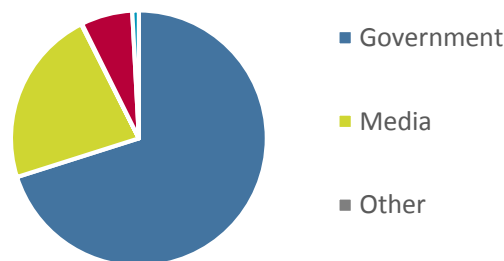


## Fighting pandemic through interventions: A view of how governments worldwide are reacting to the Covid-19 crisis.

### Introduction:

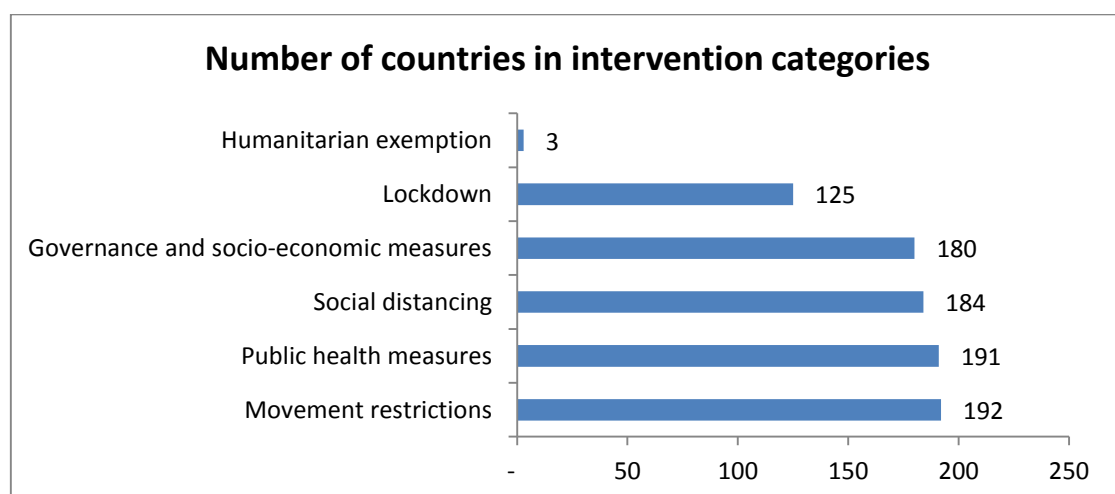
In the wake of Covid-19, all nations have taken certain interventions or measures to safeguard their people and keep the effects of the pandemic at bay. A rich database of Government Measures of 196 distinct countries is being created and maintained by an organization called ACAPS (<https://www.acaps.org/covid19-government-measures-dataset>). Following is a quick look at how this data is created:

Type of Sources



### What are the Intervention Categories?

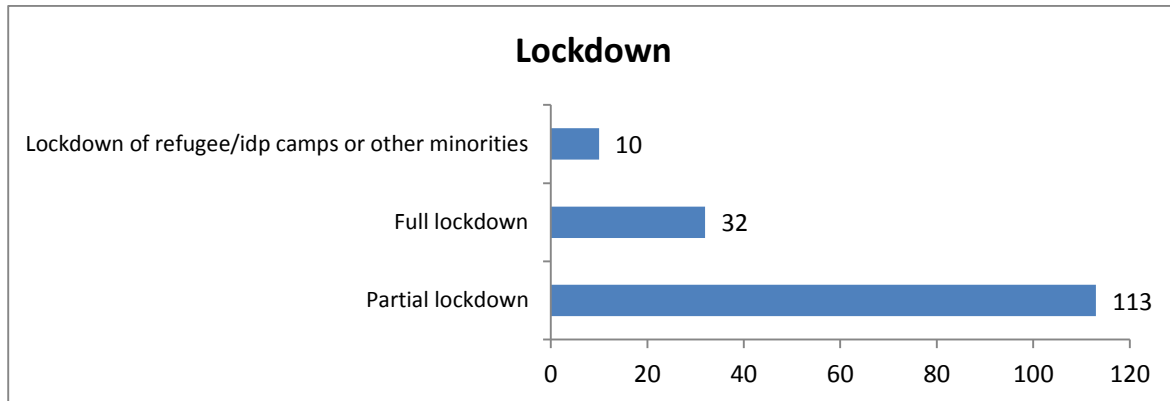
The interventions data categorizes every measure by any country into six broad categories. Following is a look of popularity of the measure categories i.e. how many countries are falling in each of these categories?



