

Dear Dr Redfield (CDC), President Trump and the WH task force:

Recent ACIP allocation proposal changed the expected priority of vaccination. I ran thru a model to compare the new ACIP priority order with what I thought was going to be the CDC approach. At week 24:

ACIP Plan approx 160,000 Deaths

Original CDC plan (AGE): 100,000

If governors go with ACIP proposal, we will be sacrificing our lives:

About 60,000 more lives lost using new plan

What!!?

The ACIP plan calls for delaying the vaccine to seniors, who have the highest death rates, to give priority to vaccinating tens of millions of younger frontline and essential workers. This delay, will prolong high hospitalization and deaths for month(s), and, I'm thinking a little ahead here, but having that high risk population unprotected could now be a systemic risk as we start seeing the new faster spreading strain of the virus here in US. The >75 year age group followed by the 65-74 group have the highest associated hospitalization rates when they get the virus. While the faster spread dynamics will affect all who are not immune, these senior groups, left unprotected, could well put the, already over strained, hospital capacity into crisis.

I urge those in authority to review the ACIP decision to reprioritize millions of younger essential workers over seniors in light of death difference. If using the ACIP would likely result in even a fraction of that number extra deaths, then would also urge an adjustment to the plan!

Florida apparently decided against using the new ACIP priority and has started to vaccinate those over 65 now. That looks like a good choice to me and maybe some ideas below could make the approach even more effective.

The reprioritization appears to have come in under the added social justice goals of "Promoting justice" and "Mitigating health inequities" (See Appendix A). Some things like calling for outreach, and on-site vaccination of essential workers and making sure communities with limited health care access get the vaccine fell under these added goals as well. These are all good. No negative consequences in these.

Re-prioritization though is whole different story as is the level of consideration due to the potential consequences,

In this letter is also an idea/suggestion to use natural immunity and those plans - less nominal death and faster results. At the end of this letter, are some implementation notes and suggestions.

Surely, there are better options for priority order than the ACIP plan. I urge the CDC and governors to seek them and chose one. In this letter are some ideas and sample results using different priority

¹ 1/1/20 Added additional options to show results for the BEST and CASES plans using the priority AGE which moves essential workers into prior phase than their age, instead of using the more strict descending rate plan (RATE). See BwAGE and CwAGE.

1/2/20, 1/3/20 various edits

orders. The results show the effect of priority order, and highlight the magnitude of difference the order of vaccination will make in numbers of deaths that will take place before getting to herd immunity.

If you want to skip ahead to conclusions, maybe skip thru a couple pages to see the result table, and then find the label ****HERE**** below.

The model starts with ACIP phases, vaccine rollout amounts per week and current weekly deaths. It applies the vaccine by week to the phases in order. Each week the model applies the doses available that week to the population in the phase, lowering the death rate in that group for the next week. It also adjusts death rates overall assuming minor additional immunity in population will lower proportionally the spread rate and thus the death rate overall. Once all are vaccinated in a phase it moves onto the next phase and so on. Many vaccination orders were compared.

The model assumes all else being unchanged during the time. So these should be considered “nominal” results. This is high level rough model and also not a prediction of actual results that are influenced by human behaviors and reactions to environments changing. It is intended to help get a feel for the sensitivity of the priority decision in isolation from other factors. The numbers are probably in the ballpark, but I would use the numbers more in their relative-ness rather than absolute terms.

Obviously the best order to get through this with as little death as possible, and as fast as possible, is to vaccinate those who have the highest death rates first, then in order by rate from there.

This is what I thought the CDC approach was going to be, with the addition of vaccinating healthcare workers early on to ensure we keep the hospitals running and maybe prioritize some front-line workers along with or shortly after seniors. Did not think CDC envisioned that front line workers would significantly delay seniors.

I knew the results of making that priority change would not compare well in relative deaths, but after viewing the results of running the numbers, even I was struck by the magnitude.

A few things caused me to reevaluate the wise-ness of vaccinating younger people before seniors, even if they are healthcare or frontline workers. So much so, took a step back and really looked at the numbers and situation, now that things have changed with a vaccine available. That led me re-evaluate overall approach to the problem. Seeing the results in the tables below changed my mind, from prolonging in survival mode, to using the vaccine aggressively, effectively and all out, while lowering death rates ASAP. Note sure, but maybe seeing these options would change others minds as well. See ****TIME TO CHANGE MODUS OPERANDI?**** below.

