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- **Germany's federal government once-in-a-century decision on vaccinations is partly contradictory.**
- **The government's concept provides for a haphazard, torpid process with significant issues concerning the prioritization of vaccine recipients.**
- **The current vaccination strategy significantly hinders an economic recovery in Germany and the EU.**

Corona vaccination regulation: Vaccination schedule in Germany contradictory and flawed

The strategy of how to roll-out a major vaccination program is an historic policy decision; however, the public have been provided with little in the way of clear, comprehensible information and analysis to date – the following contribution is intended to close this gap.

With resources for a major vaccination program and indeed doses of the vaccination itself still scarce in the early days of 2021, questions arise with regard to the order in which people shall be vaccinated and urgency with which the vaccination program should proceed – the time available in the second half of December 2020 has been needlessly squandered by politicians due to the unnecessarily protracted process of approval by the European Medicines Agency, which initially intended to approve vaccines for us by 29 December 2020, but this date was eventually brought forward to 21 December. For an assessment of the sequencing of recipients of the vaccination, there are various criteria which must be considered which can be weighted differently. Regarding the necessary criteria, the Research Service of the German Bundestag (2020) argued as follows (translation PJJW): “the parliament **itself must make the essential decisions in terms of the vaccination regulation according to the doctrine of materiality, i.e., it must not leave the decision to the executive; that the parliament itself has no expertise here, for example in questions concerning the prioritization of various vaccination recipient groups, can be denied.** The state has a monopoly role in the distribution of vaccines and must therefore, in order to observe the general principle of

equality, make sovereign allocation decisions in a comprehensibly objective manner and thus guided by reasonable criteria.”

If the draft bill follows the priority list of the Standing Commission on Vaccination and in fact divides the population into those who are deemed “higher priority”, i.e., the over-60s plus key medical workers as well as some small subgroups on the one hand, and the lowest priority group of the under-60s on the other, this is indeed a possible strategy - but one that Parliament itself would have to examine critically. It would have to be considered problematic that the **probability of infection of the under 60-year-olds is above average**, but this is **not taken into account at all for the prioritization decisions for the order of vaccination groups**. However, according to the draft bill on the vaccination regulation, this is the case and thus unacceptable. By commissioning a list based on a joint proposal of the Standing Committee on Vaccination of the Robert Koch Institute (RKI) and the Leopoldina (German National Academy of Natural Sciences) which recommends the prioritization of recipients in the vaccination regulation, the federal government has practically established a technocratic government – in neither the scientific sphere nor in the democratic institutions of government are the proposals really being discussed. **This procedure undermines democracy** as a side effect of the political economy of the Corona pandemic.

From an epidemiological-socio-economic point of view, however, the question must be asked in any case:

- How can the **intensity of infection, or the frequency of infection as well as the probability of death, be minimized during the vaccination program**; for this purpose, it would have to be taken into account that the intensity of infection from person A to persons B, C etc. in the occupationally active group aged 65 years and under (or even under 60 years of age) is higher than, for example, that of the over 65-year-olds (or the over 60-year-olds), while the mortality rate amongst the older population group is significantly higher than that of the younger one. Current epidemic models usually do not consider group-differentiated incidence of infection, which is also the case for the Robert Koch Institute. This, in turn, distorts the recommendations of the Standing Committee on Vaccination (STIKO) on the order of age groups: There is no meaningful optimal recommendation of the STIKO; in the draft bill of government for the vaccination program, the priority list of the STIKO is adopted entirely. This means that the working population majority of 45 million (**Group 6 in the STIKO ranking**) will be vaccinated at the very end as the **alleged general lowest priority group and the possibility of an immediate benefit from vaccinations being administered within businesses is ignored**. These vaccination resources or company vaccination centers are thus completely omitted from the initial vaccination phase, which unnecessarily slows down the overall process of vaccination and makes it relatively inefficient. After all, people in Group 6 - millions of workers - would be relatively easy to reach for vaccination via workplace vaccination drives. For the **majority of the electorate or population, the STIKO vaccination priority list is thus a document of hopelessness**.
- For the success of the national Corona vaccination campaign, it is essential that a **high vaccination rate is realized - about 60-65% are considered necessary - so that herd immunity is achieved**. To achieve this critically high minimum vaccination rate, a turbocharged vaccination campaign within a relatively short period of time - with parallel information campaigns from policymakers and public health departments - is likely to be required. The Welfens proposal of 14 December 2020 ([link](#)) for a **90-day vaccination strategy** can be assessed more favorably than the protracted vaccination program over almost a whole year as is obviously planned by the federal government.

