

Global Health Cast 40

June 6th, 2023



Dr. Melvin Sanicas

 @Vaccinologist



Prof. Dr. Joe Schmitt

 @Prof_Schmitt

Every Week

12.00 noon - CET

What we talk about today

- **COVID-19, depressive, cognitive symptoms, brain inflammation**
- **Cats transmit COVID-19 to each other**
- **Frequency of diseases and deaths - USA**
- **“Most Infectious Diseases” – SARS-CoV-1 “The First SARS”**
- **Investment and timing of vaccine development-phases**
- **Global Health Cast 40 - a note from the publisher**

Neuroinflammation After COVID-19 With Persistent Depressive and Cognitive Symptoms

Joëffre Braga, BSc; Mariel Lepra, BSc; Stephen J. Kish, PhD; Pablo M. Rusjan, PhD; Zahra Nasser; Natasha Verhoeff, BHSc; Neil Vasdev, PhD; Michael Bagby, PhD; Isabelle Boileau, PhD; M. Ishrat Husain, MBBS, MD; Nathan Kolla, MD, PhD; Armando Garcia, BSc; Thomas Chao, PhD; Romina Mizrahi, PhD; Khunsa Faiz, MD; Erica L. Vieira, PhD; Jeffrey H. Meyer, MD, PhD

IMPORTANCE Persistent depressive symptoms, often accompanied by cognitive symptoms, commonly occur after COVID-19 illness (hereinafter termed *COVID-DC*, DC for depressive and/or cognitive symptoms). In patients with COVID-DC, gliosis, an inflammatory change, was suspected, but measurements of gliosis had not been studied in the brain for this condition.

OBJECTIVE To determine whether translocator protein total distribution volume (TSPO V_T), a marker of gliosis that is quantifiable with positron emission tomography (PET), is elevated in the dorsal putamen, ventral striatum, prefrontal cortex, anterior cingulate cortex, and hippocampus of persons with COVID-DC.



People who have had COVID and with depressive, cognitive symptoms show signs of brain inflammation

Cats can transmit COVID-19 to each other

Efficient Direct and Limited Environmental Transmission of SARS-CoV-2 Lineage B.1.22 in Domestic Cats

 Nora M. Gerhards,^a  Jose L. Gonzales,^a Sandra Vreman,^b Lars Ravesloot,^b Judith M. A. van den Brand,^c Harmen P. Doekes,^d
 Herman F. Egberink,^e Arjan Stegeman,^f Nadia Oreshkova,^g  Wim H. M. van der Poel,^g Mart C. M. de Jong^h

^aDepartment of Bioinformatics, Epidemiology and Animal Models, Wageningen Bioveterinary Research, Lelystad, the Netherlands

^bDepartment of Bacteriology, Host-Pathogen Interactions and Diagnostic Development, Wageningen Bioveterinary Research, Lelystad, the Netherlands

^cDivision of Pathology, Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands

^dAnimal Breeding and Genomics, Wageningen University and Research, Wageningen, the Netherlands

^eDivision Infectious Diseases and Immunology, Section Virology, Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands

^fDepartment of Population Health Sciences, Veterinary Epidemiology, Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands

^gDepartment of Virology and Molecular Biology, Wageningen Bioveterinary Research, Lelystad, the Netherlands

