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Lessons learned?

*How do we manage
to be better prepared
in the next pandemic?*

Jochen Maas

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My personal 10-point program

What will matter in the next few years

01 Create technology openness and ensure material availability

02 Improve direct communication

03 View research, development and production integratively

04 Maintain collaboration and cooperation between all stakeholders

05 Strengthening the research landscape in general and in the infectious disease field

06 Cultivate new (old) research fields

07 Expand public-private partnerships

08 Preserve patent protection

09 Accelerate digitalization

10 Taking "One health" seriously



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Create technology openness

We need genetic engineering!

Sars-CoV-2 will not have been
the last virus "new" to humans.
We should do everything possible to limit its
spread locally ("epidemic instead of pandemic"),
analyse its genome immediately and
use the information for potential vaccines.



Improve direct communication

Direct communication science – people

March/April 2020:
Science cred – even more

May/June 2020:
Science Doubt

Since summer 2020:
Science displacement

Science



- sober
- complex
- objective



Science needs journalism to make itself understood.

Media Boulevard :

- emotional
- striking
- pointed

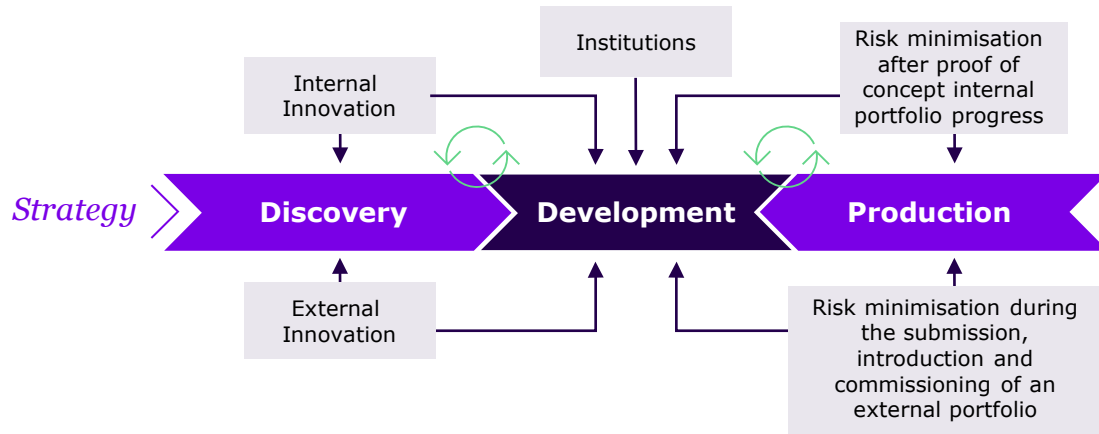
Journalism needs science because that is where the best stories come from.



Only with excellent communication we can achieve a broad social consensus.

Integrate research, development and production

The Covid 19 vaccines have demonstrated the importance of integrating research, development and production



Mutual Knowledge transfer

- End-to-end consideration of the entire value chain
- Timely delivery is only possible when all areas are considered *from the beginning*
- Continuous process improvement makes large quantities available in a short period of time

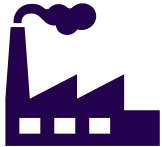
Cooperation and collaboration



Science



*Public
authorities*



Industry



Politics

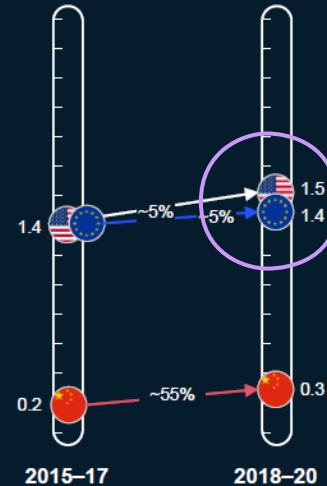
Strengthen the research landscape (1)

What can politics contribute?

- Interdepartmental action
- Long-term thinking
- Preliminary services
- Fair prices for innovation
- New incentive models



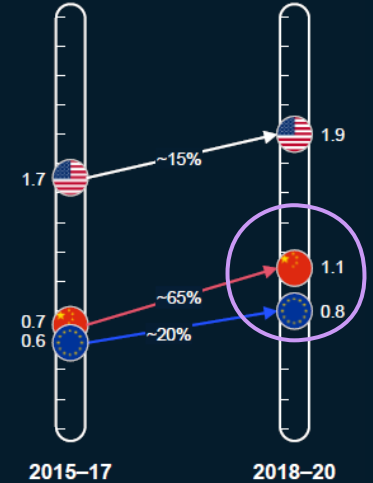
Discovery index
Early innovation stage
(number of publications
and patents)



**We are leaders in
"gaining knowledge"...**



Implementation index
Implementation of innovation
(new biotech companies and
average early-stage funding)



**... and then we don't
get the performance
on the road.**

Strengthen the research landscape (2)

Increasing importance of infectious diseases

But ...