If one follows the **overview of the Standing Committee on Vaccination** with regard to the six risk groups identified by it, then there is a priority Group 1 comprised of the over 80-year-olds as well as the **senior home residents and medical personnel**, which corresponds to 8.6 million people for Group 1 in total; for this, 15.2 million vaccine doses would be necessary in the first quarter, which, however, are not available - at least not the BioNTech/Pfizer vaccine (certainly not if it is required that 8.6 million people be vaccinated in one month). There can be little doubt about this priority for the national Corona vaccination: **A 100% immediate vaccination of medical personnel** is appropriate in the first month of vaccinations, which already consumes 2 million vaccine doses, since vaccination must be done in two stages with two separate

doses. For the 5.4 million people over 80 years of age, it should be considered to offer 70% vaccination in the first month, 30% in the second month; a lottery selection procedure is conceivable (the federal government, on the other hand, wants to vaccinate by order down the age pyramid, which is not appropriate).

From the **point of view of the European Commission**, which dealt with ranking questions on Corona vaccination before the German government did, it was important that the issue should be decided on the basis of a **double criterion in the context of saving as many lives as possible**:

- "...the **protection of the most vulnerable groups and individuals**.
- As well as slowing and eventually **stopping the spread of the disease**."

In this regard, the **European Commission** (2020) bases its priority approach on considerations of the World Health Organization (WHO) Strategic Advisory Council on Immunization Issues of Sept. 14, 2020 (Orientation Framework for Allocation and Prioritization, WHO, 2020); furthermore, in the final report of the National Academies of Sciences, Engineering, and Medicine a four-phase allocation framework was found to be recommendable for the United States (NSA, 2020; for a broader discussion, see also CASSEL/ULRICH, 2020). The German government and the STIKO, respectively, emphasize only the first aforementioned point, **while questions of slowing and stopping the spread of the disease are left out** - for example, in the **draft bill** for the Vaccination Regulation it is unclear which strategy or vaccination acceleration procedure (or other mechanism) is to be used to rapidly achieve a high level of herd immunity in Germany. Moreover, it is **unclear whether available vaccines prevent the infection of other people**.

For the under-60 group - 45 million people - ranked as the lowest priority, about 10% should be vaccinated immediately, i.e., in the first month, including in **large businesses** as an additional workplace vaccination center (members of the police and fire departments would probably be added in the first month). Finally, the **over-60s** would **also** like to be **visited by – and, if possible, vaccinated - people of working age**. Generally, of course, there is a serious but not insurmountable problem of vaccine equity, and the economic effects of alternative vaccination strategies must also be considered; as well as the goal of rapidly achieving herd immunity, which requires a critically high national vaccination rate.

Criticism: Only a rapid vaccination program with extensive coverage in 90 days will bring a high mobilization effect due to the high visibility of the time-focused vaccination campaign and therefore contribute to a high vaccination rate. In addition, a 90-day vaccination approach will mean that the economy will recover much faster and more strongly than would be the case of the **outlandish RKI approach** of late November 2020, which assumes 100,000 vaccinations per day – a rate which would mean 18 months vaccinations for Germany. Such a slow vaccination schedule is socially, medically, politically and economically unacceptable. The unnecessary delay to the start of the vaccination program, due to the approval procedure for the Corona vaccine which was subject to EU approval by the EU's EMA, has caused thousands of unnecessary deaths in Germany alone. The RKI scenario versus the 90-day vaccination scenario proposed here also means at least a 1% loss in national income, or €34 billion in lost income - including €13 billion in lost tax and social insurance revenues. **By contrast, the 90-day vaccination approach is efficient!**

According to the empirical **study of BRETSCHGER/GRIEG/WELFENS/XIONG (2020)**, the **Covid-19 mortality rate is significantly higher in regions with high particulate matter (PM 2.5) in the air in OECD countries**, and this raised mortality effect can be expected for Germany's regions with high PM 2.5 pollution here. **This leads to the demand for a corresponding additional regional prioritization**, on which one sees nothing from the federal government in Berlin.

