

**Model Building Lecture**  
**Supplementary information on a dataset used**

Complete results of the analysis are presented in a manuscript:

Ondřej Hradský and Arnošt Komárek (2020). Demographic and public health characteristics explain large part of variability in COVID-19 mortality across countries. *European Journal of Public Health* (to appear).

# 1 Countries included in a dataset

Primary dataset considers data for 210 countries worldwide. Nevertheless, for 71 countries, some of important variables were not known and those countries were disregarded from main analyzes. Additionally, *Singapore* was excluded from the main analyses due to the fact that one of important predictors (population density) is extremely outlying (7 953 people per sq. km of land) as compared to the rest of the dataset where the highest population density is 1 240 people per sq. km of land for Bangladesh. See Tables 1 and 2 for countries excluded in the main analyzis and countries included, respectively.

Table 1: Countries excluded from main analyzes due to missingness of important risk factors and *Singapore* which was excluded because of extremely outlying population density.

<b>AD:</b> Andorra	<b>AI:</b> Anguilla	<b>AG:</b> Antigua and Barbuda	<b>AW:</b> Aruba	<b>BS:</b> Bahamas
<b>BH:</b> Bahrain	<b>BB:</b> Barbados	<b>BM:</b> Bermuda	<b>BQ:</b> Bonaire, Saint Eustatius and Saba	<b>VG:</b> British Virgin Islands
<b>CV:</b> Cape Verde	<b>JPGI1668:</b> Cases on an international conveyance Japan	<b>KY:</b> Cayman Islands	<b>CR:</b> Costa Rica	<b>CI:</b> Cote d'Ivoire
<b>CU:</b> Cuba	<b>CW:</b> Curaçao	<b>CY:</b> Cyprus	<b>CD:</b> Democratic Republic of the Congo	<b>DM:</b> Dominica
<b>ER:</b> Eritrea	<b>SZ:</b> Eswatini	<b>FK:</b> Falkland Islands (Malvinas)	<b>FO:</b> Faroe Islands	<b>PF:</b> French Polynesia
<b>GI:</b> Gibraltar	<b>GL:</b> Greenland	<b>GD:</b> Grenada	<b>GU:</b> Guam	<b>GG:</b> Guernsey
<b>GW:</b> Guinea Bissau	<b>VA:</b> Holy See	<b>IS:</b> Iceland	<b>IM:</b> Isle of Man	<b>JE:</b> Jersey
<b>XK:</b> Kosovo	<b>KG:</b> Kyrgyzstan	<b>LA:</b> Laos	<b>LI:</b> Liechtenstein	<b>MV:</b> Maldives
<b>MT:</b> Malta	<b>MC:</b> Monaco	<b>MS:</b> Montserrat	<b>NC:</b> New Caledonia	<b>NG:</b> Nigeria
<b>MK:</b> North Macedonia	<b>MP:</b> Northern Mariana Islands	<b>PS:</b> Palestine	<b>PG:</b> Papua New Guinea	<b>PR:</b> Puerto Rico
<b>RU:</b> Russia	<b>KN:</b> Saint Kitts and Nevis	<b>LC:</b> Saint Lucia	<b>SM:</b> San Marino	<b>ST:</b> Sao Tome and Principe
<b>SC:</b> Seychelles	<b>SG:</b> Singapore	<b>SX:</b> Sint Maarten	<b>SO:</b> Somalia	<b>SS:</b> South Sudan
<b>SD:</b> Sudan	<b>SR:</b> Suriname	<b>SY:</b> Syria	<b>TW:</b> Taiwan	<b>TL:</b> Timor Leste
<b>TT:</b> Trinidad and Tobago	<b>TC:</b> Turks and Caicos islands	<b>TZ:</b> United Republic of Tanzania	<b>VI:</b> United States Virgin Islands	<b>VE:</b> Venezuela
<b>VN:</b> Vietnam	<b>EH:</b> Western Sahara			

## 2 Explanatory variables

Considered explanatory variables (risk factors) are listed in Tables 3 and 4.