- No significant progress for decades
- Commercially less attractive
- Dramatic scientific misjudgement

→ *Exit Big Pharma between 1990 and 2000*

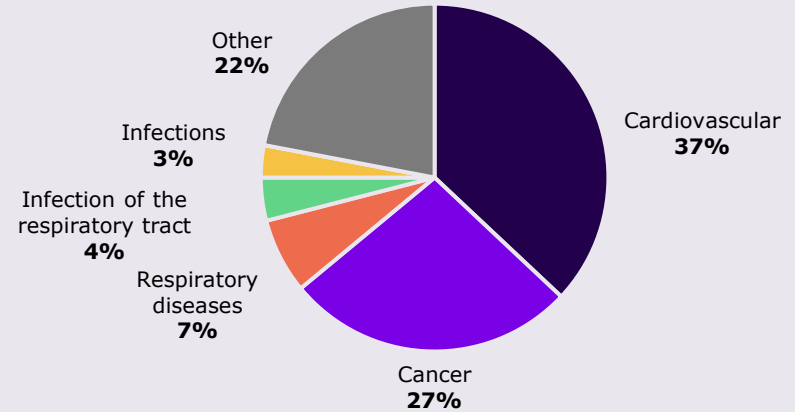
... and in the future?

- Medical Need
- Innovative Research
- Innovative Models
- New stimuli
- Public-private partnerships

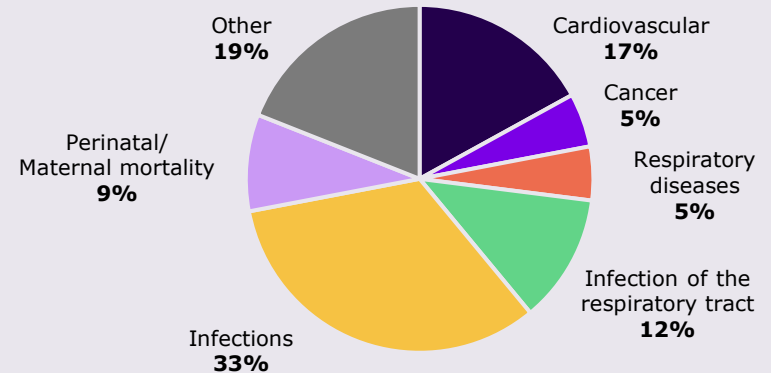
... and accompanying:

- Vaccinations are the cheapest treatment
- Further education of patients and doctors
- Legislative initiatives
- Observance of all environmental regulations
- Hygiene
- Accurate and timely diagnosis

