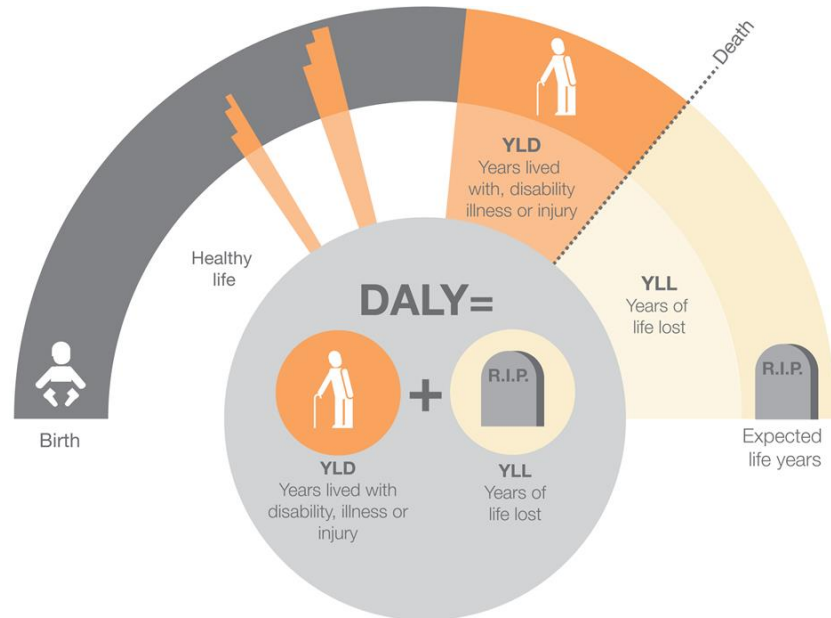


# ESTIMATING BURDEN OF COVID-19

Fostering collaboration and methodological development

Burden-eu WG Meeting  
8 Dec 2020

# Disability-adjusted life years (DALYs)

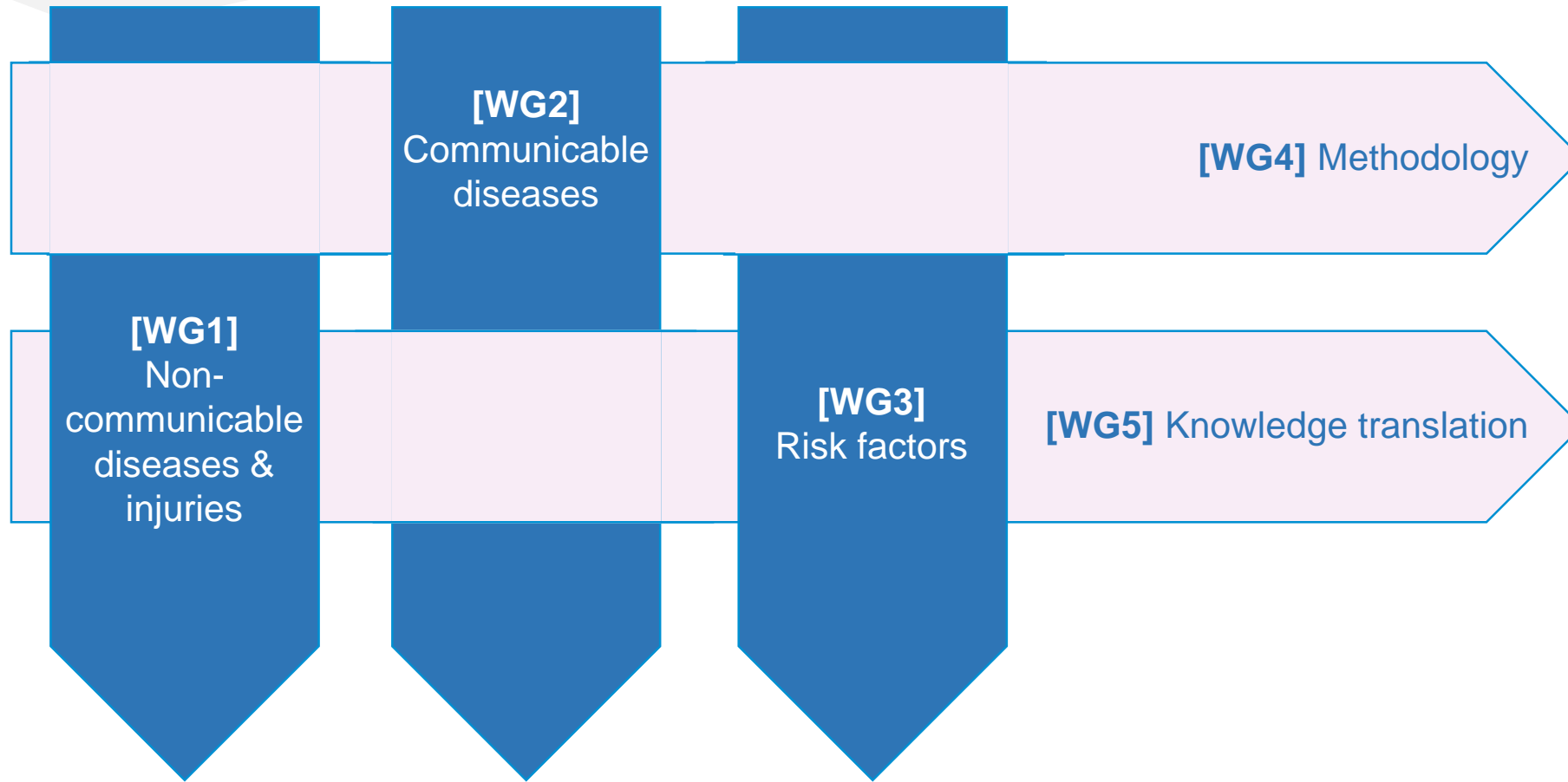


- Summary measure of the impact of morbidity and mortality
  - Years Lived by Disability (YLD)
    - Frequency and severity of disease and injury
  - Years of Life Lost to premature mortality (YLL)
    - Frequency of death and age upon which it occurs
- Comparisons between causes of morbidity and mortality → informing public health priorities
- 'Health gap' between current health status compared to a counterfactual of living free of disease and injury

