



BoCO-19 – The harmonized calculation of the Burden of COVID-19 within 14 countries or sub-national regions

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BoCO-19 Project

The Burden of Disease due to COVID-19:

Towards a harmonization of population health metrics for the surveillance of dynamic outbreaks.

Specific objectives

- Adapt and refine the existing methodology for calculating the burden of disease due to COVID-19 in a cross-country analysis
- Review, clean and collate existing time differentiated COVID-19 morbidity and mortality data in each of the partner countries
- Support and capacity building for calculation (YLL, YLD, DALY) and communication of the Burden of COVID-19
- Dissemination of methodology and results

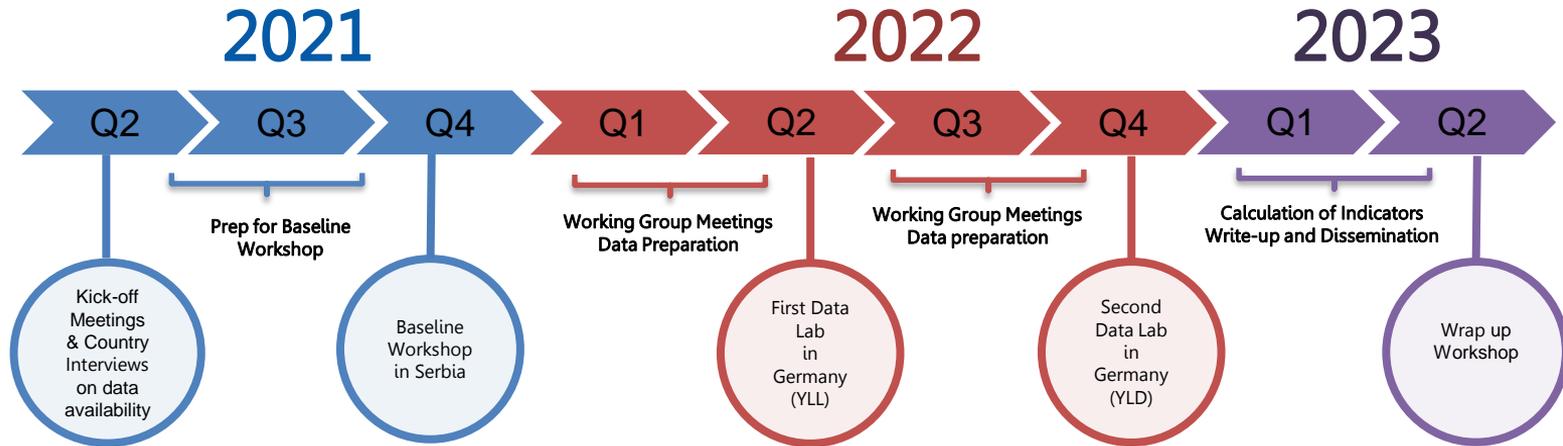


Network of international project partners



Coordinator – RKI Germany	
Partners	
South-East Europe	Southern Caucasus / Central Asia
<ol style="list-style-type: none"> 1. Serbia 2. Albania 3. Bosnia and Herzegovina (2 partners) 4. Kosovo 5. Montenegro 6. Turkey 	<ol style="list-style-type: none"> 1. Kazakhstan 2. Azerbaijan 3. Georgia 4. Kyrgyzstan 5. Mongolia 6. Ukraine 7. Uzbekistan

BoCO-19 timeline May 2021 – April 2023

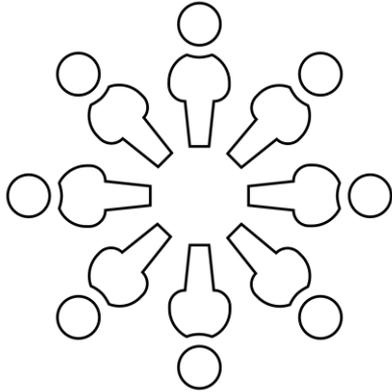


- The implementation of the harmonized methodological decisions takes place in two data labs, which are dedicated to the calculation and use of the data



Today's focus: structured approach

...or what we did to get things done, starting with very limited information



14 partners



Limited time:
2 years



Results
Visuals
Next projects



Questions towards a harmonized methodology

Mortality

- Which of the various **life expectancy tables** (national, GBD, WHO etc.)?
- Calculation of **Excess Mortality** (by age & sex) as validation?

