DRAFT Exit Strategy re: COVID-19

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Submitted to: His Honorable Governor Beshear, His Honorable Mayor Fischer, Greater Louisville Inc. Renewal Task Force

Introduction

Elected officials must be prepared to deal with immediate emergencies while being able to plan for the future. My previous writings have been clear that I support the immediate actions by the Federal Government and our Commonwealth's Executive Branch led by the Honorable Governor Andrew Beshear to significantly reduce interpersonal interactions to cease the spread of the Coronavirus. In the same position, I may have made the same decisions and I have obeyed those directives while encouraging my constituents to do the same.

While we execute those immediate actions, it is imperative that the Government plan for the future and be transparent with those plans. Good government is one that provides for the 'general welfare' under its control. Part of that relates to the idea of stability. We have found ourselves in a situation where the law shifts every day at 5PM ultimately based on the decisions of two men (the President and our Governor). That is not a sustainable society and therefore needs to stop and pivot toward long term planning and execution as soon as possible.

Our President and our Governor have implemented Emergency Executive orders infringing on all freedoms in the name of the 'general welfare' and public health. When that happens, we must define the goal specifically, track toward the goal transparently, and put forth a public plan for restoring normality when those goals are achieved. This is a draft concept based on public research that I will submit to the GLI Task Force, the Mayor of Louisville, and the Governor of the Commonwealth of Kentucky. It is focused on Kentucky and the city of Louisville as that is where I live and I believe states and local governments should drive this plan as opposed to relying on the federal government.

This plan is by no means perfect which is why it is titled 'draft'. Honestly I hope that everyone interested in helping either does the same and puts their specific ideas into the public sphere or at least helps refine those ideas put forward by others rather than wasting time complaining or trying to tear down others who are doing their best to lead. Finally, this is not a critique of any decisions made to date. It is simply an idea for what our future could look like that I hope will assist those in the Executive Branch in their quest to get past this crisis.

I stand in the arena of ideas and hope that together, along with many other brilliant people, we can create the best solution to get through this crisis.

Public Health Emergency

The federal and state executive orders are all based on declaring a 'public health emergency'. In order to define our goal through this crisis, we must define this term. According to the National Institutes of Health (source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1854988/), the definition of a Public Health Emergency is as follows:

"A situation becomes emergent when its health consequences have the potential to overwhelm routine community capabilities to address them. Thus, the proposed definition focuses on situations 'whose scale, timing, or unpredictability threatens to overwhelm routine capabilities.'"

Therefore the definition has less to do with the amount of deaths but rather an equation related to the impact on the public health system and whether that system can handle the burden coming its way.

For example, there are many, many preventable diseases and conditions that we could prevent or eliminate through actions similar to the ones we have taken for Coronavirus. Flu is largely transmitted in the same way and since 2010, anywhere between 12,000 to 61,000 people die annually from the flu nationally (source: https://www.cdc.gov/flu/about/burden/index.html). 480,000 people die of smoking each year (source: https://www.cdc.gov/healthreport/publications/compendium.pdf) and we could stop that by banning all tobacco and nicotine in the US. According to this study published by the National Institutes of Health (source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2667673/), in 2005 (the study was published in 2009), overweight/obesity was responsible for 216,000 deaths and physical activity accounted for 191,000 deaths. Even knowing this, we don't shut down restaurants that sell unhealthy food and we don't mandate physical activity. None of these are public health emergencies because our health care system is already equipped to handle them.

Therefore, the first thing we need to do is define the 'public health emergency'. This requires our elected officials to regularly post our current capacity versus the projected needs of the healthcare system. One recommendation (consolidated at the conclusion of this paper) is to report on a regular basis the current total and existing capacity of the Kentucky healthcare system. This could include beds used vs total inventory, days of PPE on hand (e.g. total inventory divided by amount used per day), doctors available vs in quarantine due to exposure, and a variety of other applicable metrics that define the public health emergency.

This is a critical first step. Without it, we can never know what the objective definition is of being out of the emergency.

Reliable Predictive Models

The next critical step is picking the best predictive model and sticking with it as it evolves with real data over time. Public officials even in KY have referenced the Institute for Health Metrics and Evaluation (IHME). An excerpt from their 'about' statement on their website indicates they are "an independent population health research center at UW Medicine, part of the University of Washington, that provides rigorous and comparable measurement of the world's most important health problems and evaluates the strategies used to address them. IHME makes this information freely available so that policymakers have the evidence they need to make informed decisions about how to allocate resources to best improve population health." I will be using their models to evaluate next steps. Any executive branch need only be public about which models (including a proprietary one if they are using something not publicly available) they are using so the public is more educated on the accuracy of the assumptions the government is using for their decisions. Their model can be found at https://covid19.healthdata.org/united-states-of-america/kentucky and assumes we continue with the current executive orders through May of 2020.

The great news about the IHME models are that the estimated deaths have been plummeting over the past couple weeks, no doubt due to the social distancing measures the federal and state government have collectively implemented. The models just a week or so ago predicted over 200,000 deaths in the US and now it is about 60,000. For Kentucky, last week the model predicted 2,000 deaths and now it is predicting 933 as of April the 10th (the last time they updated the model when I wrote this draft). The model is helpful as it reconfigures each day based on real time information and also provides a range of values based on a 95% confidence interval so public officials have estimates of worst case scenarios based on the best data at the time.