# Burden assessment in the times of COVID-19

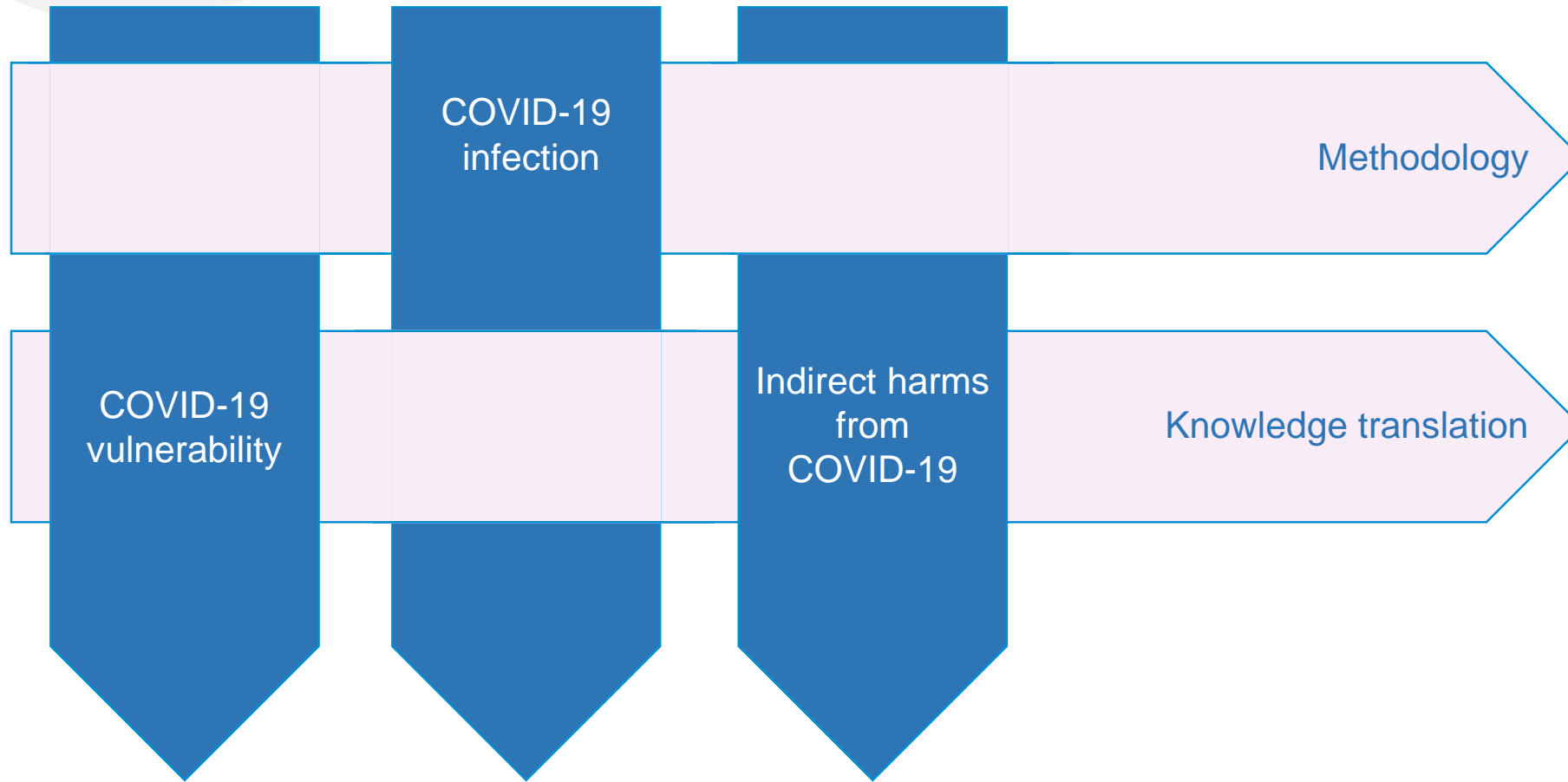
- How can existing burden of disease assessment provide support?
- How can we integrate COVID-19 into burden of disease assessment?
- **How can we estimate the burden of COVID-19 at country-level?**