Below is a table showing the major alternatives that I have heard people bat around and some new ones that use one level more of detail in the groups, to attain better results.

Note the addition of an idea to use natural immunity. It has been mentioned but have not heard any tangible move to actually use this fact yet from CDC, and not sure why not. Maybe did not think would make much difference? It is only my opinion, but made more difference than I thought it would, and it would be easy and virtually cost nothing to implement. Given we need to ration vaccine at the moment; I would suggest using it to augment the acquired natural immunity rather

than redundantly vaccinate people who are already almost surely are immune for now. They can get vaccinated later if it makes sense then. See BEST and CASES in the following table.

By week 19, theoretically we will have vaccinated approx 72% of population; the end point is week 24, all vaccinated if all vaccine is distributed, *and administered*, according to schedule in the ACIP presentation.

Things will change but all else being equal, this table, I think, fairly represents the fundamental underlying effect priority order will have, at least in relative terms.

When the deaths per week goes below 5000, we will be back to rate during summer and I am thinking can probably lift lock downs most places. This is could be major milestone goal. I added the week where we are <1000 deaths per week as another milestone.

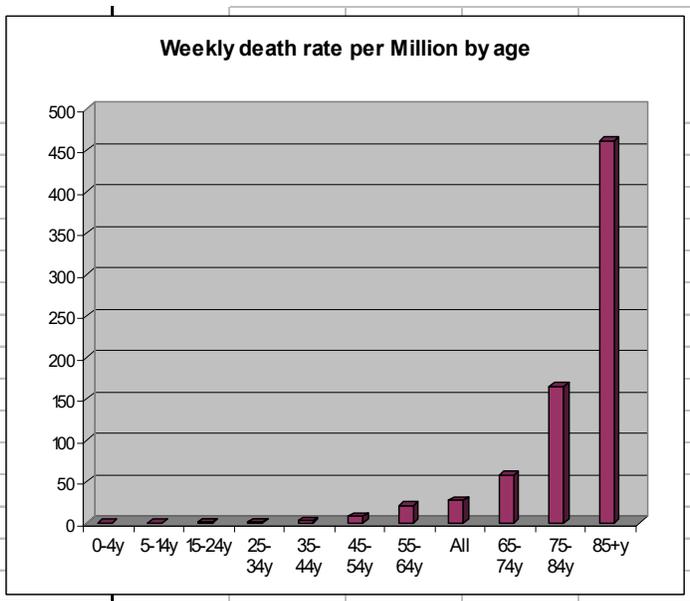
Plan	Description of alternate tactical priority plans	Wk D/wk <5000	Wk D/wk <1000	Deaths	Delta Lives saved	Lives saved
ACIP	Current ACIP proposal.	11	18	157,879		
ADJ	Adjust ACIP: Swap high death group, 65-74, with lower risk frontline workers. Older (>55yr) frontline workers remain in 1b	9	17	141,373	16,506	16,506
ADJ75	ACIP except: move 75+ into phase 1. Health care workers in 1 but younger wait til after 75+	10	18	119,347	22,027	38,533
AGE	Vaccinate primarily by age, including ADJ75+. Frontline workers in prior phase than their age	7	16	98,057	21,289	59,822
RATE	Strict order by death rate except HCP would have priority to vaccinate, if they want to, after the 75+	7	13	94,416	3,641	63,463
BEST	RATE plus take advantage of current natural immunity. Ask those who had the virus and others testing positive for antibodies to voluntarily wait. Maximizes impact of available vaccine	6	12	73,028	21,388	84,851
CASES	Same as BEST but do not try to find asymptomatic cases. Was thinking there may be doubt or push back that we could do this testing in practice.	7	13	86,464	(13,436)	71,415
BwAGE	BEST with AGE order (delta is from AGE)	6	14	75,992	22,065	81,888
CwAGE	CASES with AGE order	7	15	89,816	(16,788)	68,064