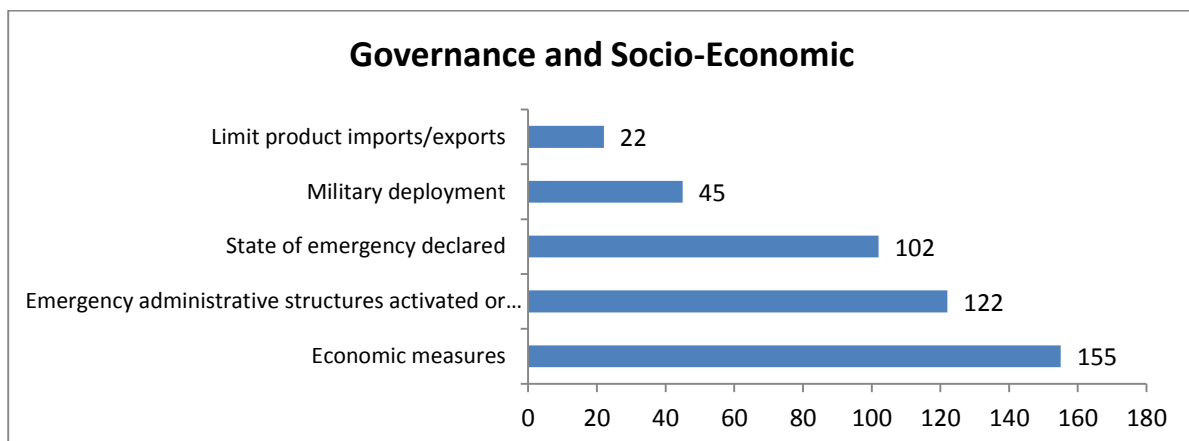
- We see that Humanitarian exemption is the least popular being adapted by 3 countries (Ireland, Israel and South Sudan) whereas the ones most popular (with more than 190 i.e. 98% of the countries) being movement restrictions and public health measures.

## What are the detailed measures?

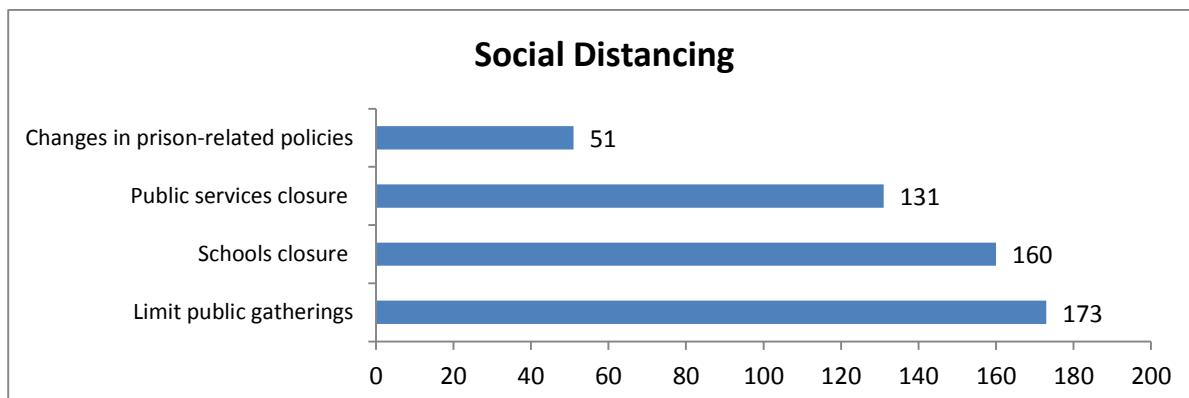
Each of these categories is then broken down into particular set of measures to understand the detailed interventions. Following is a similar look of these 5 categories (except Humanitarian Exemption) in terms of popularity or number of countries adopting them:



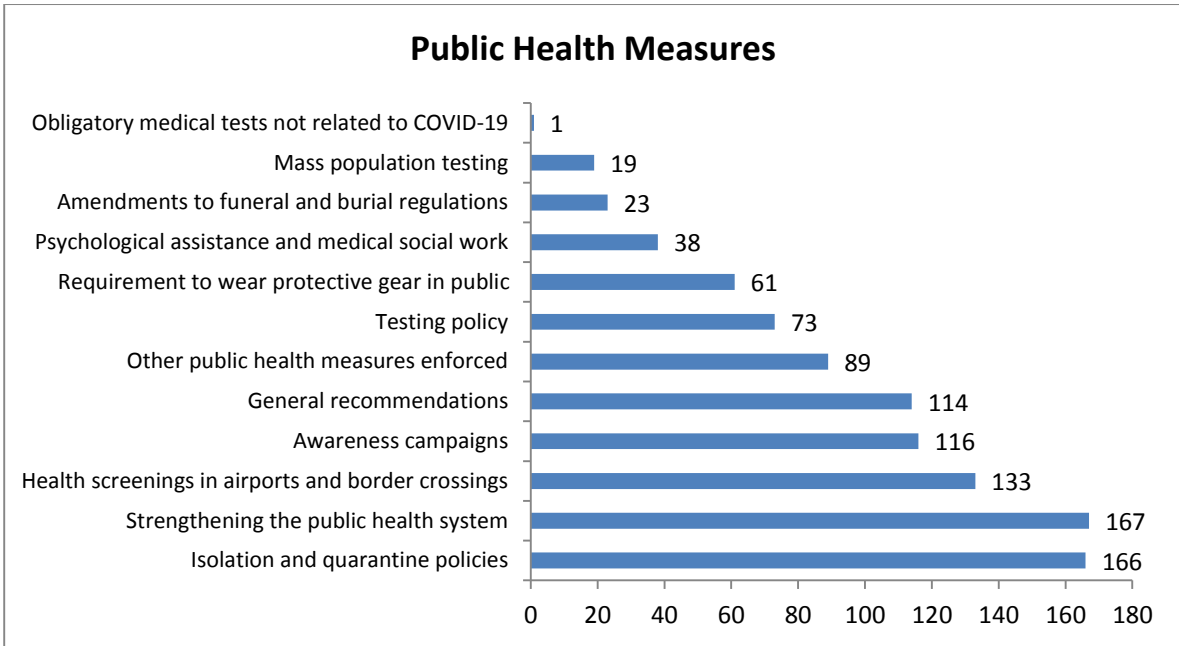
- *Most of the countries have taken partial lockdown with full lockdown being followed in only 16% of the countries.*



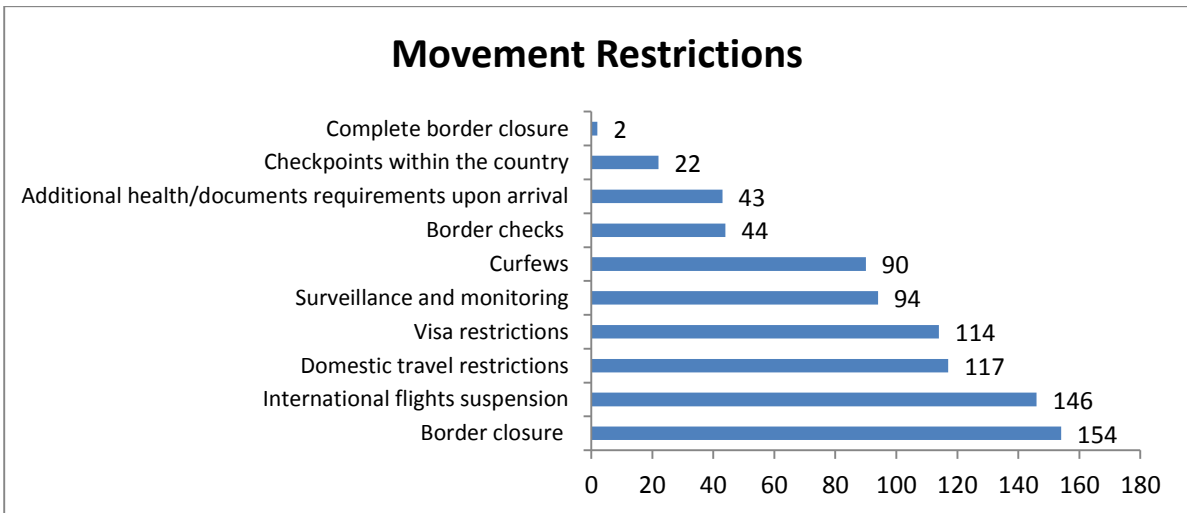
- *Most of the countries have taken economic measures with limits on product import/export being followed by only 11% of the countries.*