Compared to the 90-day vaccination approach proposed here, the RKI approach means that there will probably be at least **15,000 unnecessary Covid-19 deaths in Germany**. If only 100,000 vaccinations per day were administered, this would also mean that Germany would still be the source and multiplier country for thousands upon thousands of infections abroad and also for many deaths, especially in EU partner countries, in the middle of the internationally very **contact-intensive summer season**. This must be avoided at all costs, whereby German responsibility must indeed be demonstrated here, especially for Germany's nine neighboring countries. A rapid rate of vaccination coverage throughout the EU is highly desirable.

One bottleneck in the previous planning by the federal government and the individual German states is, amongst other things, the vaccination centers, whereby one needs about a doubling in the number of vaccination centers compared to the number planned in November 2020; and **the immediate inclusion of the large companies** as temporary, workplace vaccination centers. If we immediately start vaccinating 10% of the under-60s in the first month, this would be a psychologically important impulse for **regaining optimism about life, stimulate consumption and travel** in the largest segment of the population. That there is zero priority for the under-60s from the government's perspective (thus also ruling out the option of company vaccination centers for the time being) is unacceptable, since the age-related infection frequency issues are thus inappropriately ignored. The fact that Karl Lauterbach, of all people, completely rejected such a role for workplace vaccination centers in an interview on TV on 15 December, 2020, is very surprising, since this group of people, i.e. the under 60s, represents the largest **segment of the workforce**.

In the second month, 20% of this group should be vaccinated, and in the third month 50% - with a few remaining days of vaccination in the first half of the fourth month for the final residual vaccinations. However, all this presupposes that the government **buys or has produced sufficient quantities of vaccine doses**. Here, there have apparently been very significant deficits so far in Berlin, **where the Minister of Health is also partly responsible for the unnecessarily slow-paced approval process of the EMA**.

The German government's decision of December 18, 2020, says that the last group (majority of the population) to get the Corona vaccination cannot expect a vaccination before the end of 2021. This is unacceptable. The number of life years lost in the younger age groups of society are particularly high in the case of Corona fatalities. The rather high infection rate of the age group <60 years of age should also be considered.

In the interest of **global vaccination justice**, it should be possible to vaccinate health personnel in all countries of the world immediately during the first vaccination month - January 2020. If necessary, Germany and the EU would also have to provide vaccine doses to poorer countries. The global Corona vaccination can become an event that **promotes international solidarity plus efficiency thinking worldwide. Poor national vaccination plans that hamper recovery in the North, incidentally, also harm the South of the world economy in the economic catch-up process.**

According to *Göpel TS* of 16 December, 2020, based on Johns Hopkins University analyses, **23% of the world's population** cannot be vaccinated **until 2022** using the current production capacities for vaccines. This is unacceptable and it is the task of the G20/UN to cover the world demand for 2021.

Box 1: Corona Vaccination Prioritization

Corona vaccination prioritization according to the Standing Commission on Vaccination

- 1) Very high: residents of retirement and nursing homes; persons aged >80 years, medical/nursing staff (total: 8.6 million people).
- 2) Persons aged >75-80 years & certain disease groups & part of staff in medical facilities (>6.7 million people).
- 3) Persons aged >70-75 years and those with pre-existing conditions, asylum seeker housing, Public Health Service personnel, etc. (>5.5 million people).
- 4) Persons aged 65-70 years, teachers, educators, persons with precarious working and/or living conditions (>6.9 million people).
- 5) Persons aged >60-65 years, key personnel in state and federal government, and critical infrastructure professionals - e.g., firefighters, armed forces, police, public transport, waste management, etc. (9 million people).
- 6) All other persons aged <60 years. (ca. 45 million).

Source: Own representation based on the STIKO table on the priority groupings to receive the vaccination in Germany (for more information, see full table in attachment)

See for a COVID-19 analysis for 104 countries:

Bretschger, L.; Grieg, E.; Welfens, P.J.J.; Xiong, T. (2020), COVID-19 infections and fatalities developments: empirical evidence for OECD countries and newly industrialized economies, *International Economics and Economic Policy*, 17, 801–847 <https://doi.org/10.1007/s10368-020-00487-x> (Note: This paper was ranked in the top 25% of all research outputs as scored by Altmetric: <https://nature.altmetric.com/details/92427517#score>)

See also the press release of EIIW/Welfens (14.12.2020): Corona vaccination planning Germany: Much too slow and nonsensical, <https://eiiw.wiwi.uni-wuppertal.de/fileadmin/eiiw/Daten/Presse/2020/PMjourCoronaImpfung2020EIIWWelfensDez.pdf> (in German)

Further references:

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CASSEL, D.; ULRICH, V. (2020); Prioritization of corona vaccination, University of Duisburg-Essen, Discussion paper.