➤ **Study protocol:
at Plos One
submitted SEPT 2022**

Morbidity

- **Definition of Severity** grades (mild/moderate – severe – critical - post acute) and **duration of severity** grades
- Application of one **Severity distribution** – for all countries
- Information on **variants** (alpha, delta, omicron) of Sars-CoV-2
- **Additional information** (sero-prevalence studies)?



How are data collection and methods standardized?

Data Working Group:

Preparation and collection
of data

Methods working group:

Methodological challenges
and solutions

Writing group:

Discussion of publications
and communication

Definition of Use cases

Data templates



Definition of use cases: data requirements

Outcome:

YLL, YLD, DALY for a predefined time period (e.g. for 2020) by age and sex

YLL:

- (1) # of **all-cause deaths** in population by age and sex
 - (2) # of **C-19 deaths** by age and sex
- ⇒ two alternatives to estimate deaths

YLD:

- (3) # of **Sars-CoV-2 cases** without deaths by age and sex
 - (4) **Severity distribution** and **duration of illness**
- ⇒ derived from international sources, not to be provided by partner countries

Additional:

- (20) Total **population** by age and sex
- (21) **Life expectancy** by age (according to preference: national (statistical office) or global (e.g. taken from WHO))



Definition of use cases

Outcome:

YLL, YLD, DALY for a predefined time period (e.g. for 2020) by age and sex

Extension 1: Timely monitoring

Outcome or all information differentiated by day/week/month/quarter

Extension 2: Social determinants

Outcome use case "Basic/Advanced" differentiated by region, occupation etc.

All **information** by social determinants

e.g. (30) Sub-national level, (31) Ethnicity, (32)

Occupational level, (33) Education



Why data templates?

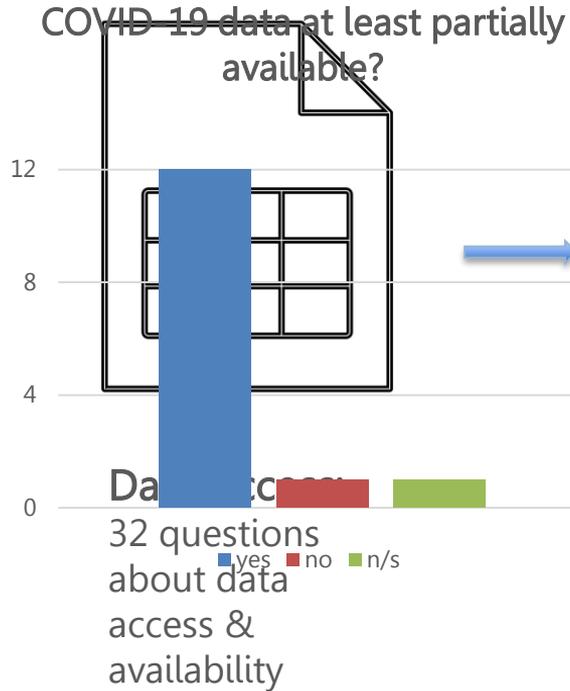
- Different formats, software, language, aggregations, disaggregations...

carat	cut	color	clarity	depth	table	price	x	y	z	
1	0.52	Ideal	D	VS2	61.4	56	1664	5.16	5.19	3.18
2	0.5	Very Good	F	SI1	62.3	60	1250	5.07	5.11	3.17
3	0.61	Ideal	G	VS2	61.8	64	2242	5.45	5.49	3.37
4	0.36	Premium	G	VS2	62.5	58	750	4.55	4.51	2.83
5	0.7	Very Good	E	VS2	63.5	54	2889	5.62	5.66	3.59
6	0.56	Ideal	F	VS1						
7	1.19	Premium	E	I1						
8	0.52	Ideal	F	IF						
9	0.36	Ideal	E	IF						
10	0.51	Ideal	E	VS2						

	Total defects	A	B	C	D	E
A4636	131	37	21	28		45
A2524	86	20	24	21	1	20
A3713	75	17	13	18		27
A4452	73	5	33	17		18
A4088	72	14	16	12	2	28
A2103	68	14	13	14	1	26
A2156	68	16	13	19	2	18
A3681	66	12	16	9	1	28
A1366	50	11	15	12		12
A2610	39	5	7	12		15
Total	728	151	171	162	7	237