- *Most of the countries have provided restrictions on public gatherings and restored to school closures with few changing prison related policies.*



➤ *Most of the countries have adopted Isolation and Quarantine Policies and strengthened Public Health System while mass population testing is being followed by few.*



➤ *Most countries have suspended international flights while few have completely closed borders and made checkpoints within countries.*

## When and how soon were these measures adopted?

For understanding the measures better and how proactively the countries reacted we overlay the first cases of Covid-19 in each (sourced from JHU database in R: <https://cran.r-project.org/web/packages/covid19.analytics/vignettes/covid19.analytics.html>) with the intervention knowledge.

- **Following is the list of countries which reacted with any intervention even before the first case of Covid-19.** In total 114 countries were proactive and reacted with an intervention before first infection, the earliest responders being the following ten countries with interventions as early as in the 1<sup>st</sup> week of January:

Country	Measure	Category	Date of Intervention	Date of first Infection
Russian Federation	Health screenings in airports and border crossings	Public health measures	01-Jan	31-Jan
Mongolia	Strengthening the public health system	Public health measures	01-Jan	10-Mar
United Arab Emirates	Visa restrictions	Movement restrictions	02-Jan	29-Jan
Singapore	Awareness campaigns	Public health measures	02-Jan	23-Jan
Thailand	Surveillance and monitoring	Movement restrictions	03-Jan	22-Jan
Bulgaria	Isolation and quarantine policies	Public health measures	03-Jan	08-Mar
Mali	Emergency administrative structures activated or established	Governance and socio-economic measures	04-Jan	25-Mar
Oman	Border checks	Movement restrictions	04-Jan	24-Feb
Panama	Border checks	Movement restrictions	04-Jan	10-Mar
Malawi	Economic measures	Governance and socio-economic measures	05-Jan	02-Apr

Following is a detailed list of countries divided into actions more than a month before and within a month before first infection. For ease of understanding this list of countries is divided into separate categories with their implementation date and first date of infections. The data is ordered with respect to the date of first infection. Also for every country only earliest measure is included here (to reduce the list). **An interesting observation here is that most of the countries' first measure is public health measure and then movement restrictions with example being India, who has taken the first intervention as early as 25<sup>th</sup> Jan as "Health screenings in airports and border crossings" in Public Health Measure category.**



		Movement restrictions		
		Country	Date of Intervention	Date of first infection
More than a month before first case		Thailand	03-Jan	22-Jan
		United Arab Emirates	02-Jan	29-Jan
		Philippines	19-Jan	30-Jan
		Kuwait	20-Feb	24-Feb
		Switzerland	13-Feb	25-Feb
		Azerbaijan	29-Feb	01-Mar
		Ukraine	19-Feb	03-Mar
		Bosnia and Herzegovina	24-Feb	05-Mar
		Bangladesh	01-Mar	08-Mar
		Paraguay	07-Feb	08-Mar
		Trinidad and Tobago	03-Mar	14-Mar
		Uzbekistan	02-Mar	15-Mar
		El Salvador	11-Mar	19-Mar
		Cabo Verde	02-Mar	20-Mar
		Madagascar	10-Mar	20-Mar
		Botswana	13-Mar	30-Mar
		Yemen	14-Mar	10-Apr
Within a month before first case		Oman	04-Jan	24-Feb
		Lithuania	27-Jan	28-Feb
		Tunisia	25-Jan	04-Mar
		Panama	04-Jan	10-Mar
		Sudan	20-Jan	13-Mar
		Central African Republic	29-Jan	15-Mar
		Montenegro	04-Feb	17-Mar
		Kyrgyzstan	22-Jan	18-Mar
		Papua New Guinea	09-Feb	20-Mar
		Comoros	10-Mar	30-Apr
	Tajikistan	24-Feb	30-Apr	