# Burden-eu transversal 'Working Group' structure



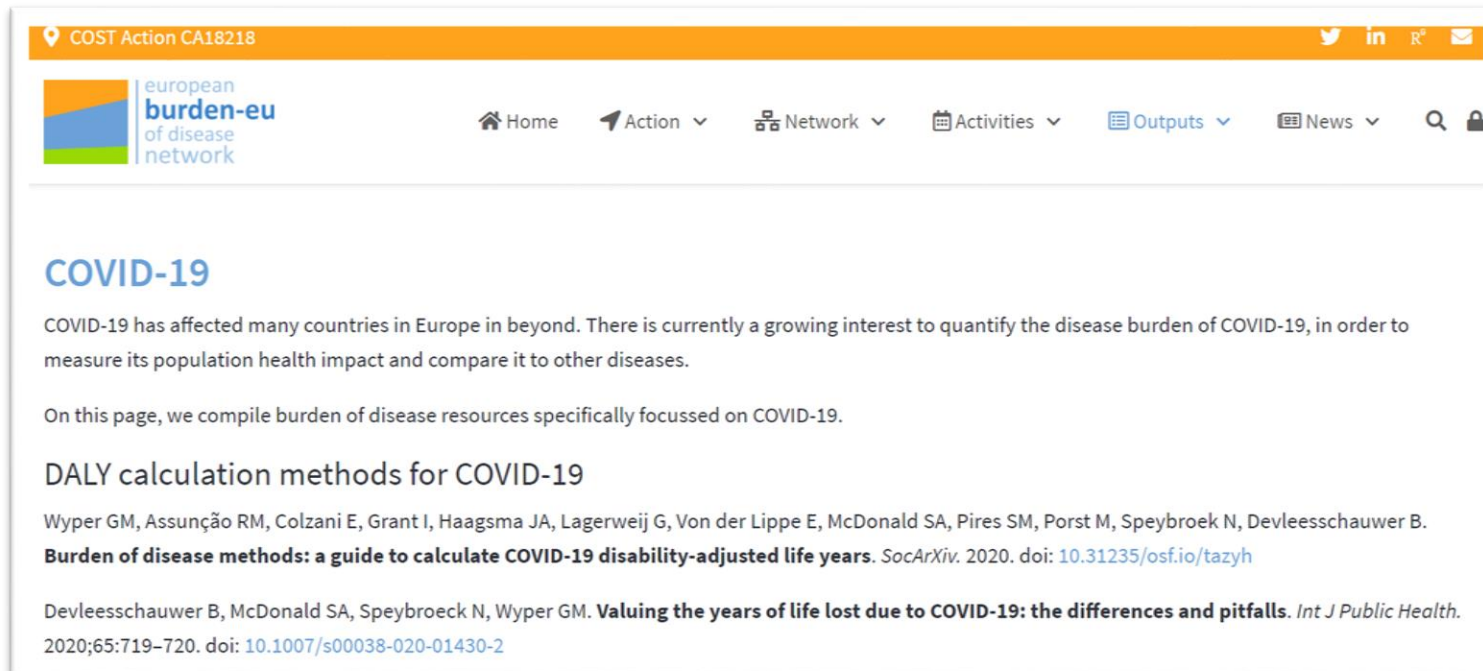
[WG] denotes 'Working Group'

# Fitting the many faces of COVID-19



# Scanning the landscape

- Capturing BOD related COVID-19 research
  - <https://www.burden-eu.net/outputs/covid-19>



The screenshot shows the website for the European Burden of Disease Network (EBDN), specifically the COVID-19 resources page. The page header includes the EBDN logo and navigation menus for Home, Action, Network, Activities, Outputs, and News. The main content area features a section titled "COVID-19" with an introductory paragraph, a sub-section for "DALY calculation methods for COVID-19", and two references with their respective DOIs.

COST Action CA18218

European Burden of Disease Network

Home Action Network Activities Outputs News

## COVID-19

COVID-19 has affected many countries in Europe in beyond. There is currently a growing interest to quantify the disease burden of COVID-19, in order to measure its population health impact and compare it to other diseases.

On this page, we compile burden of disease resources specifically focussed on COVID-19.

### DALY calculation methods for COVID-19

Wyper GM, Assunção RM, Colzani E, Grant I, Haagsma JA, Lagerweij G, Von der Lippe E, McDonald SA, Pires SM, Porst M, Speybroeck N, Devleeschauwer B.  
**Burden of disease methods: a guide to calculate COVID-19 disability-adjusted life years.** *SocArXiv*. 2020. doi: [10.31235/osf.io/tazyh](https://doi.org/10.31235/osf.io/tazyh)

Devleeschauwer B, McDonald SA, Speybroeck N, Wyper GM. **Valuing the years of life lost due to COVID-19: the differences and pitfalls.** *Int J Public Health*. 2020;65:719–720. doi: [10.1007/s00038-020-01430-2](https://doi.org/10.1007/s00038-020-01430-2)

# The Burden of Disease due to COVID-19 in Korea

- Objective: to calculate the burden of disease due to COVID-19 between **20 January and 24 April** in Korea

# The Burden of Disease due to COVID-19 in Korea

- Incidence based approach
- YLDs
  - No. of confirmed cases by sex and age
    - KCDC data including foreigners
  - Duration
    - Person-days from confirmed, cured, and death cases
    - Including symptom experiences before a diagnosis
  - Disability weight
    - Considering the disease severity (asymptomatic, mild, moderate, and severe) and anxiety
    - Adopted DW of similar conditions