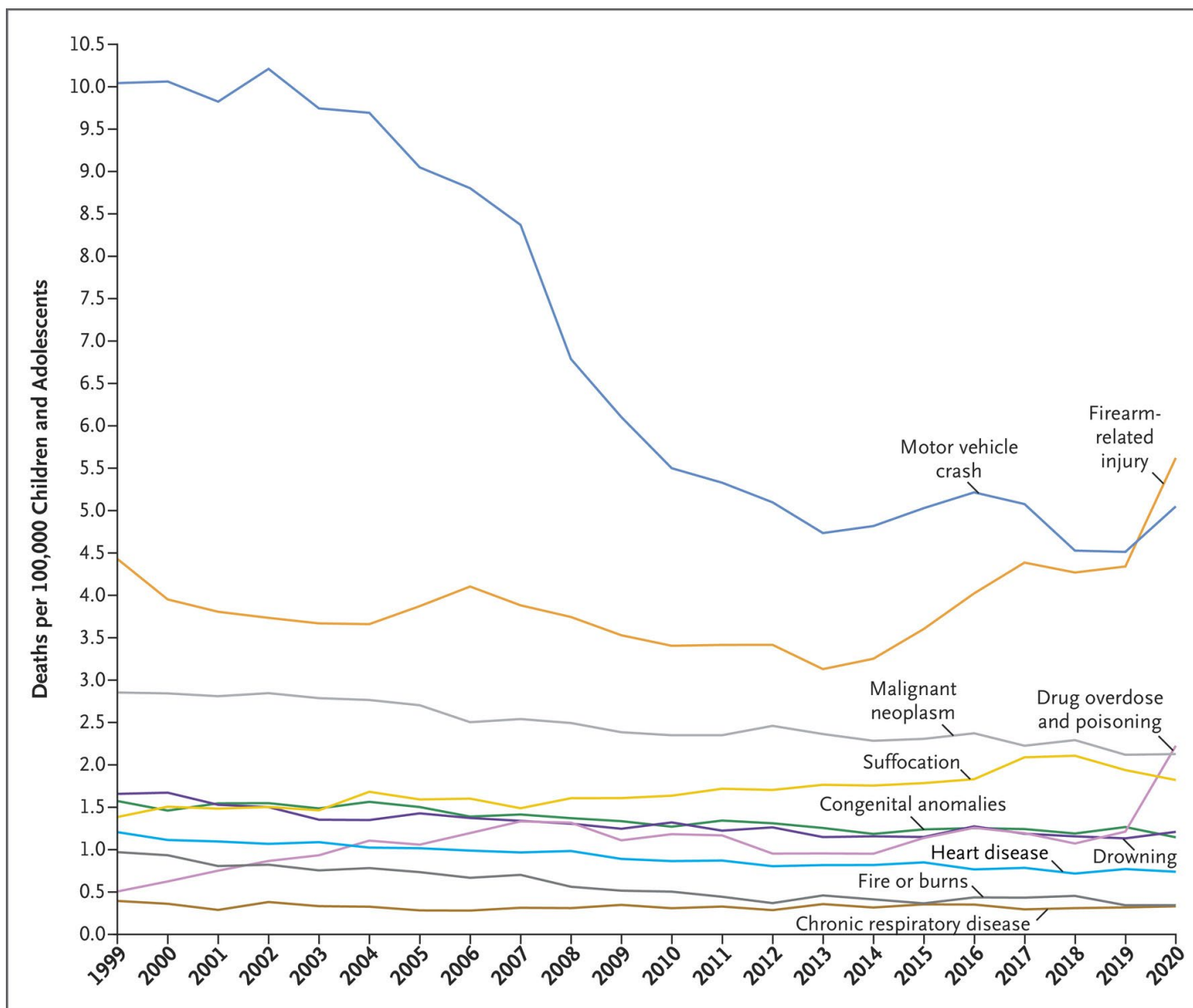
^hQuantitative Veterinary Epidemiology, Wageningen University, Wageningen, the Netherlands

Diseases in Families

Dingle et al. 1953

	1948	1949	1950
Total	9.7	9.9	10
ARI	6.3	6.3	6.1
Diarrhea	1.5	1.7	1.3

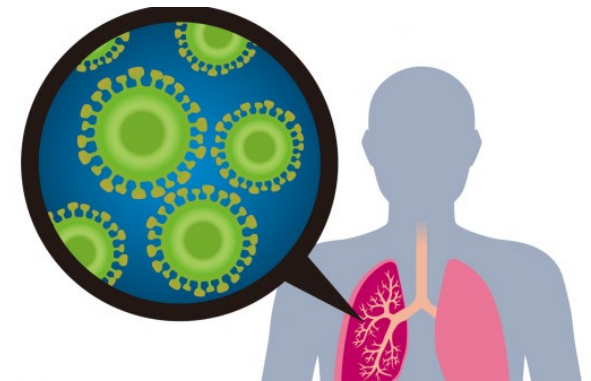
Leading Causes of Death age <18 years, USA 1999 through 2020