Public health measures			
	Country	Date of Intervention	Date of first infection
More than a month before first case	Singapore	02-Jan	23-Jan
	Canada	25-Jan	26-Jan
	<b>India</b>	<b>25-Jan</b>	<b>30-Jan</b>
	Russian Federation	01-Jan	31-Jan
	Belgium	01-Feb	04-Feb
	Iran	28-Jan	19-Feb
	Israel	24-Jan	21-Feb
	Lebanon	16-Feb	21-Feb
	Croatia	24-Feb	25-Feb
	Iceland	24-Feb	28-Feb
	Armenia	31-Jan	01-Mar
	Dominican Republic	29-Feb	01-Mar
	Argentina	17-Feb	03-Mar
	Hungary	03-Feb	04-Mar
	Liechtenstein	26-Feb	04-Mar
	Slovenia	27-Feb	05-Mar
	Serbia	26-Feb	06-Mar
	Cyprus	07-Mar	09-Mar
	Burkina Faso	13-Feb	10-Mar
	Guinea	29-Feb	13-Mar
	Ethiopia	22-Feb	13-Mar
	Antigua and Barbuda	12-Feb	13-Mar
	Gabon	07-Mar	14-Mar
	Rwanda	27-Feb	14-Mar
	Eswatini	25-Feb	14-Mar
	Ghana	06-Mar	14-Mar
	Guatemala	12-Mar	14-Mar
	Saint Vincent and the Grenadines	21-Feb	14-Mar
	Equatorial Guinea	14-Mar	15-Mar
	Somalia	12-Mar	16-Mar
	Benin	03-Mar	16-Mar
	Liberia	09-Mar	16-Mar
	Tanzania	25-Feb	16-Mar
	Zambia	24-Feb	18-Mar
	Chad	08-Mar	19-Mar
	Fiji	07-Mar	19-Mar
	Nicaragua	11-Mar	19-Mar
	Haiti	06-Mar	20-Mar
	Zimbabwe	12-Mar	20-Mar
	Eritrea	03-Mar	21-Mar
	Uganda	07-Mar	21-Mar
	Mozambique	13-Mar	22-Mar
	Grenada	01-Mar	22-Mar
	Libya	24-Feb	24-Mar
	Guinea-Bissau	11-Mar	25-Mar
	Burundi	06-Mar	31-Mar
	Within a month before first case	Afghanistan	24-Jan
Dominica		24-Jan	01-Mar
Indonesia		26-Jan	02-Mar
Morocco		25-Jan	02-Mar
Latvia		31-Jan	02-Mar
Poland		31-Jan	04-Mar
Bhutan		29-Jan	06-Mar
Malta		19-Jan	07-Mar
Bulgaria		03-Jan	08-Mar
Albania		24-Jan	09-Mar
Mongolia		01-Jan	10-Mar
Turkey		24-Jan	11-Mar
Guyana		26-Jan	12-Mar
Mauritania		29-Jan	14-Mar
Seychelles		29-Jan	14-Mar
Suriname		06-Feb	14-Mar
Saint Lucia		23-Jan	14-Mar
Bahamas		22-Jan	16-Mar
Barbados		22-Jan	17-Mar
Djibouti		26-Jan	18-Mar
Mauritius		02-Feb	18-Mar
Angola		06-Feb	20-Mar
Timor-Leste		22-Jan	22-Mar
Belize		23-Jan	23-Mar
Sierra Leone		19-Feb	31-Mar
South Sudan		20-Feb	05-Apr

3

Social distancing			
	Country	Date of Intervention	Date of first infection
More than a month before first case	Saudi Arabia	27-Feb	02-Mar
	Kazakhstan	05-Mar	13-Mar
	Kenya	03-Mar	13-Mar

4

Governance and socio-economic measures			
	Country	Date of Intervention	Date of first infection
More than a month before first case	United States of America	21-Jan	22-Jan
	China	20-Jan	22-Jan
	Italy	22-Jan	31-Jan
	Pakistan	12-Feb	26-Feb
	Syria	13-Mar	22-Mar
	Saint Kitts and Nevis	09-Mar	25-Mar
	Sao Tome and Principe	02-Apr	06-Apr
Within a month before first case	Cuba	28-Jan	12-Mar
	Gambia	01-Feb	17-Mar
	Mali	04-Jan	25-Mar
	Malawi	05-Jan	02-Apr

For none of the countries, lockdown was the first measure adopted. But it is interesting to note that there are three countries that have resorted to partial lockdown before first case of Covid-19 arose:

5

Lockdown			
	Country	Date of Intervention	Date of first infection
More than a month before first case	Iran	31-Jan	19-Feb
	El Salvador	11-Mar	19-Mar
	Fiji	15-Mar	19-Mar

Only one country adopting humanitarian exemption before first case:

6

Humanitarian exemption			
	Country	Date of Intervention	Date of first infection
More than a month before first case	South Sudan	23-Mar	05-Apr

### Insights:

- From intervention database as of end of April, it can be concluded that there is no lockdown measure taken by the United States of America.
- Only 32 countries over the world have taken to full lockdown (India, Italy and Spain being among them).
- China has taken to only partial lockdown.

