

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Keep fighting
for the
enlightenment

Wenn die Titanic 2020 sinken würde



<https://www.watson.ch/spass/digital/273554933-35-tweets-die-corona-verschworer-auf-die-palme-und-dich-zum-lachen-bringen>

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Keep fighting
for the
enlightenment



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