# The Burden of Disease due to COVID-19 in Korea

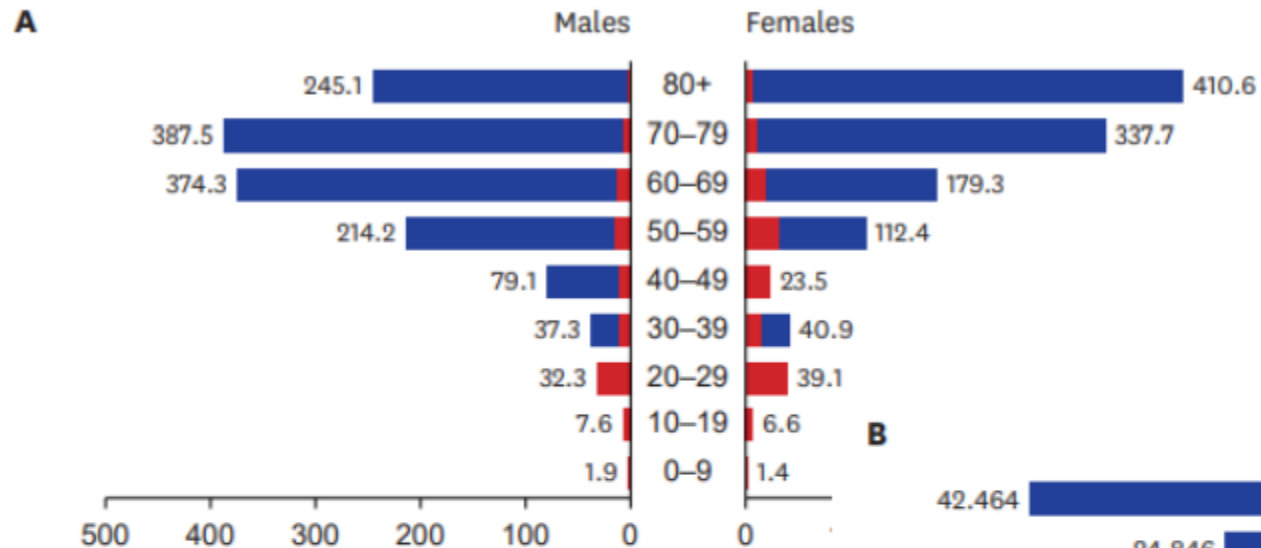
- YLL
  - No of death due to COVID-19 by sex and age
    - Data resources: CDC, public media
  - Standard life expectancy for each sex and age
    - Data resource: the 2018 life table by the Statistics Korea
- Population
  - For YLDs, YLLs, and DALYs per 100,000
  - Data resource: the Statistics Korea demographic survey

# The Burden of Disease due to COVID-19 in Korea

**Table 1.** Parameters used to calculate the years lived with disability

Parameters	Baseline	Sensitivity analysis		Reference
		Lower limit	Upper limit	
No. of cases		-	10%/20%/30% increase	Estimation
Mild	7,603			
All	10,708			
No. of deaths		-	10%/20%/30% increase	Estimation
All	240			
Severity distribution				7
Proportion of mild				
Asymptomatic	10.0%	0.0%	-	
Mild	71.0%	-	81.0%	
Proportion of severe				
Moderate	14.0%	10.0%	18.0%	
Severe	5.0%	1.0%	9.0%	
Disability weight				8
Upper respiratory infection	0.088	0.045	0.154	
<i>Hemophilus influenzae</i> type B pneumonia	0.309	0.215	0.418	
Maternal sepsis	0.825	0.755	0.881	
Dysthymia	0.194	0.122	0.286	
Duration of disease, day	28.4	21.4	35.4	Estimation
Burden of isolation for 2 wk after the discharge, per person	-	-	0.007	7,8