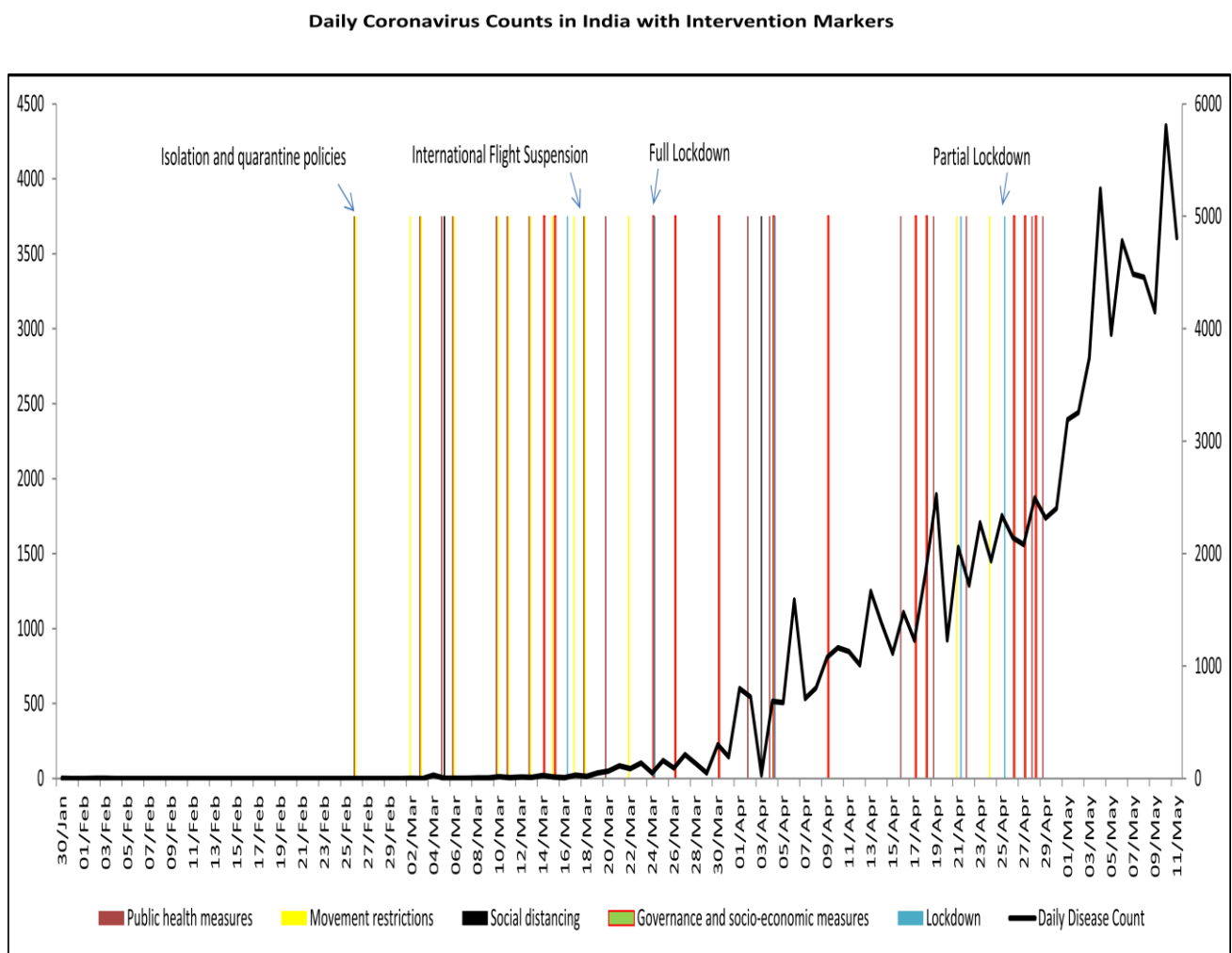
- **Following is the list of countries which reacted after first Covid-19 case divided into two sections - within a month and more than a month after.** It is interesting to note that countries like Spain and United Kingdom have stepped forward with an intervention more than a month after the first Covid-19 case.

