

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 Gearey/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