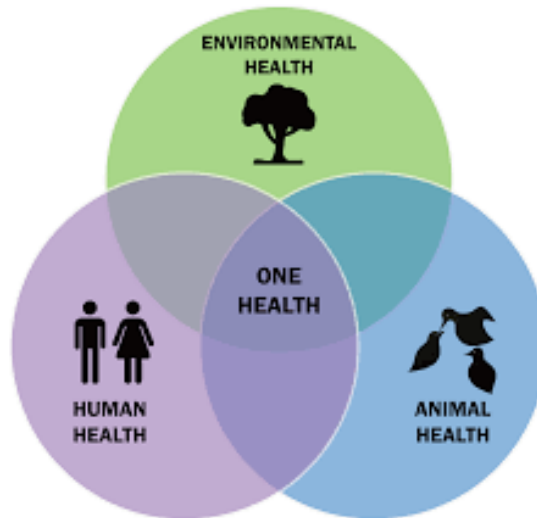




SUSTAINABLE ANIMAL HEALTH: HOW CAN WE BETTER KEEP HEALTHY ANIMALS

Prof. Jeroen Dewulf

One health



Think **HEALTH** not **DISEASE**

- Diergeneeskunde $\Rightarrow$ Diergezondheidszorg
- Animal disease MOSS $\Rightarrow$ infection prevention / biosecurity

BIOSECURITY

=

The combination of all measures taken to reduce the risk of **introduction** and **spread** of infectious diseases at farm level, throughout the region, country or even worldwide.

'assessing risk and implementing measures to decrease that risk and to safeguard and improve health status on a farm'



Biosecurity

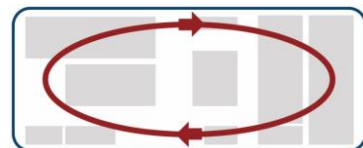
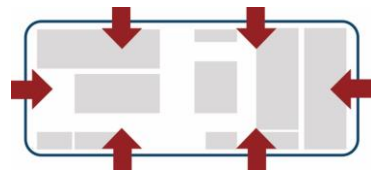
EXTERNAL BIOSECURITY

= Reduce introduction

- endemic diseases
- "exotic" diseases

INTERNAL BIOSECURITY

= reduce spread



Biosecurity is (**should be**) the basis of any disease control program



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1) Separation of infectious and susceptible animals

→ avoid both direct and indirect contact!

(all-in/all-out, working lines, hospital pen, ...)



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1) Separation of infectious and susceptible animals

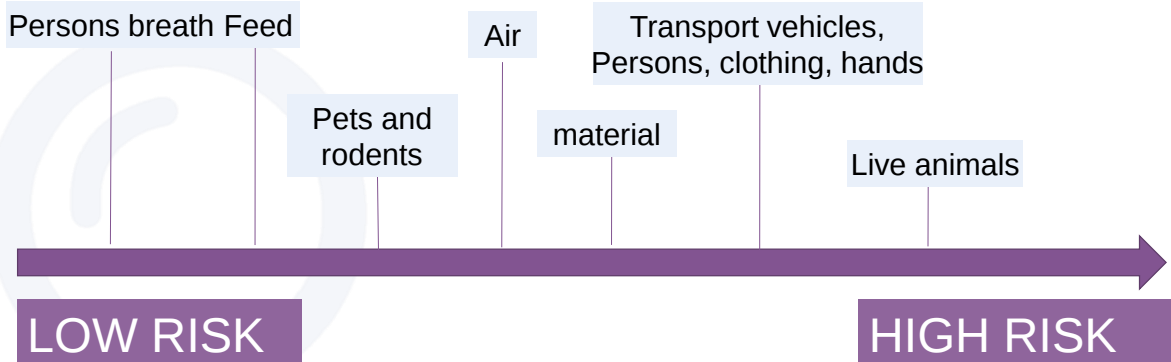
CLEAN
(susceptible
animals)

MEASURES

DIRTY
(direct and indirect
sources of infection)

- Dependent upon herd situation (status, type,...)
- Perform well and consequent

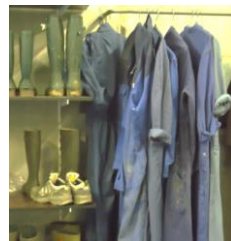
2) Not every transmission route is equally important



3) Reduction of the general infection pressure

→ breaking the infection cycle, reducing the burden on the immune system↓

(cleaning and disinfection, vaccination, ...)