For detail of priority order see Appendix B

Tactic: Instill immunity to lower spread to avert deaths								
%Pop needed immunity			Week attained					
Herd immunity if need 70% pop			233	19				
Herd immunity if need 90% pop			300	22				
vs focus on averting deaths directly (AGE/BEST) rather than on both (ACIP)								
<i>Note, immunity builds at same rate as above tactic</i>								
<i>choice of plan determines how much death happens before we get there</i>								
			Death Rate			Week Attained		
			Current	18,756	ACIP	AGE	BEST	Difference in weeks
								AGE BEST
Reduce death rate by 70% from today			5,627		11.0	7.5	5.5	-3.5 -5.5
Reduce death rate by 90% from today			1,876		16.0	13.0	10.0	-3.0 -6.0
			<1000/wk		18.0	16.0	12.0	-2.0 -6.0
						Diff in Vaccine used		
Vaccine used for 70% death rate reduction					90	55	45	-35 -45
Vaccine used for 90% death rate reduction					160	107	80	-53 -80
			Deaths to herd immunity			Difference in Deaths		
					ACIP	AGE	BEST	AGE BEST
Estimated deaths if 70% herd immunity					157,034	98,034	72,930	-59,000 -84,104
								-38% -54%
Estimated deaths if 90% herd immunity					157,807	98,056	73,026	-59,750 -84,781
								-38% -54%

Age seemed to be by far the biggest risk factor, overshadows even co-morbidities. To get a feel for the vast differences by age here is the table of death rates by age.

Age	Pop(M)	Recent Avg Weekly Cvd Dths	Weekly Deaths per Million	12/23/20 Deaths using age prorate
0-4y	16	1	0.03	
5-14y	42	2	0.04	4
15-24y	43	10	0.22	20
25-34y	47	44	0.94	91
35-44y	42	112	2.65	233
45-54y	41	323	7.78	672
55-64y	43	902	20.94	1,879
All ages	333	8,999	27.02	18,756
65-74y	32	1,842	57.64	3,838
75-84y	16	2,671	164.86	5,567
85+y	7	3,095	461.56	6,451



The breakdown by age comes from the CDC Covid data trackers for averaged for weeks 10/17/20 through 11/21/20 as of 12/29/20. I used these over those in the ACIP because the relativity between ages has changed somewhat since the beginning due to different treatments and current may be slightly more reflective of state for going forward.

I am not sure if the ACIP quite had felt sense of the vastness of difference in death risk by age, so wanted to highlight visually and in numbers here. Plus it may be hard to see the full impact of the rate, so that is why I included the overall nominal death numbers by plan.

The high disparity in death rate by age is what causes such difference in overall deaths in the plans. For those younger than 55, the death rate is below the average and above that age it rises pretty quickly. Ages 75+ is off the scale, so I tried moving up before HCP. It made huge difference. There is not a huge population there so could get vaccinated in a week or two, I ended up putting 75+ first before younger healthcare workers. That alone made the largest difference of all the single “what ifs” I tried. And I tried quite a few.

It does make more sense to give more weight to being frontline versus not, to ensure they live and the system remains functioning. However, I do not think we are in extreme risk of not functioning except for hospital system. All the plans prioritize the healthcare workers in some manner. If there was no end in sight I would lean more towards the ACIP plan to help ease the burden on that group for the long haul. After looking at the numbers though, I do not think we are in a long haul situation anymore and that caused a shift in perspective and focus. Started looking at how quickly we could get through this and also reduce our risk from the incoming mutation.

Supply chains are functioning, not without some risk, but functioning. If someone gets the virus they will miss work but their risk of dying is very low, except for seniors and older workers. We have been functioning now for 9 months, so I don't think the “put your mask on first before saving others” at this point is exigent. By using that rule of thumb to mitigate social justice and show appreciation to the frontline workers we all feel, as opposed to using the rule only in an applicable situation, namely a situation when “needed to continue functioning” (which current situation does not really fall into, IMO), the ACIP, perhaps inadvertently, ended up advocating for a change in plan that ironically will result and perhaps allow even greater harm and risk to our system.