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STIKO (2021), Mitteilung der Ständigen Impfkommision am Robert Koch-Institut, Beschluss der STIKO für die Empfehlung der COVID-19-Impfung und die dazugehörige wissenschaftliche Begründung, Epidemiologisches Bulletin, 2021 (online first) https://www.rki.de/DE/Content/Infekt/EpidBull/Archiv/2021/Ausgaben/02_21.pdf?__blob=publicationFile

WELFENS, P.J.J. (2020), Corona World Recession, Heidelberg: Springer (See Chap. 31 on Immunization Issues), <https://www.springer.com/gp/book/9783658313852>

WHO (2020), WHO SAGE - Strategic Advisory Group of Experts on Immunization - values framework for the allocation and prioritization of COVID-19 vaccination https://apps.who.int/iris/bitstream/handle/10665/334299/WHO-2019-nCoV-SAGE_Framework-Allocation_and_prioritization-2020.1-eng.pdf (last accessed 17.12.2020)

**Table 1: STIKO Table (STIKO is permanent vaccination expert group in Germany):
Vaccination-target groups, priority for a vaccination and size of the various groupings**

Priority	Group	N (Mio.)
Very high	• Residents of nursing home and elderly care facilities	1,0*
	• Persons aged ≥ 80 years	5,4*
	• Personnel with a very high exposure risk in medical facilities (e.g. emergency rooms, involved in the medical care of COVID-19 patients)	1,0
	• Personnel in medical facilities with close contact to vulnerable groups (e.g. in haematology or involved in organ transplants).	?
	• Personnel involved in providing outpatient or inpatient care to elderly patients	1,2*
	• Personnel responsible for other duties and tasks in elderly care facilities and nursing homes with contact in to the residents	?
	Total	
High	• Persons aged > 75-80 years	4,1*
	• Personnel with a high exposure risk in medical facilities	1,0~
	• Persons suffering from dementia or mental disability resident in a care institution	> 1,6§
	• Personnel involved in providing outpatient or inpatient care to those with dementia or mental disabilities	?
Total		> 6,7
Moderate	• Persons aged ≥ 70-75 years	3,6*
	• Persons with pre-existing conditions with high risk and their closest contact person	?
	• Persons in asylum-seeker accommodation	0,26*
	• Persons in accommodation for the homeless	0,041*
	• Close contact persons of pregnant persons	0,76*
	• Personnel with a moderate exposure risk in medical facilities and in relevant positions for sustaining hospital and institutional infrastructure	0,8~
	• Personnel in the public health service	0,017&
Total		> 5,5
Moderate High	• Persons aged ≥ 65-70 years	4,8*
	• Persons with pre-existing conditions with a moderate risk and their closest contact person	?
	• Personnel with a low exposure risk in medical facilities	0,3~
	• Teachers	0,8*
	• Childcare providers	> 0,6*
	• Persons in precarious work and/or living situations (e.g. seasonal workings, workers in distribution or logistic centers, workers in the meat processing industry)	> 0,4~
Total		> 6,9
Moderate Low	• Persons aged ≥ 60-65 years	5,5*
	• Personnel in key positions in state-level or federal government	?
	• Personnel employed in retail	3,1*
	• Personnel work in critical infrastructure/system relevant (e.g. fire department, army, police, public transport, waste removal, etc.)	0,8%§
Total		9
Low	• All other persons aged < 60 years	45,0*

Source: Based on STIKO (2021), Table 15, p. 48. Note: The estimated figures for the population breakdown are guidelines figures only – firstly, there will be some overlaps between the various groups and, secondly, data on more exact figures for each of the groups above are not available.

Table 2: Fatality rate (1) and infection rate (2), cumulative deaths (3) and cases (4) of OECD countries by 13th December 2020.

