

Epidemiologie und Komplexität

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Eine Reflexion über die Pandemie

- Zeitraffer Rückblick

Likely origin: Wet markets in China, and ONE Health paradigm



The first cases out of Wuhan

- By 16th January, 41 confirmed COVID-19 cases in Wuhan, China.
- Three cases detected abroad (2 in Thailand, 1 in Japan).

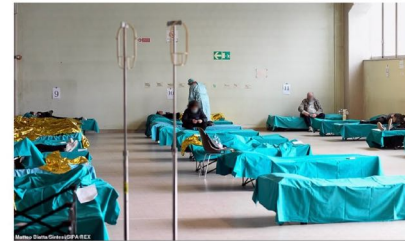


WHO declares the novel COVID-19 outbreak on March 11, 2020 a global pandemic

Feb 25, 2020: first cases in Austria - a young couple traveling from Lombardi in Northern Italy to Innsbruck/Tyrol
 • Then the virus hit Ischgl



Triage and overwhelmed doctors in Northern Italy:
 First COVID-19 case on Feb 21, 2020 (possibly introduced by Chinese laborers)



Source: Daily Mail



Researchers speculate that an intermediate animal such as a raccoon dog could have passed the coronavirus SARS-CoV-2 to humans. Raccoon dogs have been sold at the Huanan market. Credit: Ewan Gledhill/Nature Picture Library/Science Photo Library



Police in Wuhan, China, shut down the Huanan Seafood Wholesale Market on 1 January, 2020. Credit: Noel Celis/AFP via Getty

The Huanan Seafood Wholesale Market in Wuhan was the early epicenter of the COVID-19 pandemic

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The evolution of SARS-Cov-2

	Ancestral SARS-CoV-2 1 st and 2 nd wave Spring and Fall 2020
R ₀	1.5-3.5 ¹
HIT	33% - 71%
Incubation period	mean 6 days (5.6 - 6.5 days) ⁶
Dispersion parameter K	0.1 (10% account for 80% of infections) ¹¹
Case fatality	Variation by age- and risk-group
Vaccination rate	0%

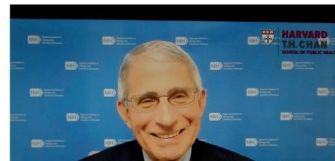
- 1) Basic reproduction number R₀
- 2) Herd immunity threshold (HIT)
- 3) Duration of its incubation period (e.g., the time between exposure to the infectious agent and the appearance of first symptoms)
- 4) Dispersion parameter K
- 5) Lethality associated with the pathogen (e.g., the case fatality rate, measured as the proportion of infected persons who die from the infection)
- 6) Number of individuals immune to the pathogen in a given population.



If 75 percent to 80 percent of Americans are vaccinated, then by the end of 2021, we can reach a degree of normalcy, said Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases.
 Rose Lincoln/Harvard Staff Photographer

HEALTH & MEDICINE

Fauci says herd immunity possible by fall, 'normality' by end of 2021



Covid: Austria introduces lockdown for unvaccinated

15 November 2021



The evolution of SARS-Cov-2

	Ancestral SARS-CoV-2 1 st and 2 nd wave Spring and Fall 2020	British/Alpha variant 3 rd wave Spring 2021	Delta (Indian) variant, wave of "unvax" Fall 2021	Omicron variant Jan - April 2022 wave
R ₀	1.5-3.5 ¹	50% higher: 2.25-5.25 ²	3.2-8 (mean 5.08) ⁷	+30-40% R _{eff} >3
HIT	33% - 71%	56% - 81%	69% - 88%	N/A with current vaccines
Incubation period	mean 6 days (5.6 - 6.5 days) ⁶	N/A	mean 4 days ⁸	1-2 days
Dispersion parameter K	0.1 (10% account for 80% of infections) ¹¹	N/A	25-27% account for 80% of infections ¹² K=0.49 ¹³	N/A (likely higher than that of Delta)
Case fatality	Variation by age- and risk-group	Hospitalization up, 60% higher death rates ^{3,4,5}	Similar to previous	By ten-fold reduced severe cases
Vaccination rate	0%	<20%	60%	72% (50+% booster)

Eine Reflexion über die Pandemie

- Zeitraffer Rückblick
- Was man better hätte machen können: Statt Fokus auf das Wichtige, und alles Andere auszublenden (Reduktion der Komplexität), --> versuchen die Komplexität von Anfang an besser abzubilden; Blick auf das Ganze hat gefehlt
- Kommunikation, Gefahr der paradoxen Anweisungen (Double bind theory von Bateson)
- Die Geister gegen die man kämpft (wer steuert wen? Warum ist es so schwierig das zu tun was “richtig” wäre? Präventionsparadoxon)
- Mensch gegen Mensch

Der Umgang mit dem Unbekannten

- Im Jetzt bleiben und agieren
- Fokus auf das Wichtige, anderes ausblenden (Reduktion der Komplexität)
- Sicht der Ärztin: Menschenleben retten (um jeden Preis)
- Sicht der Epidemiologin: Hill Criteria (v.a. Konsistenz) oft nicht anwendbar – dann Quelle der Daten in Betracht ziehen, Konsensus zwischen Kolleg:innen, etc.
- Beschreiben, Erklären ok, Bewerten eher nicht (Lockdown f. Ungeimpfte, Impfpflicht)
- Datenschutz ging oftmals vor → Aufklärungsarbeit, was bedeutet Datenschutz in der Medizin?

Halt im Haltlosen?

- Gedanken/Frustrationen der Prävention in Pandemie plakativ sichtbar geworden
- Den Menschen zu verstehen versuchen, Empathie
- Innerhalb der Community findet man Halt indem man den Konsens sucht
- Zuerst eigene Meinung bilden, dann checken ob dies der Mehrheitsmeinung entspricht, oder nicht
- In AT: GECKO interdisziplinärer Austausch der “Omikron Gruppe” sehr hilfreich