The ACIP plan allows the high hospitalization of seniors to continue, which means hospitals strained. General population is locked down to prevent that and protect against death which of course is happening in intolerable rates in seniors, and to some extent but order of magnitude less in other age groups. The lockdowns have cascaded into family and livelihood insecurity and not being able to take care of oneself or family nor able to pay bills, rents etc. Then, if they are homeowners, or the landlords missing those rents, they too are becoming more at risk of defaulting on loans as are the corporation and business that rely on consumers who are locked down; so far have averted massive defaults but they lurking out there and once the forbearance cracks, the flood will threaten the financial system; the fighting of the virus but more so the holding back of the resultant financial tidal wave incurred by the solution, “lockdown!”, has brought our whole economic and social systems to the brink. We are stretched as never before and the negative effects from the “solutions” upon solutions to problems created by the prior solutions are almost beyond comprehension; as are the trillions of dollars in deficit spending. I think we can/need to start doing a more judicious job of distributing deficit money and limited vaccine. We are giving both these to everyone when it is not needed by everyone.

The way I see it at this point, is that we are now more in a crisis of time and hospital capacity, than supply chains functioning. The latter have been working through the pandemic and still working. So it might make sense to use the vaccine to have the most impact on the virus effects on our system and cut our risk in a way that will benefit everyone, versus selectively protecting vast numbers of younger people in the system, that really don't need protection all that much.

That approach may sound like essential workers would lose something from the benefits they were all in mindset to receive after seeing the ACIP plan, but actually I think they may benefit more

within a few weeks with this other approach. See points 4, as well as some minor benefits to the younger groups in 2, 3, 5 and 7 below.

Besides the significant death averted by using an alternative plan, there are a couple of additional reasons why it would be good to get the vulnerable protected earlier than later:

- 1) less hospitalization stress
- 2) More hospital beds and doctors available for the rest of the population.
- 3) The sooner we can get hospitalization and deaths down again to tolerable levels, the sooner lockdowns will be lifted.
- 4) Working age people and school age people (0 to 54 year olds) appear to be experiencing large rates of excess deaths. Actually multiple times the excess death due to Covid. (if you do not know this from other sources, here is a table built from CDC data http://bysam4us.com/Covid/cvd_Age.html).

Perhaps it would be *better* for their well-being and health to get Covid down as fast as possible and the lockdowns off, versus, protecting them against the virus and letting, anxiety, depression, and, societal harm and dysfunction go on longer.

- 5) Younger and to large extent middle aged people do not have much risk, so forcing them to go into lockdown, destroying their livelihoods and putting their own families at risk to save others (strangers) is unfair in itself. It is a moral ask when the people needing protection cannot protect themselves. Many/most are going along for this reason (Thank you America), but not surprisingly this is getting less as time goes on. Once the vulnerable are vaccinated though that burden can be eased and the decision to take a risk is ethically back with the individual where it naturally belongs. Personal decision making is always better than government's. Government can only do broad general rules that do not account for the many combinations of situations that people face in their actual lives. Case in point, lockdowns took and are taking an axe to all aspects of people's lives, instead of a scalpel.
- 6) If we were not locked down, people could work again. And then massive bailouts would not be needed. People could pay their rents, buy food etc. And we could avert massive numbers of families becoming homeless. This issue should not be overlooked. I think we as a country really need to do everything in our power to stop the lockdowns ASAP. Getting the hospitalization rate down to tolerable level is probably the major thing holding that up. Again, vaccinate seniors first.
- 7) I just don't think it is practical or helpful to think we can and to try to forcibly to hold down the people much longer, especially the younger folks. Many are already out there without masks or social distancing, spreading more. Altruism can only go so far for so long. The intractable truth is they are not at risk and not directly experiencing the negative consequences of their behavior, which is what provides the greatest impetus for people to alter their behavior. I think we need to come to terms with the fact that relaxation of social distancing is only getting worse. We have tried everything: pleading, lockdowns, bubbles, masks, did I mention pleading?, etc. All failing to stop the spread adequately to protect the vulnerable. The biggest moral issue with this behavior at the moment is that the elderly and vulnerable cannot protect themselves any more than they are. This means greater urgency to quickly allow the elderly and vulnerable to protect themselves now. Please do not withhold the vaccine from those that need it most.
- 8) The new strain of this virus, may not be more deadly, however, it will speed up the death rate per population. Thus will become a multiplier on the death difference as we roll out the vaccine. If we do not lower the high rate group with the vaccine, it will likely cause the

overall hospitalizations to double. Many places are already under strain. Again, more urgency to get hospitalization and death rates down fast before that strain starts to make inroads here. Only a matter of time. We have a chance to get ahead of it by vaccinating out the highest rate groups from its reach. Let's do it.