Table 2: Countries included in main analyzes ( $n = 138$ ).

<b>AF:</b> Afghanistan	<b>AL:</b> Albania	<b>DZ:</b> Algeria	<b>AO:</b> Angola	<b>AR:</b> Argentina
<b>AM:</b> Armenia	<b>AU:</b> Australia	<b>AT:</b> Austria	<b>AZ:</b> Azerbaijan	<b>BD:</b> Bangladesh
<b>BY:</b> Belarus	<b>BE:</b> Belgium	<b>BZ:</b> Belize	<b>BJ:</b> Benin	<b>BT:</b> Bhutan
<b>BO:</b> Bolivia	<b>BA:</b> Bosnia and Herzegovina	<b>BW:</b> Botswana	<b>BR:</b> Brazil	<b>BN:</b> Brunei Darussalam
<b>BG:</b> Bulgaria	<b>BF:</b> Burkina Faso	<b>BI:</b> Burundi	<b>KH:</b> Cambodia	<b>CM:</b> Cameroon
<b>CA:</b> Canada	<b>CF:</b> Central African Republic	<b>CO:</b> Colombia	<b>KM:</b> Comoros	<b>CG:</b> Congo
<b>HR:</b> Croatia	<b>CZ:</b> Czech Republic	<b>DK:</b> Denmark	<b>DJ:</b> Djibouti	<b>DO:</b> Dominican Republic
<b>EC:</b> Ecuador	<b>EG:</b> Egypt	<b>SV:</b> El Salvador	<b>GQ:</b> Equatorial Guinea	<b>EE:</b> Estonia
<b>ET:</b> Ethiopia	<b>FJ:</b> Fiji	<b>FI:</b> Finland	<b>FR:</b> France	<b>GA:</b> Gabon
<b>GM:</b> Gambia	<b>GE:</b> Georgia	<b>DE:</b> Germany	<b>GH:</b> Ghana	<b>EL:</b> Greece
<b>GT:</b> Guatemala	<b>GN:</b> Guinea	<b>GY:</b> Guyana	<b>HT:</b> Haiti	<b>HN:</b> Honduras
<b>HU:</b> Hungary	<b>TD:</b> Chad	<b>CL:</b> Chile	<b>CN:</b> China	<b>IN:</b> India
<b>ID:</b> Indonesia	<b>IR:</b> Iran	<b>IQ:</b> Iraq	<b>IE:</b> Ireland	<b>IL:</b> Israel
<b>IT:</b> Italy	<b>JM:</b> Jamaica	<b>JP:</b> Japan	<b>JO:</b> Jordan	<b>KZ:</b> Kazakhstan
<b>KE:</b> Kenya	<b>KW:</b> Kuwait	<b>LV:</b> Latvia	<b>LB:</b> Lebanon	<b>LS:</b> Lesotho
<b>LR:</b> Liberia	<b>LY:</b> Libya	<b>LT:</b> Lithuania	<b>LU:</b> Luxembourg	<b>MG:</b> Madagascar
<b>MW:</b> Malawi	<b>MY:</b> Malaysia	<b>ML:</b> Mali	<b>MR:</b> Mauritania	<b>MU:</b> Mauritius
<b>MX:</b> Mexico	<b>MD:</b> Moldova	<b>MN:</b> Mongolia	<b>ME:</b> Montenegro	<b>MA:</b> Morocco
<b>MZ:</b> Mozambique	<b>MM:</b> Myanmar	<b>NM:</b> Namibia	<b>NP:</b> Nepal	<b>NL:</b> Netherlands
<b>NZ:</b> New Zealand	<b>NI:</b> Nicaragua	<b>NE:</b> Niger	<b>NO:</b> Norway	<b>OM:</b> Oman
<b>PK:</b> Pakistan	<b>PA:</b> Panama	<b>PY:</b> Paraguay	<b>PE:</b> Peru	<b>PH:</b> Philippines
<b>PL:</b> Poland	<b>PT:</b> Portugal	<b>QA:</b> Qatar	<b>RO:</b> Romania	<b>RW:</b> Rwanda
<b>VC:</b> Saint Vincent and the Grenadines	<b>SA:</b> Saudi Arabia	<b>SN:</b> Senegal	<b>RS:</b> Serbia	<b>SL:</b> Sierra Leone
<b>SK:</b> Slovakia	<b>SI:</b> Slovenia	<b>ZA:</b> South Africa	<b>KR:</b> South Korea	<b>ES:</b> Spain
<b>LK:</b> Sri Lanka	<b>SE:</b> Sweden	<b>CH:</b> Switzerland	<b>TJ:</b> Tajikistan	<b>TH:</b> Thailand
<b>TG:</b> Togo	<b>TN:</b> Tunisia	<b>TR:</b> Turkey	<b>UG:</b> Uganda	<b>UA:</b> Ukraine
<b>AE:</b> United Arab Emirates	<b>UK:</b> United Kingdom	<b>US:</b> United States of America	<b>UY:</b> Uruguay	<b>UZ:</b> Uzbekistan
<b>YE:</b> Yemen	<b>ZM:</b> Zambia	<b>ZW:</b> Zimbabwe		