ranked by fatality rate in (1)	Location	Iso3	(1) total_deaths_ per_mn	(2) total_cases _per_mn	(3) total_deaths	(4) total_cases
1	Belgium	BEL	1548.89	52472.57	17951	608137
2	Italy	ITA	1067.12	30493.82	64520	1843712
3	Spain	ESP	1018.59	37013.86	47624	1730575
4	Slovenia	SVN	992.34	46328.60	2063	96314
5	United Kingdom	GBR	946.69	27317.71	64267	1854490
6	United States	USA	903.82	49102.99	299168	16253219
7	Czechia	CZE	890.37	54074.14	9535	579079
8	France	FRA	888.80	37237.34	58015	2430612
9	Mexico	MEX	883.82	9695.32	113953	1250044
10	Chile	CHL	831.02	29918.01	15886	571919
11	Colombia	COL	767.51	28020.70	39053	1425774
12	Sweden	SWE	744.01	31695.16	7514	320098
13	Hungary	HUN	720.99	29025.86	6965	280400
14	Switzerland	CHE	691.54	43194.40	5985	373831
15	Luxembourg	LUX	626.22	65106.33	392	40755
16	Poland	POL	604.12	30007.34	22864	1135676
17	Netherlands	NLD	591.42	36391.69	10134	623567
18	Portugal	PRT	545.18	34201.63	5559	348744
19	Austria	AUT	496.65	35803.76	4473	322463
20	Ireland	IRL	430.15	15428.95	2124	76185
21	Canada	CAN	356.39	12305.68	13451	464443
22	Greece	GRC	347.79	11947.93	3625	124534
23	Israel	ISR	346.48	41265.59	2999	357176
24	Lithuania	LTU	299.38	34199.50	815	93101
25	Germany	DEU	263.85	16122.54	22106	1350810
26	Slovakia	SVK	215.22	24357.64	1175	132984
27	Turkey	TUR	194.66	21777.90	16417	1836728
28	Latvia	LVA	185.03	13612.01	349	25675
29	Denmark	DNK	162.46	19043.70	941	110305
30	Estonia	EST	112.32	13610.61	149	18055
31	Iceland	ISL	82.05	16284.25	28	5557
32	Finland	FIN	81.76	5560.65	453	30810
33	Norway	NOR	71.39	7563.40	387	41003
34	Australia	AUS	35.61	1099.49	908	28037
35	Japan	JPN	19.62	1428.24	2481	180639
36	South Korea	KOR	11.45	848.15	587	43484
37	New Zealand	NZL	5.18	434.65	25	2096

Source: Own presentation of data available from Our World In Data

Table 3: Fatality rate (1) and infection rate (2), cumulative deaths (3) and cases (4) of EU27, UK, US, and China by 13th December 2020.

ranked by fatality rate in (1)	location	Iso3	(1) total_deaths _per_mn	(2) total_cases_per_ mn	(3) total_deaths	(4) total_cases
1	Belgium	BEL	1548.89	52472.57	17951	608137
2	Italy	ITA	1067.12	30493.82	64520	1843712
3	Spain	ESP	1018.59	37013.86	47624	1730575
4	Slovenia	SVN	992.34	46328.60	2063	96314
5	United Kingdom	GBR	946.69	27317.71	64267	1854490
6	United States	USA	903.82	49102.99	299168	16253219
7	Czechia	CZE	890.37	54074.14	9535	579079
8	France	FRA	888.80	37237.34	58015	2430612
9	Bulgaria	BGR	818.60	25825.78	5688	179449
10	Sweden	SWE	744.01	31695.16	7514	320098
11	Hungary	HUN	720.99	29025.86	6965	280400
12	EU27	EU2020	699.69	29804.33	311306	13260515
13	Romania	ROU	695.77	28919.03	13385	556335
14	Croatia	HRV	643.08	42843.97	2640	175886
15	Luxembourg	LUX	626.22	65106.33	392	40755
16	Poland	POL	604.12	30007.34	22864	1135676
17	Netherlands	NLD	591.42	36391.69	10134	623567
18	Portugal	PRT	545.18	34201.63	5559	348744
19	Austria	AUT	496.65	35803.76	4473	322463
20	Ireland	IRL	430.15	15428.95	2124	76185
21	Malta	MLT	382.75	25259.38	169	11153
22	Greece	GRC	347.79	11947.93	3625	124534
23	Lithuania	LTU	299.38	34199.50	815	93101
24	Germany	DEU	263.85	16122.54	22106	1350810
25	Slovakia	SVK	215.22	24357.64	1175	132984
26	Latvia	LVA	185.03	13612.01	349	25675
27	Denmark	DNK	162.46	19043.70	941	110305
28	Estonia	EST	112.32	13610.61	149	18055
29	Cyprus	CYP	89.05	17240.57	78	15101
30	Finland	FIN	81.76	5560.65	453	30810
31	China	CHN	3.30	65.54	4751	94328

Source: Own presentation of data available from Our World In Data