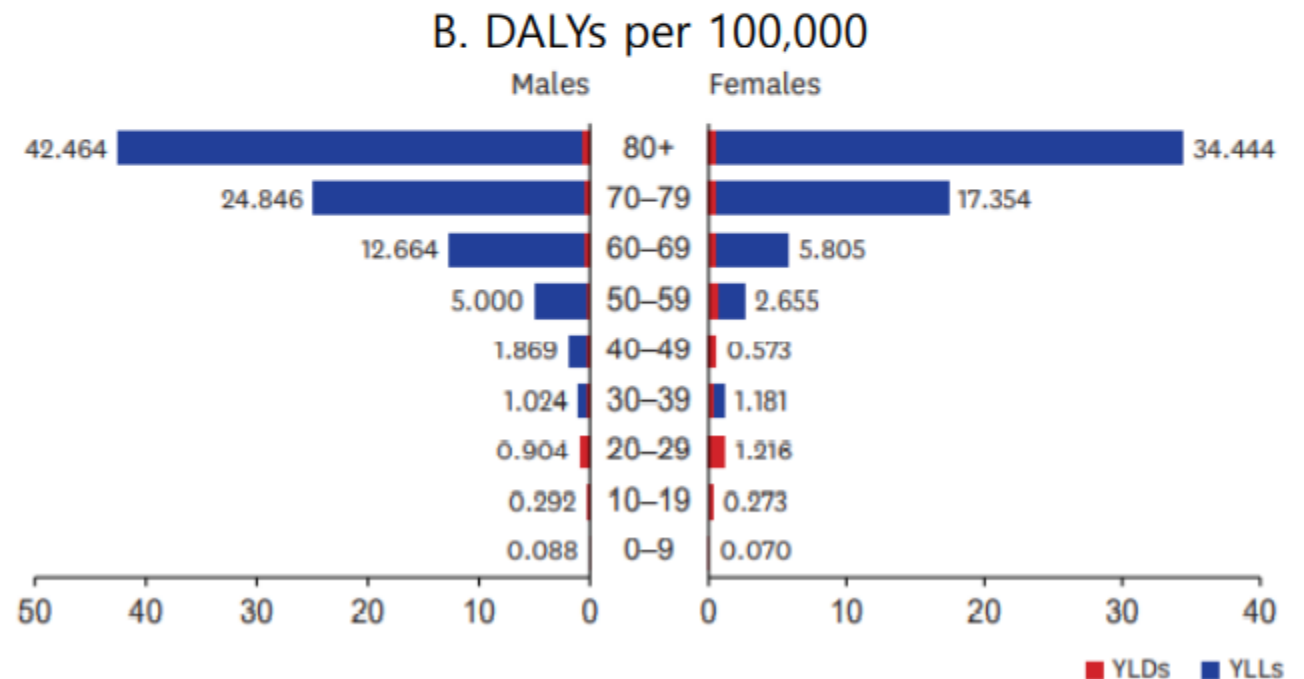
# The Burden of Disease due to COVID-19 in Korea



A. DALYs

Totally, 2,531 DALYs by 24 April 2020  
 - 260 YLDS & 2271 YLLs

Comparison with the results of KNBD 2016  
 - 0.017% of total DALYs



■ YLDS ■ YLLs

Outputs

COVID-19


Action dissemination

# [Webinar] Quantifying COVID-19 disease burden


Friday 20 November 2020, 11h-12h CET

**b** [burden-eu] Quantifying COVID-19 disease burden


Watch later Share  
Brecht Devleesschewwe



**Overview of burden-eu COVID-19 activities**  
— Mr Grant Wyper, Public Health Scotland, UK



**Assessing the burden of COVID-19 in the Netherlands: exploration of the necessary decisions and assumptions**  
— Dr Giske Lagerweij, National Institute for Public Health and the Environment, Netherlands



**The burden of disease due to COVID-19 in Korea using Disability-Adjusted Life Year**  
— Prof Dr Min-Woo Jo, Department of Preventive Medicine, University of Ulsan College of Medicine, Seoul, Korea

# A protocol to estimate COVID-19 DALYs



Publication of a burden-eu guide on calculating COVID-19 DALYs

📅 Published: 23 October 2020

- Provide guidance for data requirements, methodology and communicating results
- Encourage knowledge and experience sharing
- Contact us at [info@burden-eu.net](mailto:info@burden-eu.net)

# A protocol to estimate COVID-19 DALYs

## Burden of disease of COVID-19

### PROTOCOL FOR COUNTRY STUDIES

#### Content

#### INTRODUCTI

Purpose c  
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#### NOTES ON I

Use of COVID-19 disease burden estimates .....