- 9) There is no longer even a grain of truth in the popular underground (and not so underground) rationalization that people will all get this and efforts are just delaying deaths so why bother and maybe it was thought order doesn't matter. We now have a vaccine, so delayed deaths are no longer just deaths postponed, they are more likely lives saved.

I was going to go into a couple of the negative consequences of putting that ACIP plan out there, but won't waste that time. I hope the above is enough.

****TIME TO CHANGE MODIS OPERANDI?***

If I may be so bold as to say at this point... It is time to ring the bell! All the plans above are finite and get us to end of pandemic. Maybe time to consider getting out of survival thinking and into action mode.

By that I mean, rather than focusing on making it marginally better for essential workers and ethic groups for the long haul, as the ACIP plan did, let's realize we do not have to have a long haul ahead of us – finally, we are at that point.

It is only a matter of execution and numbers to get out of this. The one big area of challenge will be to convince people to get this, but I suspect once moving, many will get on board and there will not be enough holdouts to seriously impair our getting to the end. Even if they do not get the vaccine, the consequences will more be their own, as others who do not want to take the risk can protect themselves without their help.

The tactical choices we make at this moment, for the rollout, will only determine how long and how many lives will be lost before getting there, not if we get there.

The system has been functioning; it can function for another three months. It will get much easier and less anxiety for all when we can get the people and the economy out of lockdown, so would suggest we work towards that with haste.

****HERE****

If we go hard at the BEST plan we can be under a thousand deaths per week (not per day, per week) by week 12 (optimal/nominal). Not sure if feasible to add serologic testing to the vaccination protocol. Next best is CASES. That would get us there by week 13. If use the AGE order instead of the best RATE order, to give some priority to frontline workers, the goal post would move out to week 15)

I think the AGE order, which gives some limited priority to frontline workers, is a better choice than strict age (RATE) in the BEST plan. Because frontline workers likely have slightly increased death rate than general population, reality would turn out better in the AGE order that that model is showing so likely is more of a push than shown. Plus it would be good to vaccinate them for all the other reasons in the ACIP.

So would lean towards the BwAGE (BEST with AGE order). This plan also uses natural immunity in the population to maximize the vaccine's impact. It would allow people to find out if they have

the antibodies indicating they have immunity for now. I know several people who would really like to know and I think would be actually grateful if they could wait on the vaccine. Maybe too by then scientists might know more about how long immunity lasts.

The week estimates probably will be a little longer but hopefully not that much. My experience is that people, once they have in their sights a clear goal with no “miracles [yet to] happen here”, they are very resourceful and can adjust and make it happen extremely well. We have what we need and what needs to get done is entirely within scientific soundness and capability at hand.

On the other end of the scale is the ACIP plan, This would nominally need an additional month and a half or so to be down to 1000/wk, out to week 18; with an additional 80+ thousand deaths, basically double the death toll.

Maybe someone could take look at this? and do their own numbers.

In anticipation it may look good, will just give a few thoughts on implementation ideas. You may have these already and if so great, but maybe something will give an idea.

I hope we can find someone who can be bold and engage the system and build enthusiasm and mobilize all of us in the country to fight the war with vigor and singleness of purpose in rolling out the vaccine for a few months. As for bringing the message to the people, it might be great to find someone who is politically neutral, to deliver a public understandable plan and be visible and keep everyone informed how the rollout is going who is next etc. Focus on the end goal rather than who and who is not getting it before whom. I think once that priority is out there trust that people will support and if someone feels the need to get it earlier then maybe just let them rather than spending a lot of effort in preventing it. We need everything moving towards keeping the vaccinations going not stopping them. See notes on approach below. Deliver the message by really connecting and asking for people’s help. Do not over hype or promise! Put the pessimistic messages that prepare people for the worst aside for the time being. Give some idea of time but make large enough range, as nothing ever goes as planned as nor as quickly in real life. And finally, keep people engaged by publishing vaccine counts administered and number to goal frequently. Don’t rely on media to do this, make it coordinated lead effort.