Table 3: Considered explanatory variables (risk factors), coding table, part 1.

<b>Source of data:</b> <a href="https://data.worldbank.org/">https://data.worldbank.org/</a>	
Male80	Population ages 80 and above, male (% of male population)
Female80	Population ages 80 and above, female (% of female population)
Popul80	Mean value of Male80 and Female80
Popul65	Population ages 65 and above (% of total population)
PopulMid	Population ages 15 – 64 (% of total population)
PopulData	Population in 2018 (in 100 million of people)
PopulDens	Population density ( <i>hundreds</i> of people per sq. km of land area)
Female	Population, female (% of total population)
Urban	Urban population (% of total population)
LifeExpect	Life expectancy at birth, total (years)
MortNeontl	Mortality rate, neonatal (per 1000 live births)
MortDis	Mortality from CVD, cancer, diabetes or CRD between exact ages 30 and 70 (%)
CauseInjry	Cause of death, by injury (% of total)
CauseNonCm	Cause of death, by non-communicable diseases (% of total)
CauseCommn	Cause of death, by communicable diseases and maternal, prenatal and nutrition conditions (% of total)
GDP	GDP per capita, PPP ( <i>thousands</i> of current international \$)
TBC	Incidence of tuberculosis (per 1000 people)
Diabet	Diabetes prevalence (% of population ages 20 to 79)
Obesity	Prevalence of overweight, weight for height (% of children under 5)
HIV	Prevalence of HIV, total (% of population ages 15–49)
Smoking	Smoking prevalence, total
Physicns	Physicians (per 1000 people)
Beds	Hospital beds (per 1000 people)
ImmunMeas	Immunization, measles (% of children ages 12–23 months)
TempMarch	Average temperature in March

Table 4: Considered explanatory variables (risk factors), coding table, part 2.

<b>Source of data:</b> <a href="https://doi.org/10.1161/CIRCULATIONAHA.115.018912">doi:10.1161/CIRCULATIONAHA.115.018912</a>	
HT.men	Crude Prevalence of Hypertension 2010 in men
HT.women	Crude Prevalence of Hypertension 2010 in women
HT	Mean value of HT.men and HT.women
<b>Source of data:</b> <a href="http://www.bcgatlas.org">http://www.bcgatlas.org</a>	
BCG	BCG immunization strategy, 0 = <i>selective</i> , 1 = <i>all or past all</i>
<b>Source of data:</b> GISAID database, <a href="https://raw.githubusercontent.com/nextstrain/ncov/master/data/metadata.tsv">https://raw.githubusercontent.com/nextstrain/ncov/master/data/metadata.tsv</a>	
Haplo	Clades of SARS-CoV-2
<b>Source of data:</b> <a href="https://opendata.ecdc.europa.eu/covid19/casedistribution/csv">https://opendata.ecdc.europa.eu/covid19/casedistribution/csv</a>	
Time	Number of days between the first case of reported COVID-19 and 31 Dec. 2019