Healthcare Capacity

Currently, the model is predicting peak resource use on April 24th, 2020. At that time, the model estimates we will be using 1,524 hospital beds, 299 ICU beds, and 253 ventilators.

Based on Governor Beshear's numbers as reported by Spectrum news (source: https://spectrumnews1.com/ky/lexington/news/2020/04/07/kentucky-s-healthcare-capacity-ventilators-and-bed), Kentucky (as of April 7th) has a capacity of 18,500 beds, 1,300 ICU beds, and 1,352 ventilators. In IHME's model, even at the highest end of the 95% confidence interval, we will need 4,374 total beds, 868 ICU beds, and 727 ventilators. In other words, even if the current projections are off by over 300%, we would still have more than enough capacity to treat everyone who was diagnosed.

The outstanding part of this equation is other equipment needed to get through the peak. This would include Personal Protective Equipment (PPE) and test kits/equipment. There is very little public information related to our current capacity and we would need the Executive Branch to be more clear about things like PPE days on hand and total test kits/equipment.

The truth of the matter is that Kentucky healthcare systems are largely empty, some hospital systems are teetering on bankruptcy, there are hundreds if not thousands of layoffs and furloughs in the industry, and many healthcare providers are just not working. There are a series of articles that point this out including:

https://www.mcclatchydc.com/news/coronavirus/article241681926.html "In Kentucky, Appalachian Regional Healthcare let 500 workers go last week after experiencing a 30 percent decrease in business since the outset of the pandemic."

https://www.kentucky.com/news/health-and-medicine/article241884016.html

These hospitals will get bailouts from taxpayers so they don't go bankrupt and there is no question that there are a group of doctors and nurses working around the clock to care for patients with the Coronavirus but the point is to simply clarify if the Kentucky healthcare system will be overwhelmed at any future date. At this point, nobody has provided a model for public scrutiny that indicates this will ever happen on our current course.

What Does the Cure Cost

This next question is a little harder to estimate but there are some studies and some information that provide estimates regarding the impact of the executive orders on people's lives. Currently, the St. Louis Federal Bank (which is the one who covers the region of Louisville) is predicting unemployment to rise to 32% (source: https://www.cnbc.com/2020/03/30/coronavirus-job-losses-could-total-47-million-unemployment-rate-of-32percent-fed-says.html). This is at or higher than the unemployment level during the Great Depression.

In a working paper from the National Bureau of Economic Research, they found that "Overall, increasing the unemployment rate by 1 percentage point increases the poverty rate by 0.4 to 0.7 percentage points." (Source: https://www.nber.org/digest/jun06/w11681.html). In 2018, the poverty rate in KY was 16.9% (source: https://www.statista.com/statistics/205468/poverty-rate-in-kentucky/). As of October 2019, the KY unemployment rate was 4.3%. If we match the rate estimated by the St. Louis Federal Bank, we could have a poverty rate between 27.98% and 36.29% (the equation takes the 32% unemployment rate, subtracts the assumed current rate of 4.3%, multiplies that by the .4 or .7 increase in the poverty rate by each percent of increased unemployment and then adds that to

the current employment rate of 16.9%). The bottom line is this analysis indicates almost a doubling of poverty in this year due to our economic actions to combat the disease.

Columbia University's Mailman School of Public Health conducted a study funded by the National Institutes of Health and it was published in 2011. If found that there were "133,000" deaths attributed "to individual-level poverty" and "39,000" deaths attributed "to area-level poverty" (source: https://www.mailman.columbia.edu/public-health-now/news/how-many-us-deaths-are-caused-poverty-lack-education-and-other-social-factors). The amount of people who died from individual level poverty and area level poverty were comparable to the amount of people who died from Cerebrovascular disease (stroke) in the year 2000.

In 2017, 2,050 people died from Stroke in KY (source: https://www.cdc.gov/nchs/pressroom/states/kentucky/kentucky.htm). If we use the analysis above and assume poverty accounts for a similar amount of death in Kentucky as strokes, and given that we expect the poverty rate to increase by 40-55%, we could expect to see an increase in poverty related death of 820-1,127 people in the next year.

This does not account for all other types of possible outcomes. For example, for every 10% increase in suicides we can expect to see an additional 75 people die in Kentucky (source: http://chapterland.org/wp-content/uploads/sites/13/2018/06/Kentucky-State-Facts.pdf). As of March 23rd, suicide hotline activity in Kentucky was up 20-40% (source: https://www.courier-journal.com/story/news/2020/03/23/coronavirus-drivings-up-calls-suicide-hotline-prevention-centers/2899316001/) which could mean 150-300 more deaths from suicide this year. For every 10% increase in overdose deaths based on 2017 data cited above we could see an additional 150 deaths from overdoses.