Data templates



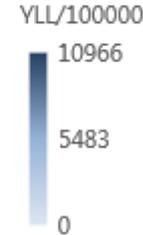
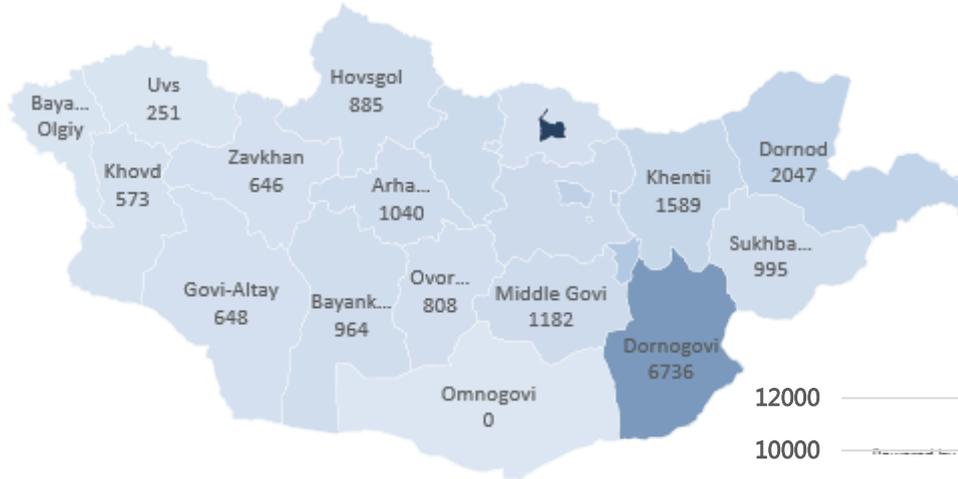
MALES			FEMALES			BOTH SEXES			
Age group	# of COVID-19 deaths	Total population	Age group	# of COVID-19 deaths	Total population	Age group	# of COVID-19 deaths	Total population	Life expectancy (GBO 2019)
0-4	0	2,016,084	0-4	3	1,813,054	0-4	3	3,969,138	86.4
5 to 9	0	1,844,171	5 to 9	2	1,819,397	5 to 9	2	3,183,568	84.0
10 to 14	1	1,916,110	10 to 14	0	1,808,984	10 to 14	1	3,725,094	79.0
15 to 19	0	1,891,487	15 to 19	0	1,885,287	15 to 19	0	3,836,774	74.1
20 to 24	4	2,394,221	20 to 24	4	2,116,270	20 to 24	8	4,310,491	69.1
25 to 29	18	2,352,808	25 to 29	6	2,160,113	25 to 29	24	4,912,921	64.1
30 to 34	13	2,316,608	30 to 34	4	2,184,150	30 to 34	17	5,381,058	59.2
35 to 39	27	2,688,872	35 to 39	10	2,602,007	35 to 39	37	5,290,879	54.3
40 to 44	43	2,531,208	40 to 44	23	2,503,680	40 to 44	66	5,034,888	49.3
45 to 49	99	2,326,278	45 to 49	44	2,309,582	45 to 49	143	5,035,860	44.4
50 to 54	221	3,265,131	50 to 54	91	3,222,093	50 to 54	312	6,487,224	39.6
55 to 59	479	3,414,124	55 to 59	157	3,409,194	55 to 59	636	6,813,318	34.9
60 to 64	718	3,086,061	60 to 64	225	2,951,276	60 to 64	1,003	5,918,337	30.3
65 to 69	1,237	2,333,788	65 to 69	476	2,545,316	65 to 69	1,713	4,899,104	25.7
70 to 74	1,894	1,854,214	70 to 74	791	2,113,256	70 to 74	2,485	3,968,070	21.3
75 to 79	3,047	1,551,030	75 to 79	1,710	1,916,998	75 to 79	4,817	3,468,028	17.1
80 to 84	4,304	1,432,318	80 to 84	3,972	1,998,184	80 to 84	8,876	3,430,502	13.2
85 plus	7,086	850,877	85 plus	10,372	1,855,035	85 plus	17,468	2,305,912	7.8
All Ages	19,641	41,826,819	All Ages	18,080	42,128,812	All Ages	37,891	83,185,631	-