	Country	Category	Date of Intervention	Date of first Infection
	Japan	Public health measures	28-Jan	22-Jan
	Viet Nam	Public health measures	23-Jan	23-Jan
	France	Governance and socio-economic measures	13-Feb	24-Jan
	Malaysia	Governance and socio-economic measures	20-Feb	25-Jan
	Australia	Governance and socio-economic measures	17-Feb	26-Jan
	Germany	Public health measures	06-Feb	27-Jan
	Cambodia	Movement restrictions	19-Feb	27-Jan
	Sri Lanka	Public health measures	24-Feb	27-Jan
	Sweden	Governance and socio-economic measures	01-Feb	31-Jan
	Bahrain	Social distancing	26-Feb	24-Feb
	Iraq	Movement restrictions	26-Feb	24-Feb
	Algeria	Public health measures	05-Mar	25-Feb
	Austria	Movement restrictions	10-Mar	25-Feb
	Norway	Public health measures	05-Mar	26-Feb
	Brazil	Public health measures	07-Mar	26-Feb
	Greece	Public health measures	09-Mar	26-Feb
	Romania	Movement restrictions	09-Mar	26-Feb
	Georgia	Movement restrictions	15-Mar	26-Feb
	Denmark	Governance and socio-economic measures	27-Feb	27-Feb
	Netherlands	Public health measures	06-Mar	27-Feb
	San Marino	Movement restrictions	08-Mar	27-Feb
	Estonia	Public health measures	11-Mar	27-Feb
	Belarus	Governance and socio-economic measures	12-Mar	28-Feb
Within a month after	New Zealand	Governance and socio-economic measures	12-Mar	28-Feb
	Niger	Public health measures	13-Mar	28-Feb
	Nigeria	Public health measures	13-Mar	28-Feb
	Mexico	Social distancing	14-Mar	28-Feb
	Luxembourg	Public health measures	29-Feb	29-Feb
	Qatar	Public health measures	06-Mar	29-Feb
	Ireland	Public health measures	12-Mar	29-Feb
	Ecuador	Movement restrictions	02-Mar	01-Mar
	Portugal	Movement restrictions	10-Mar	02-Mar
	Senegal	Public health measures	14-Mar	02-Mar
	Chile	Movement restrictions	10-Mar	03-Mar
	Jordan	Public health measures	14-Mar	03-Mar
	South Africa	Governance and socio-economic measures	10-Mar	05-Mar
	Cameroon	Movement restrictions	07-Mar	06-Mar
	Slovakia	Governance and socio-economic measures	10-Mar	06-Mar
	Peru	Public health measures	11-Mar	06-Mar
	Colombia	Movement restrictions	12-Mar	06-Mar
	Costa Rica	Governance and socio-economic measures	14-Mar	06-Mar
	Togo	Governance and socio-economic measures	16-Mar	06-Mar
	Maldives	Movement restrictions	08-Mar	08-Mar
	Honduras	Movement restrictions	11-Mar	11-Mar
	Bolivia	Public health measures	14-Mar	11-Mar
	Jamaica	Movement restrictions	14-Mar	11-Mar
	Uruguay	Public health measures	13-Mar	13-Mar
	Namibia	Movement restrictions	14-Mar	14-Mar
	Venezuela	Movement restrictions	15-Mar	14-Mar
More than a month after	Nepal	Public health measures	05-Mar	25-Jan
	Finland	Movement restrictions	07-Mar	29-Jan
	United Kingdom	Public health measures	11-Mar	31-Jan
	Spain	Social distancing	03-Mar	01-Feb
	Egypt	Social distancing	15-Mar	14-Feb

## A study of interventions in India:

Following is a graphical representation of the measures adopted by the Indian Governments colour coded according to the category of the measure. Here days are presented from the first Covid-19 case i.e. from 30<sup>th</sup> Jan till 11<sup>th</sup> May 2020.

- The first measure was taken on 25<sup>th</sup> Jan with health screening at airports and border crossings, which is not included in the picture.
- After the first Covid-19 case among the initial policies undertaken were isolation and quarantine policies under Public Health Measures.
- Full Lockdown was imposed on 24<sup>th</sup> March after which there were measures of partial lockdown taken towards end of April.