The most infectious diseases the WHO has identified to date:

- ✓ Nipah virus **Check out GHC 33**
- ✓ Crimean-Congo hemorrhagic fever **Check out GHC 34**
- ✓ Lassa fever **Check out GHC 35**
- ✓ Rift Valley fever **Check out GHC 36**
- ✓ Zika **Check out GHC 37**
- ✓ Ebola and Marburg **Check out GHC 38**
- Middle East respiratory syndrome (MERS) **Check out GHC 38**
- **Severe acute respiratory syndrome (SARS)**

Disease X (any unknown pathogen that could cau

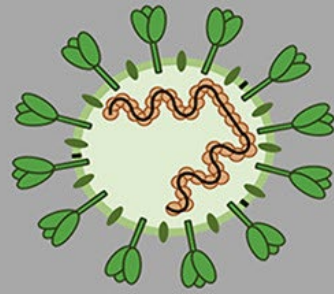


The most infectious diseases the WHO has identified to date:

- ✓ Nipah virus **Check out GHC 33**
- ✓ Crimean-Congo hemorrhagic fever **Check out GHC 34**
- ✓ Lassa fever **Check out GHC 35**
- ✓ Rift Valley fever **Check out GHC 36**
- ✓ Zika **Check out GHC 37**
- ✓ Ebola and Marburg **Check out GHC 38**
- ✓ Middle East respiratory syndrome (MERS) **Check out GHC 39**
- Severe acute respiratory syndrome (SARS)

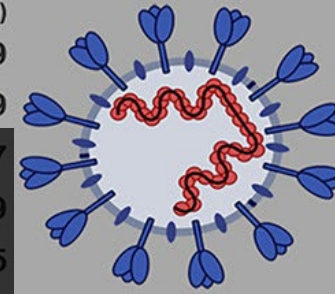
Disease X (any unknown pathogen that could cause a future outbreak)

SARS-CoV



		(as of 16.02.2020)	
SARS	- Disease -	COVID-19	
Winter 2002	- Emergence -	Winter 2019	
8,096	Cases	1,857	
774	Deaths	1,669	
26	Countries affected	25	