Data collection: structured regarding age groups, sex, time, regions

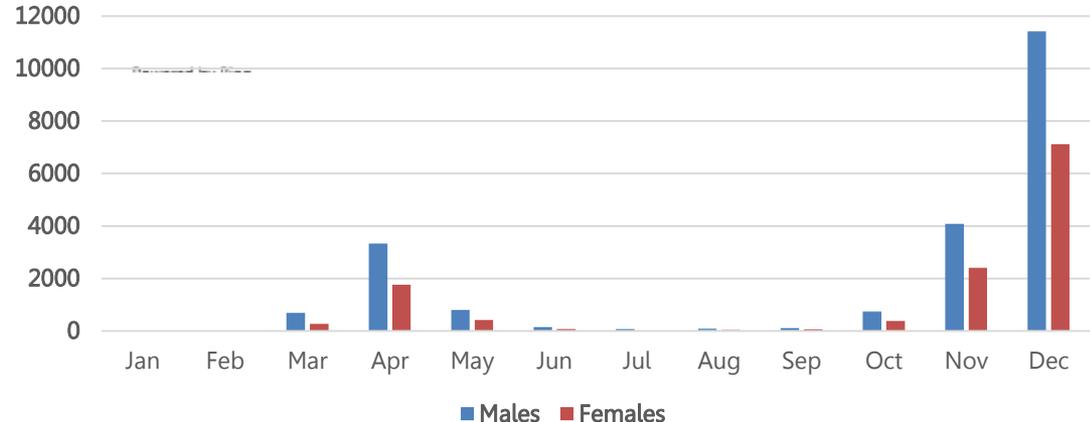
Age-group	YLL Total
0-4	0
5 to 9	0
10 to 14	69
15 to 19	0

Age-group	YLL per 100 000
0-4	0
5 to 9	0
10 to 14	4
15 to 19	0
20 to 24	10
25 to 29	40
30 to 34	23
35 to 39	48

Visualized YLL results (examples)

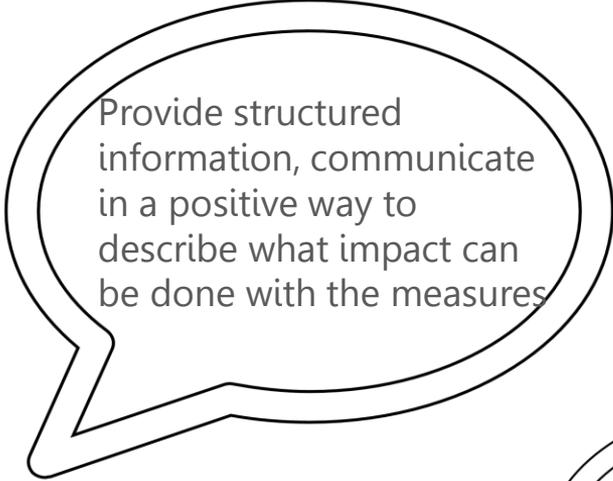


YLL per 100 000 2020, all ages

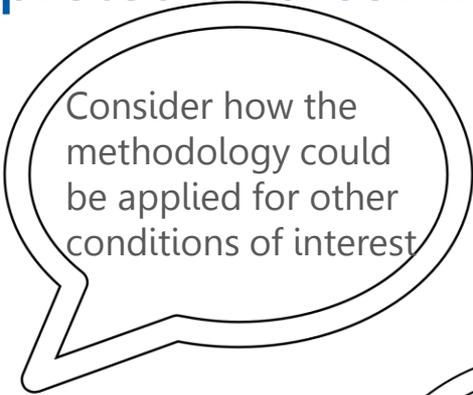


DALY will be disaggregated by 5-year age groups, sex and over time, and in some cases by region

How results should be interpreted and communicated



Provide structured information, communicate in a positive way to describe what impact can be done with the measures



Consider how the methodology could be applied for other conditions of interest



Showcase the strength and weakness of BoD



Use data to inform policy and decision making

Key messages

- The better structured the data collection, the easier it is for the partners to collect the data and to carry out the calculations even within a short time frame.
- The rationales for the use of BoD indicators and their usefulness in assessing the health situation should be well elaborated.



Let's get interactive

- If you engage yourself in networks...

What's the benefits, obstacles, advantages of participation?

- <https://www.menti.com/alk3xmeu9xpb>





Icons - <https://thenounproject.com/>

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