**Appendix:** The detailed intervention list for India is noted in a table in the next page, ordered with respect to date of implementation. Data is as of April end.



CATEGORY	MEASURE	DATE_IMPLEMENTED	ACTION_TYPE
Public health measures	Health screenings in airports and border crossings	25-Jan	before
Public health measures	Strengthening the public health system	25-Jan	before
Public health measures	Isolation and quarantine policies	26-Feb	after
Public health measures	Isolation and quarantine policies	26-Feb	after
Movement restrictions	Visa restrictions	26-Feb	after
Movement restrictions	Visa restrictions	02-Mar	after
Movement restrictions	Visa restrictions	03-Mar	after
Public health measures	Health screenings in airports and border crossings	03-Mar	after
Public health measures	Health screenings in airports and border crossings	05-Mar	after
Social distancing	Limit public gatherings	05-Mar	after
Movement restrictions	Visa restrictions	06-Mar	after
Public health measures	Health screenings in airports and border crossings	06-Mar	after
Movement restrictions	Additional health/documents requirements upon arrival	10-Mar	after
Public health measures	Isolation and quarantine policies	10-Mar	after
Movement restrictions	Visa restrictions	10-Mar	after
Public health measures	General recommendations	10-Mar	after
Public health measures	Isolation and quarantine policies	11-Mar	after
Movement restrictions	Border checks	11-Mar	after
Movement restrictions	Visa restrictions	13-Mar	after
Public health measures	Isolation and quarantine policies	13-Mar	after
Movement restrictions	Border closure	13-Mar	after
Public health measures	Health screenings in airports and border crossings	13-Mar	after
Governance and socio-economic measures	Emergency administrative structures activated or established	14-Mar	after
Governance and socio-economic measures	Economic measures	15-Mar	after
Movement restrictions	Border closure	15-Mar	after
Movement restrictions	Border closure	15-Mar	after
Lockdown	Partial lockdown	16-Mar	after
Movement restrictions	International flights suspension	17-Mar	after
Public health measures	Isolation and quarantine policies	18-Mar	after
Movement restrictions	Visa restrictions	18-Mar	after
Public health measures	Isolation and quarantine policies	20-Mar	after
Public health measures	Testing policy	20-Mar	after
Movement restrictions	International flights suspension	22-Mar	after
Lockdown	Full lockdown	24-Mar	after
Governance and socio-economic measures	Economic measures	24-Mar	after
Governance and socio-economic measures	Economic measures	26-Mar	after
Governance and socio-economic measures	Economic measures	26-Mar	after
Governance and socio-economic measures	Economic measures	30-Mar	after
Public health measures	Strengthening the public health system	02-Apr	after
Social distancing	Limit public gatherings	03-Apr	after
Social distancing	Limit public gatherings	03-Apr	after
Lockdown	Partial lockdown	04-Apr	after
Governance and socio-economic measures	Economic measures	04-Apr	after
Public health measures	Awareness campaigns	04-Apr	after
Governance and socio-economic measures	Economic measures	09-Apr	after
Public health measures	Other public health measures enforced	16-Apr	after
Governance and socio-economic measures	Military deployment	17-Apr	after
Governance and socio-economic measures	Economic measures	18-Apr	after
Public health measures	Strengthening the public health system	19-Apr	after
Movement restrictions	Surveillance and monitoring	21-Apr	after
Lockdown	Partial lockdown	21-Apr	after
Public health measures	General recommendations	22-Apr	after
Movement restrictions	Surveillance and monitoring	24-Apr	after
Lockdown	Partial lockdown	25-Apr	after
Governance and socio-economic measures	Economic measures	26-Apr	after
Governance and socio-economic measures	Economic measures	27-Apr	after
Public health measures	Isolation and quarantine policies	28-Apr	after
Governance and socio-economic measures	Economic measures	28-Apr	after
Governance and socio-economic measures	Economic measures	28-Apr	after
Public health measures	Strengthening the public health system	29-Apr	after
Public health measures	Awareness campaigns	29-Apr	after
Social distancing	Schools closure	Date not known	
Public health measures	General recommendations	Date not known	
Governance and socio-economic measures	Economic measures	Date not known	
Public health measures	Testing policy	Date not known	
Public health measures	Isolation and quarantine policies	Date not known	