SARS-CoV-2



Some similarities and differences between SARS 1 vs SARS 2

Attachment Receptor

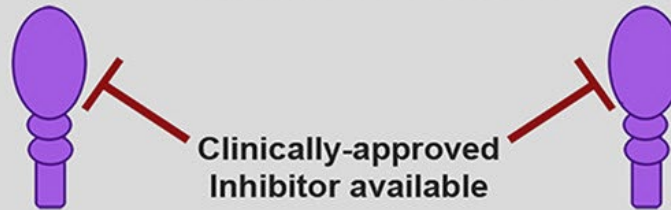
ACE2



ACE2

Spike Protein Priming by Cellular Proteases

TMPRSS2



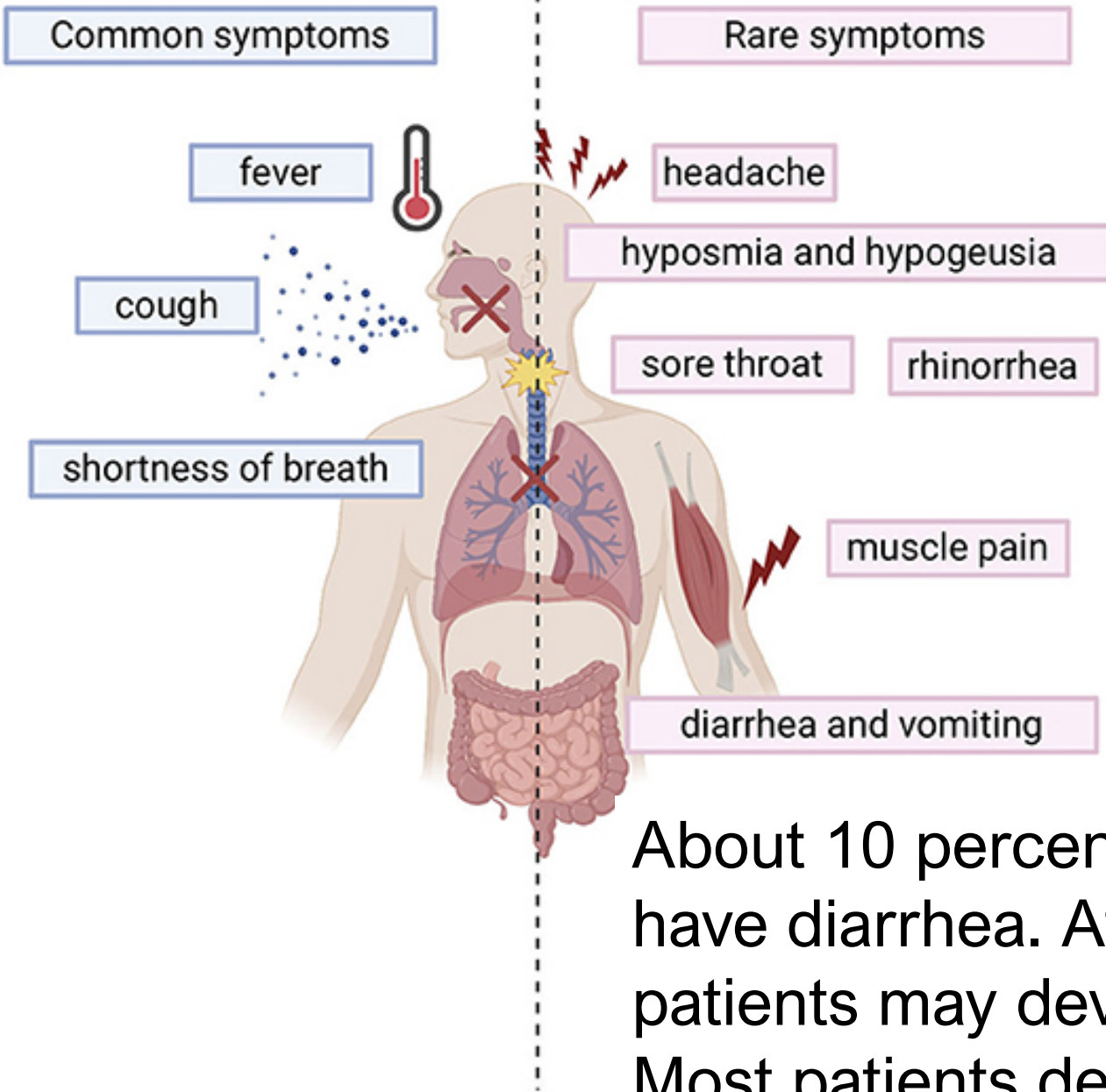
TMPRSS2

Neutralization Efficiency by SARS Convalescent Sera

Yes (High)



Yes (Moderate)



In general, SARS begins with a high fever (temperature greater than 100.4°F [$>38.0^{\circ}\text{C}$]).

Other symptoms may include headache, an overall feeling of discomfort, and body aches. Some people also have mild respiratory symptoms at the outset.