We really can be beyond the worst. Let’s take a hold of it.

Approach to rollout:

Personally I think it is more important to get the vaccine to people as quickly as possible over making sure each person is in their proper spot in line before starting next. Using a simple age priority is simple and understandable and does not require a lot of time directing and arbitrating. To handle co-morbidities or people who are in risk contact situations a lot, I’d say make it generally available but allow people to jump a step ahead based on their assessment of their risk.

Do not engage in things that prevent people from getting it like we are now... only limiting to certain people until 30 Million doses are delivered to the select groups. That likely will take long as only can do so many at once in one area.

The reason I highlighted that, is what I am seeing at the moment. The Phase I venues are not taking and administering the vaccine fast enough to keep up with the current distribution flow. We are

already way behind available versus administered and wasting time with many doses in limbo. Not sure why. Waiting for someone to request...?

Nonetheless, may I suggest some tactics (only suggestions): keep the pressure on vaccinating HCP, especially those over 50, and for sure the LTC facilities, but take the doses *not* immediately on-deck in Phase 1 venues, onsite HCP and LTC, and direct them into the public channels in the meantime. Make effort to vaccinate the 75+ age group now as a priority within seniors. When the Phase 1 venues are ready, they get priority of next delivery. In meantime, health care workers and seniors can access public channels as well.

Fill the pipeline so no stoppage: let people get on list at local pharmacy or wherever, and the pharmacy can maintain list in priority order with the second dose being first priority when we get there. Pharmacy will know how much it needs in the next week or so and a centralized distribution logistical center can work with that information to efficiently allocate and/or deliver. Pharmacies then just keep pulling from the list non-stop for the next 12-15 weeks.

Let's do it!

Sincerely,
Annette Swank

PS Model is in a spreadsheet. If anyone would like a copy just let me know. I might try to format the week by week. Again, if someone would like that let me know. If I do format it, will post on the website where this letter is linked. http://bysam4us.com/Covid/cvd_Blog.html

Appendix A

ACIP presentation can be found at:

The Advisory Committee on Immunization Practices' Updated Interim Recommendation for Allocation of COVID-19 Vaccine — United States, December 2020"
Early Release / December 22, 2020 / 69

https://www.cdc.gov/mmwr/volumes/69/wr/mm695152e2.htm?s_cid=mm695152e2_x

"Although there is no national surveillance for COVID-19 among frontline or other essential workers, reports of high incidence and outbreaks within multiple critical infrastructure sectors illustrate the COVID-19 risk in these populations and the disproportionate impact of COVID-19 on **workers who belong to racial and ethnic minority** groups. During March–June, for example, the Utah Department of Health reported 1,389 COVID-19 cases associated with workplace outbreaks in 15 industry sectors, accounting for 12% of all COVID-19 cases in Utah during the same period (5). In addition, despite representing 24% of Utah workers in all affected sectors, Hispanic and non-White workers accounted for 73% of COVID-19 cases in workplace-associated outbreaks (5). Among 23 states reporting COVID-19 outbreaks in meat and poultry processing facilities during April and May, **16,233 outbreak-associated cases** were reported from 239 facilities, including **86 COVID-19–related deaths** (6). The percentage of workers with COVID-19 ranged from 3% to 25% per facility, and among cases with information on race and ethnicity reported, 87% occurred among workers from racial or ethnic minority groups (6)."

Page in presentation has following "Population surveys report 68% - 87% of respondents supported prioritization of early allocation of COVID-19 vaccine supply to essential workers (eg. police/fire/rescue and teachers)1-3" 1. The Harris Poll:<https://www.axios.com/who-gets-coronavirus-vaccine-first-4ff87ff8-39d7-49d6-8d25-fa2307119235.html>. 2. AP-NORC Center for Public Affairs Research. Many remain doubtful about getting COVID-19 vaccine. December 2020.<https://apnorc.org/projects/many-remain-doubtful-about-getting-covid-19-vaccine>. 3. ABC/IPSOS poll. December 14, 2020.<https://www.ipsos.com/en-us/news-polls/abc-news-coronavirus-poll>.