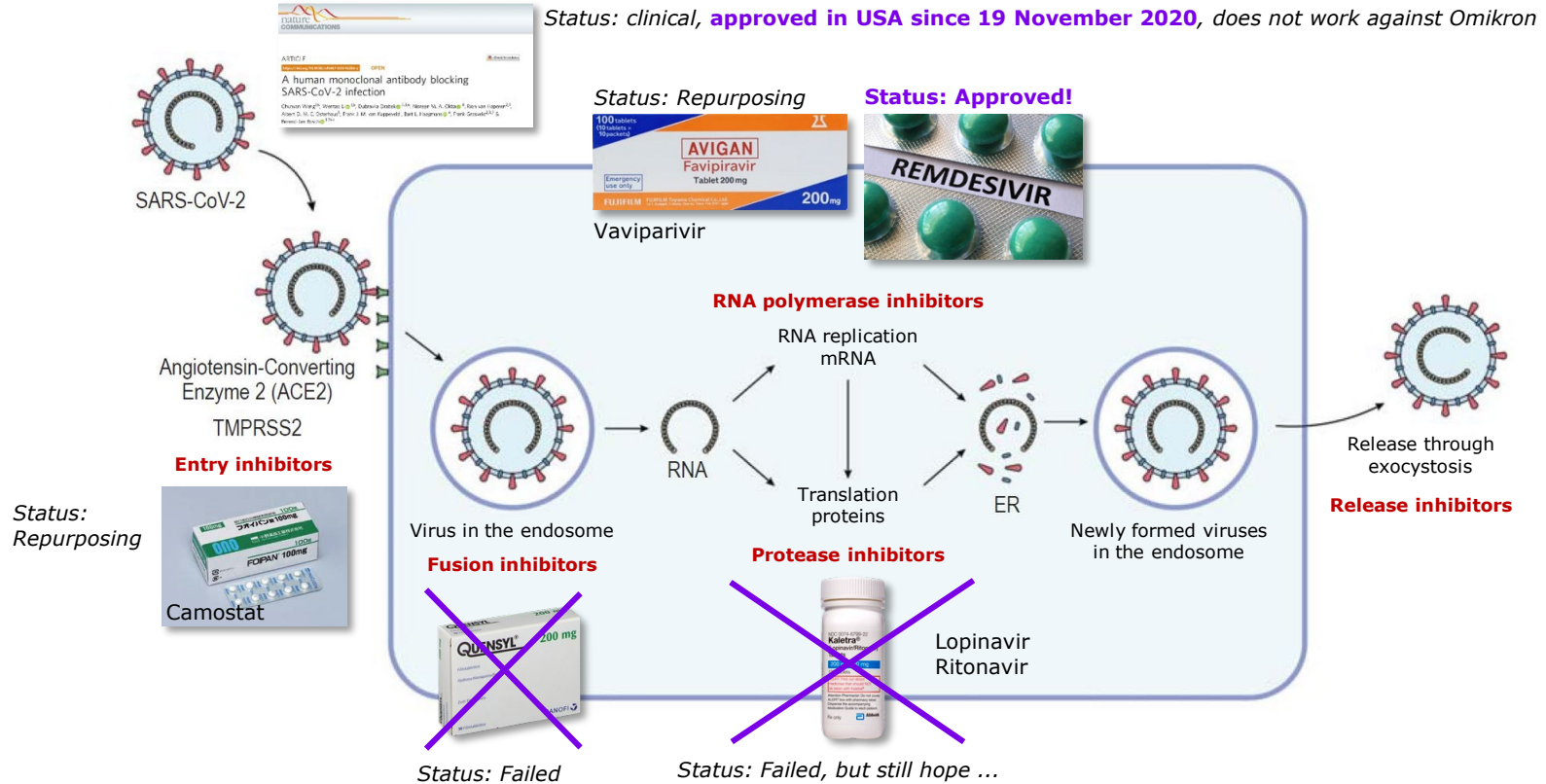
Cause of death in industrialised countries