#### IMPLEMENTING A BURDEN OF DISEASE STUDY OF COVID-19 .....

#### Planning a national study .....

Setting.....

Team .....

Data access and permissions .....

#### Disease model.....

#### Data requirements .....

Demographic data .....

Date requirements for years lived with disability .....

Data requirements for years of life lost.....

#### CALCULATIONS .....

#### Uncertainty.....

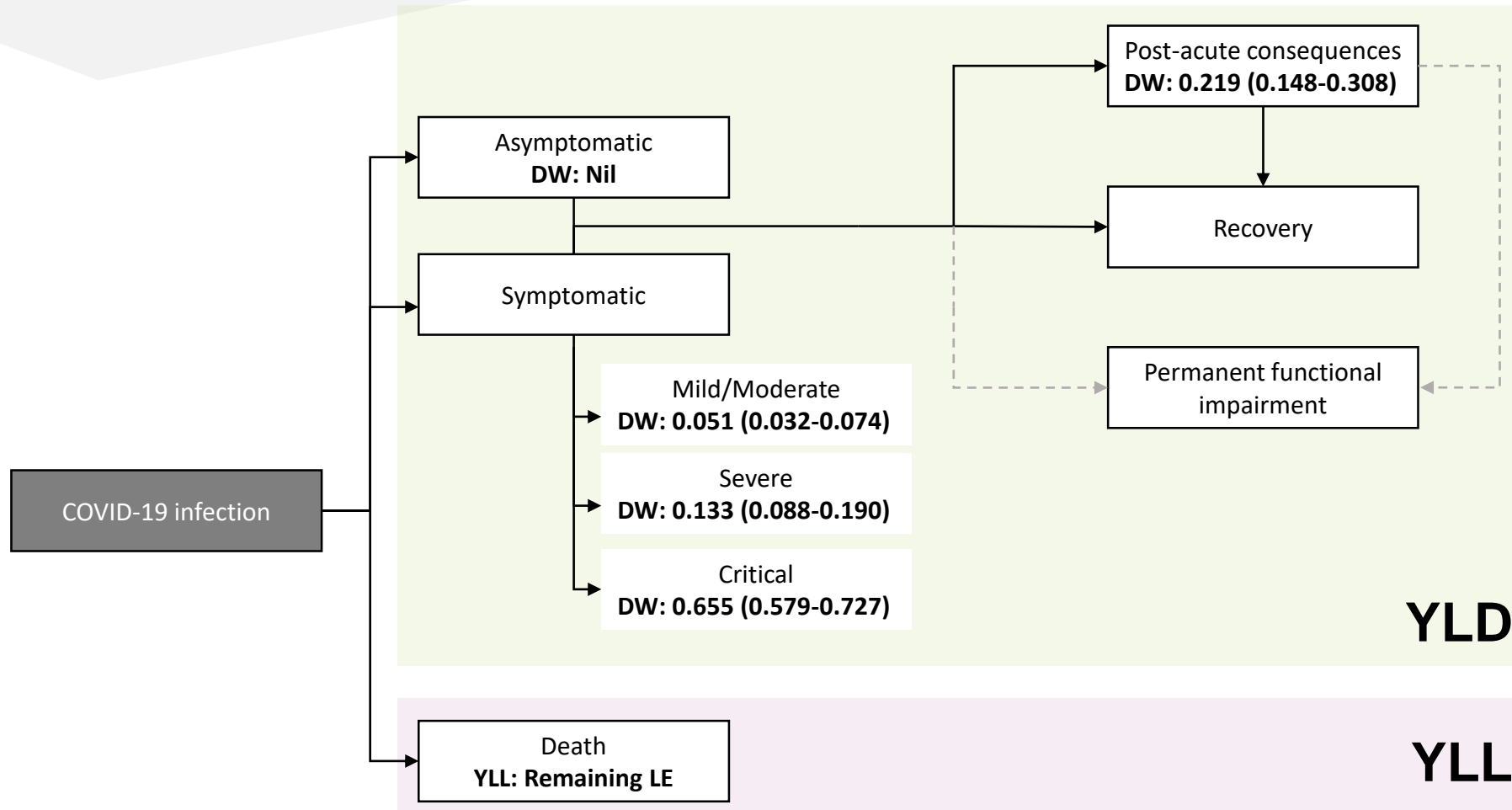
#### NOTES ON KNOWLEDGE TRANSLATION .....