Appendix B: Priority order and phase composition used in the sample alternative models shown in results tables above.

Phs	ACIP order	Category	Pop (M)	Rate	D/M wk	Deaths per week	Phs	ACIP order	RATE Phases	Pop (M)	Rate	D/M wk	Deaths per week
1	1.1	hc health care	21.0	18-64	7	304	1	1	ltc	3.0	ltc	308	1,925
1	1.2	ltc	3.0	ltc	308	1925	1	2.3	>75	18.5	75+	252	9705
2	2.2	frontline >75	0.5	75-84y	165	172	1	2.2	frontline >75	0.5	75-84y	165	172
2	2.2	frontline >65	2.9	65-74y	58	348	1	3.6	essential >75	0.5	75-84y	165	172
2	2.2	frontline 55-64	5.0	55-64y	21	218	2	2.2	frontline >65	2.9	65-74y	58	348
2	2.2	frontline co-mo	12.8	18-54 co	4	107	3	3.4	65-74	24.0	65-74y	58	2883
2	2.2	frontline 18-54	8.8	18-54	2	40	3	3.6	essential >65	4.0	65-74y	58	481
2	2.3	>75	18.5	75+	252	9705	4	2.2	frontline 55-64	5.0	55-64y	21	218
3	3.4	65-74	24.0	65-74y	58	2883	4	3.6	essential 55-64	9.1	55-64y	21	397
3	3.5	co <64	48.5	18-54 co	4	407	4	4.7	other 55-64	26.9	55-64y	21	1172
3	3.6	essential >75	0.5	75-84y	165	172	3	1.1	hc	21.0	18-64	7	304
3	3.6	essential >65	4.0	65-74y	58	481	5	2.2	frontline co-mo	12.8	18-54 co	4	107
3	3.6	essential 55-64	9.1	55-64y	21	397	5	3.5	co <64	48.5	18-54 co	4	407
3	3.6	essential co-mo	25.7	18-54 co	4	216	5	3.6	essential co-mo	25.7	18-54 co	4	216
3	3.6	essential 18-54	17.7	18-54	2	80	6	2.2	frontline 18-54	8.8	18-54	2	40
4	4.7	other 55-64	26.9	55-64y	21	1172	6	3.6	essential 18-54	17.7	18-54	2	80
4	4.7	other 18-54	25.4	18-54	2	115	6	4.7	other 18-54	25.4	18-54	2	115
4	4.8	0-18	78.8	0-18	0	13	7	4.8	0-18	78.8	0-18	0	13
						18754							
Phs	AGE phases		Pop (M)	Rate	D/M wk	Deaths per week	Phs	AGE phases		Pop (M)	Rate	D/M wk	Deaths per week
1	1.2	ltc	3.0	ltc	308	1925	4	2.2	frontline co-mo	12.8	18-54 co	4	107
2	2.2	frontline >65	2.9	65-74y	58	348	4	2.2	frontline 55-64	5.0	55-64y	21	218
2	2.2	frontline >75	0.5	75-84y	165	172	4	3.6	essential co-mo	25.7	18-54 co	4	216
2	2.3	>75	18.5	75+	252	9705	4	3.6	essential 55-64	9.1	55-64y	21	397
2	3.6	essential >75	0.5	75-84y	165	172	5	2.2	frontline 18-54	8.8	18-54	2	40
3	1.1	hc	21.0	18-64	7	304	5	3.5	co <64	48.5	18-54 co	4	407
3	3.4	65-74	24.0	65-74y	58	2883	5	4.7	other 55-64	26.9	55-64y	21	1172
3	3.6	essential >65	4.0	65-74y	58	481	6	3.6	essential 18-54	17.7	18-54	2	80
4	2.2	frontline co-mo	12.8	18-54 co	4	107	6	4.7	other 18-54	25.4	18-54	2	115
4	2.2	frontline 55-64	5.0	55-64y	21	218	7	4.8	0-18	78.8	0-18	0	13