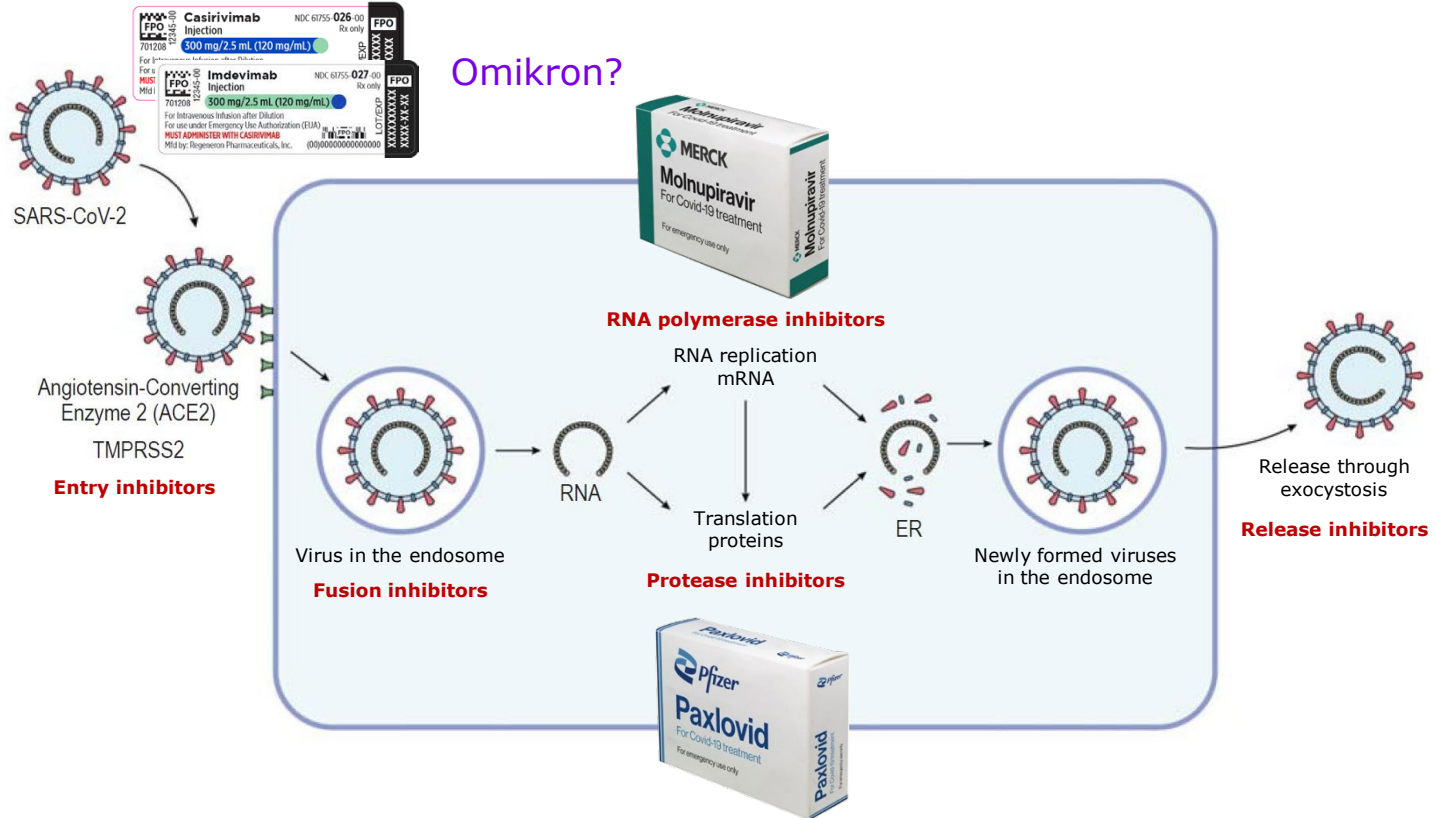
Cause of death in developing countries



New (old) fields of research ...



Therapeutic targets



Public-private partnerships

What should change about PPPs ...

- 01 Mutual acceptance of expertise along the entire value chain (pharma, SMEs, biotech, academia ...)
- 02 The "how" is at least as important as the "what" ...
- 03 We need new incentives – money alone cannot be it ...
- 04 We have new competitors for good ideas – from completely different fields ...



Patent protection

We absolutely must preserve patent protection!

Reasons:

- In the current pandemic, a patent release does not help at all because it is not an obstacle to global supply.
- For future pandemics there are more intelligent solutions.
- Vaccines are followed by therapeutics.
- Patent protection is a driver of research (incl. investment).
- Without patent protection, no cooperation between competitors.
- Willingness to innovate (and to invest) decreases to the point of stagnation.
- Advantages for the innovation ecosystem outside Big Pharma
- etc.

Just two examples among many:

- IP-intensive industries generate 44.8% of EU GDP and 38.9% of EU employment
- IP generates venture capital: one (!) patent application shortens the time to first VC investment by 75%.



Digitalisation

Tomorrow's patient:

no longer just a medicine, but an individual solution for an individual problem

● Apps

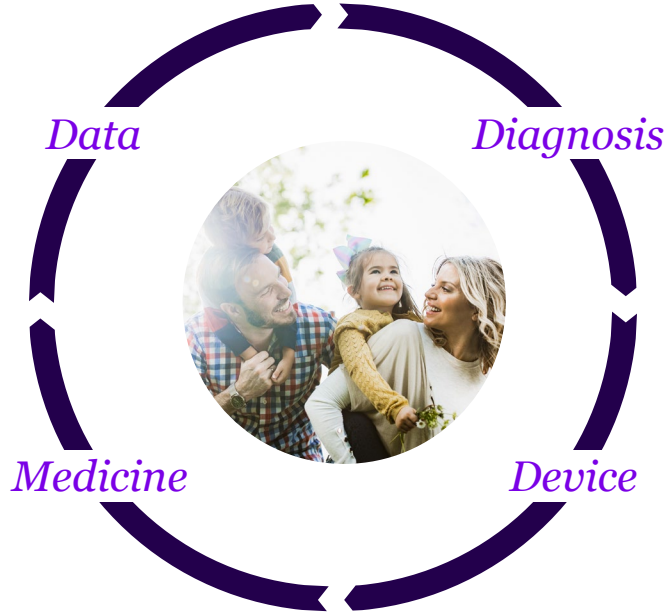
Disease Management
Patient portals
Patient engagement
Patient Continuing Education
Infection chain tracking

● Big Data

Analytics and Mining
Pattern Recognition
Modelling

● Services

Fitness programmes
Online counselling
Telemedicine



● Monitoring

Vital parameters
Sleep patterns
Nutrition
Physical activity
Genome analyses

● Technology I

Tracker/Wearables
Sensors (Tatoos)
Smart clothing

● Technology II

Pens
Pumps
Implants
Smart tablets
3-D Prints

→ *Better outcomes, better targeted treatment, better prevention, lower costs, lifestyle changes.*

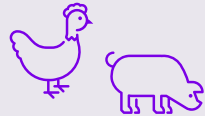
One solution: The integrative "One health" approach

One Health Definition

Integrative management of health risks
Simultaneous consideration of at least 5 components



Health
of the people



Health
of the animals



Climate,
environmental
protection
(soil, water, air)
Biodiversity



Food safety



International
trade

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Thank you!
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