4) Size matters



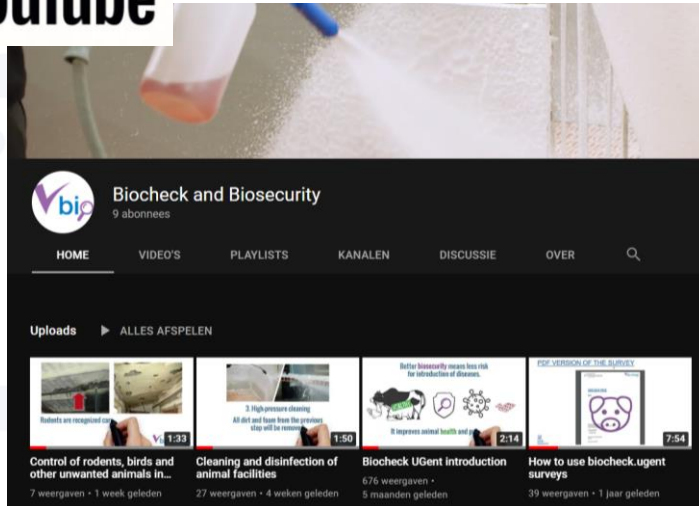
5) Frequency matters

- 'Thousand times a small chance becomes a large chance'
 - Risk transmission route (p)
 - **Frequency transmission route (n)**
- $P = 1 - (1-p)^n$
 - $p = 0.1\%$ (1 out of 1000)
 - $n = 52$ (e.g. weekly)
 - **5,06%** $= 1 - (1-0.001)^{52}$

THE 5 PRINCIPLES OF BIOSECURITY

1. Separate infectious and susceptible animals
2. Not every measure is equally important
3. Reduce the general infection pressure
4. Size matters
5. Frequency matters

YOUTUBE CHANNEL BIOCHECK.UGENT

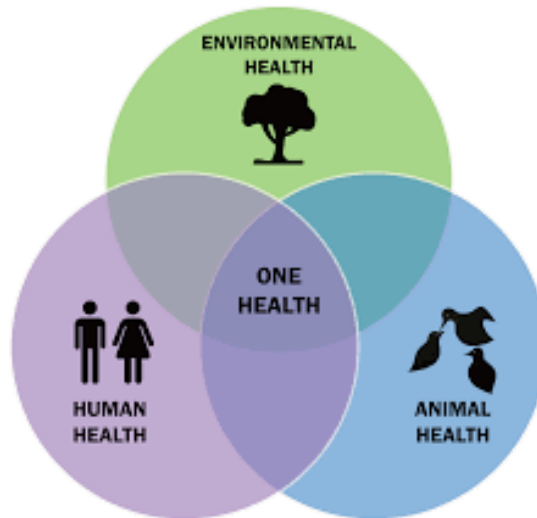


ADVANTAGES OF BIOSECURITY

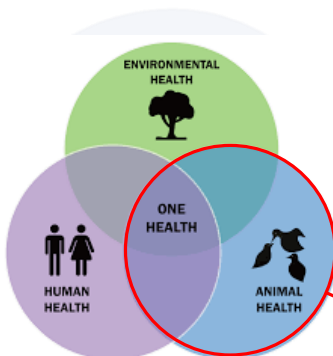
- Epidemic and endemic diseases
- No longer competition for diseases
- Cheap
- Sustainable (gradual improvement)
- Protected against the unpredicted
- Business continuity
- License to produce