# A disease model for non-fatal COVID-19 outcomes

- Many network members were starting to think about calculating COVID-19 DALYs
- Group convened to discuss and establish health states and data inputs:
  - Input from European Centre for Disease Prevention and Control (ECDC)
  - 12 people, 7 countries, 10 institutions
- Discussions over uncertainties around data inputs to aid knowledge translation
- Consensus model, and approach, made available as a pre-print\*

\* Wyper GMA, Assunção R, Colzani E et al. Burden of disease methods: a guide to calculate COVID-19 disability-adjusted life years. SocArXiv. 2020. <https://doi.org/10.31235/osf.io/tazyh>

# Outcomes tree for COVID-19 burden



\* Wyper GMA, Assunção R, Colzani E et al. Burden of disease methods: a guide to calculate COVID-19 disability-adjusted life years. SocArXiv. 2020. <https://doi.org/10.31235/osf.io/tazyh>



# What can we do?



## [burden-eu] Working Group meetings

On 8 and 9 December 2020, 13h-16h, we will organize burden-eu Working Group meetings focussing on COVID-19 disease burden and the GBD 2019 results, respectively. On Monday 7 December, we will have our Management Committee meeting. More information about these meetings is available via <https://www.burden-eu.net/WEB2020>.

We would like to tailor our WG meetings to your needs. Through this survey, we would like to ask you some questions -- it should not take long!

For any further questions, please contact us via [info@burden-eu.net](mailto:info@burden-eu.net).

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# COVID-19 disease burden: Difficulties, challenges and needs for support

## Methods

- Practical and regular discussions
- Guiding sessions/step-by-step
- Open line for support
- Supplying specific tools

## Data

- Data requirements
- Access to data
- Delayed access to data
- Linking databases
- Ethical approvals
- Funding, available time, resources

## Knowledge translation

- Meaning of the obtained results
- Communication of obtained results

# COVID-19 disease burden: burden-eu's support and opportunities

COST Action CA18218



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## Short-term scientific missions

Short Term Scientific Missions (STSM) aim to support individual mobility and strengthen the existing networks and fostering collaborations by allowing scientists to visit an institution in another participating COST country or an approved NNC or IPC institution.

STSMs in burden-eu should **contribute to the scientific objectives of the COST Action**. The main aim and objective of the Action is to integrate and strengthen capacity in burden of disease assessment across Europe and beyond. Please refer to the [Action aims and objectives](#) for further details.

STSMs in general aim to be a focus for researchers wishing to contribute to the tasks of Working Groups (WGs). For more information on the work of WGs, please [contact the WG Leaders](#).

# Ongoing and future activities

- Continue to support and encourage efforts to integrate COVID-19 into burden of disease assessments
- Promote the importance of methodological transparency/impact
- Integration of emerging evidence into non-fatal outcomes tree
- Opportunities to study and assess the indirect harm from COVID-19
  - Foresight studies: forecast and actual DALYs
  - Disease severity: e.g. restricted access to vital services

# Useful links

- [Protocol for estimating COVID-19 DALYs](#)
- [Burden of disease methods: a guide to calculate COVID-19 disability-adjusted life years](#)
- [Burden of disease COVID-19 resource webpage](#)
- [Valuing the years of life lost due to COVID-19: the differences and pitfalls](#)