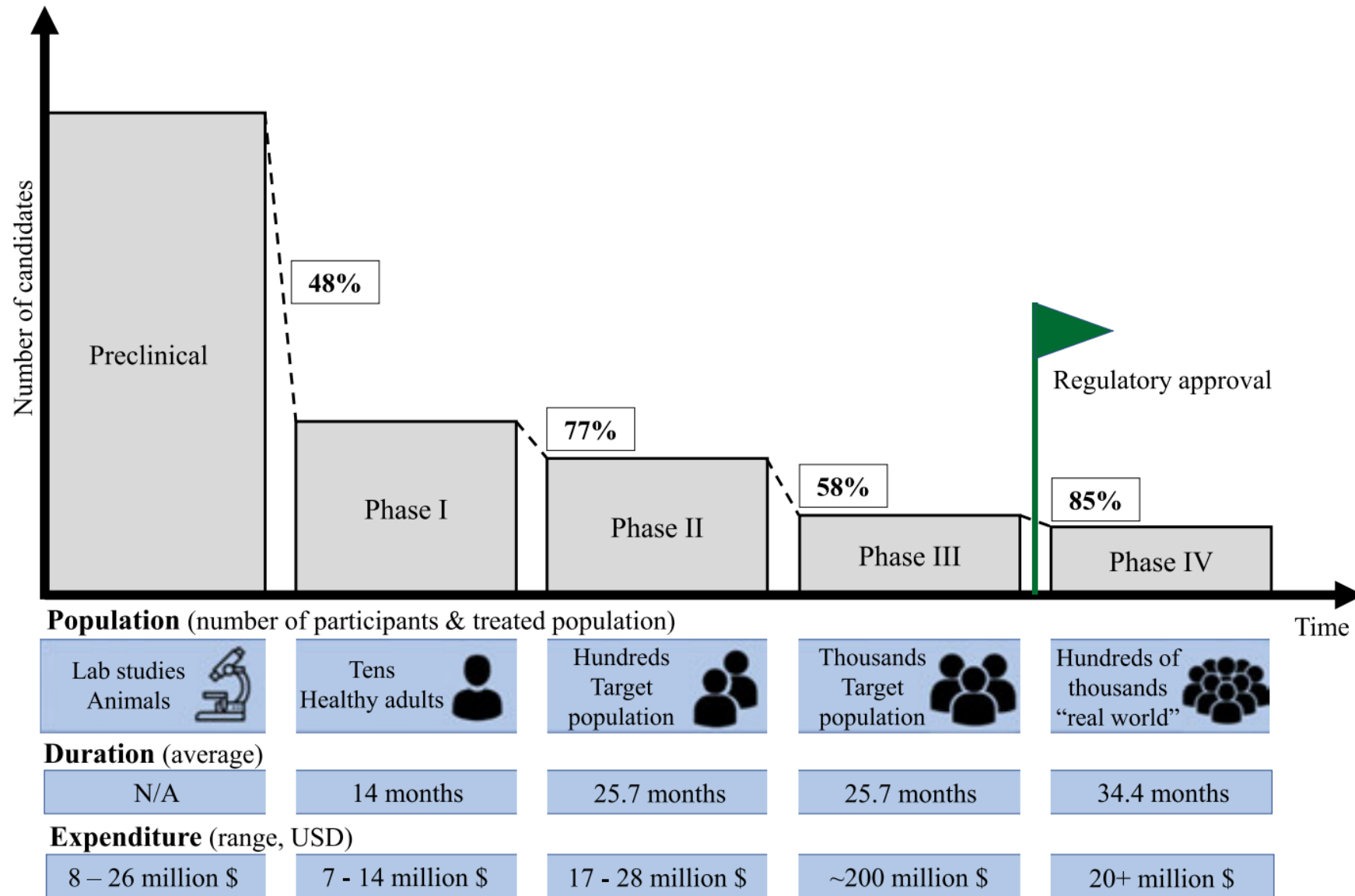
About 10 percent to 20 percent of patients have diarrhea. After 2 to 7 days, SARS patients may develop a dry cough. Most patients develop pneumonia.

There is **no cure or vaccine for SARS** and **treatment should be supportive** and based on the patient's symptoms.

Controlling outbreaks relies on containment measures including:

- **prompt detection of cases** through good surveillance networks and including an early warning system;
- **isolation of suspected of probably cases;**
- **tracing** to identify both the source of the infection and contacts of those who are sick and may be at risk of contracting the virus;
- **quarantine of suspected contacts** for 10 days;
- **exit screening** for outgoing passengers from areas with recent local transmission by asking questions and temperature measurement;
- **disinfection of aircraft and cruise vessels having SARS cases** on board using WHO guidelines.

Vaccine development – timelines and cost



GHC – Edition 40

A note from the publisher

Daniela La Marca



PERSCHEID's ABGRÜNDE

HELP! I need emergency-homeopathy!



PERSCHEID A3981 © PERSCHEID / Distr. Bulls

What we talked about today

- **COVID-19, depressive, cognitive symptoms, brain inflammation**
- **Cats transmit COVID-19 to each other**
- **Frequency of diseases and deaths - USA**
- **“Most Infectious Diseases” – SARS-CoV-1 “The First SARS”**
- **Investment and timing of vaccine development-phases**
- **Global Health Cast 40 - a note from the publisher**