One health

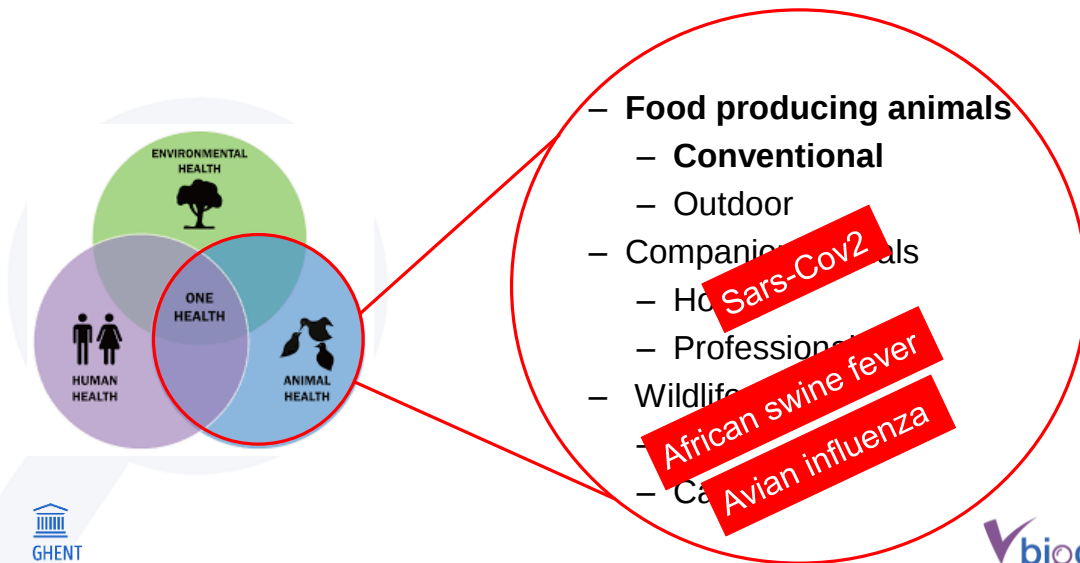


One “animal” health



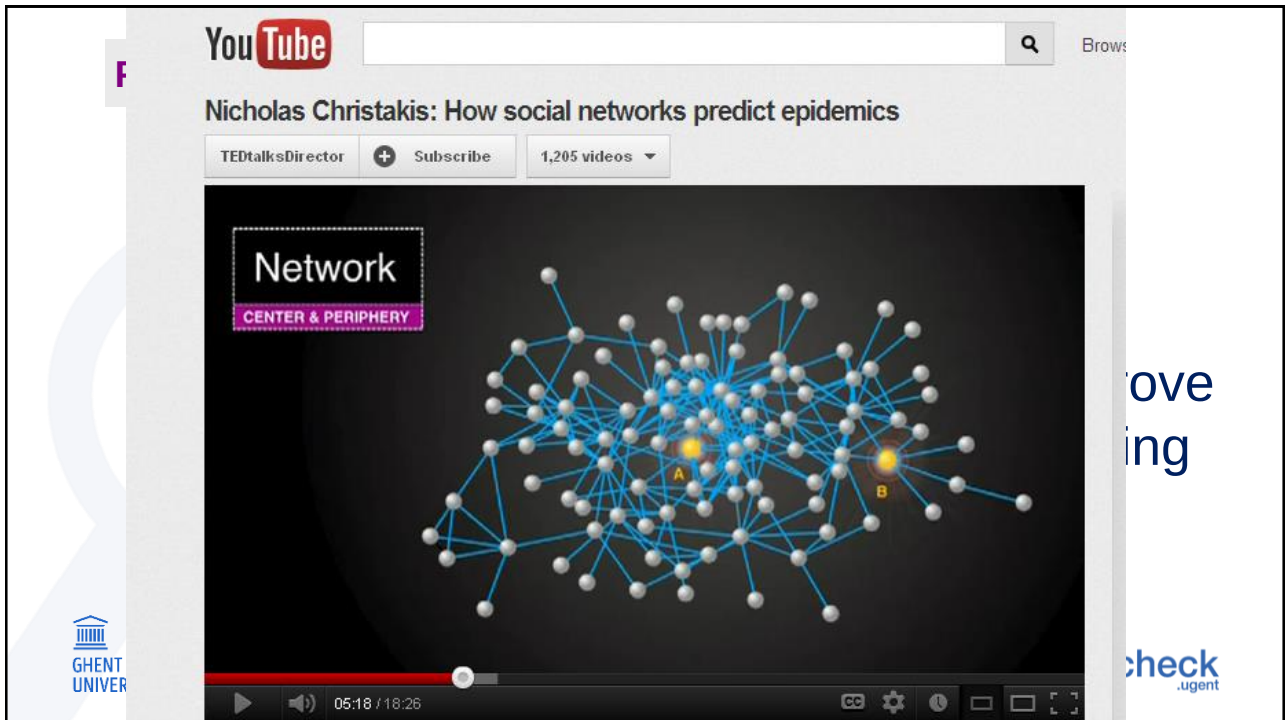
- Food producing animals
 - Conventional
 - Outdoor
- Companion animals
 - Hobby
 - Professional
- Wildlife
 - Free
 - Captive

One “animal” health



MONITOR THE RISKS

- Risk based surveillance
- Citizen science
- Smart syndromic surveillance
- Sensoring technology



Smart syndromic surveillance

- Wealth of data in:
 - Companion animal practices
 - Wildlife rehabilitation
 - Antimicrobial consumption data
 - Animal production data
 - Sensoring technology

Vaccination

- Vaccine technology
 - Oral
 - DIVA
 - mRNA
 - Broad immunity
 -



“An ounce of prevention,
is worth a pound of cure”

- Benjamin Franklin -

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