We can argue over the assumptions but lets take the median of poverty related increases in deaths as calculated above and we experience a 20% increase in suicide and overdose deaths due to the Coronavirus response. That would mean 1,423 people could die related to our response to the virus. If the IHME model above is accurate, we would kill 490 more people because of our response this year (it is hard to know what the annualized number of deaths due to Cornavirus will be and that should be used as the comparison of course).

Another variable that is still not known is the impact of our economic shutdown on our ability to provide required local government services. While the federal government has the ability to spend an unlimited sum via deficit spending, the city of Louisville must balance our budget each year. We still don't know the full impact to our city's budget but economists are predicting an $18M short fall this fiscal year alone which ends on June 30th (source: https://wfpl.org/economist-coronavirus-pandemic-could-knock-3-from-louisvilles-main-revenue-sources/). But the impact

to next year's budget could be far greater. This could jeopardize our ability to provide basic public safety (it was already underfunded), fund public health, waste disposal, code enforcement, or any number of services without which we could see an increased breakdown of our local society.

The equation I have presented is theoretical albeit based on multiple data sources and studies. It is not a perfect number but it illustrates that our response has a cost on lives (and I am ignoring a myriad of other negative outcomes to include long-term poverty resulting in the loss of savings and investments even for the average household) and we could already be at a point where our response could kill more people that the virus in our state. This is not to say that we should stop what we are doing now, but we must quantify the impact these decisions are having on our populace so we can make more educated decisions on when and how to transition out of our current executive mandates.

What Does an Exit Strategy Look Like

There was a great New York Times article published recently that summarized a report from the American Enterprise Institute written by Scott Gottlieb, Caitlin Rivers, Mark B. McClellan, Lauren Silvis and Crystal Watson (source: https://www.nytimes.com/2020/04/06/upshot/coronavirus-four-benchmarks-reopening.html?auth=login-google). The article lays out 4 main benchmarks:

- ☐ Hospitals in the state must be able to safely treat all patients requiring hospitalization, without resorting to crisis standards of care.
    - We have already established we have the capacity currently even in the worst case scenario model
- ☐ A state needs to be able to at least test everyone who has symptoms.
    - We need the state to report more accurately on our capacity to test and the Governor should be commended for some of the public/private partnerships created to help increase testing capacity
- ☐ The state is able to conduct monitoring of confirmed cases and contacts.
    - I think this has already been established well by the Governor and his Public Health staff
- ☐ There must be a sustained reduction in cases for at least 14 days.
    - Otherwise we run the risk of reopening and reversing all the progress we have made to date

I reject giving a specific date but we do see above 4 conditions to reopen. We have already met some of these conditions. We have the healthcare capacity, we have increasing testing available to test those who need it but need confirmation on when we will have enough to satisfy the need, we already have the ability to monitor cases, and we are waiting to see for when we get a 14 day sustained reduction in cases.

Currently the IHME model states that under current conditions, we would have almost no new cases by June 1st. Therefore, if the model holds (and it has gotten better over the past couple weeks), it would be reasonable to say that in May we would have met all the criteria above to begin reopening. This could all be thwarted by those disregarding social distancing guidelines and not taking this seriously of course. There are some things that have low risk to continue with closures. One is schools. Schools are notorious vectors for spreading disease so it makes sense to declare they are closed for the rest of the year. Further, almost all schools have transitioned to online learning. Other areas have very low risk of spreading the disease. Communicable diseases go away in summer as we do more outdoor activities and children get out of school. All outdoor activities should be reopened as soon as we meet all the criteria. Retail has already proven they have the ability to function without spreading the disease prolifically so non-essential retail should be prioritized.

After that you have restaurants and other small group activities. These increase the likelihood of re-infection and so should start after we reach closer to 30 day of consistent reductions of cases or where the cases are so low that mass re-infection likelihood is very low. Under this current model, that would be late May or early June. The last area that should reopen is large group indoor events like conventions, concerts, etc. With the Derby Festival scheduled for mid-August, that seems like a good target to have everything reopened including group events. Many of those events could be opened in July (again, assuming the current models hold) which would have most of our hospitality and other industries prepared to succeed for the Derby Festival, the Kentucky Derby Weekend, and the proceeding weekend music festivals. The good news for the local economy is we have almost 2 weeks of events and festivals starting with the Derby Festival that could jump-start our economy after beginning the recovery over the early and mid-summer. This should be our community goal. If we miss this due to non-compliance, we would indeed create a far greater and more structural depression to our local economy.

This is a simple and draft idea to reopen our industries while reducing the impact to public health and focusing on quickly jumping out of this depression. I look forward to debating and discussing that with the business leaders within GLI starting this week. What I do know is, unless the public sector and Executive Branches of every level of government create a plan, debate it publicly, and execute it as written, businesses and citizens can't plan for the future. By the future, I don't mean for their retirement. I am saying that they will not have the ability to plan for the next day or week. That is an unsustainable model of managing government and the public welfare.

The New Normal Until the Vaccine is Distributed

There will be an ongoing role for public health departments to guide reopening until the first wave of vaccines are created. By this, I mean that public health will and

should have input on how many of these industries can reopen while reducing the risk to public health. But those recommendations must be held to public scrutiny and incorporate the voices of others and the impacts that those decisions carry.

Until a vaccine is developed and distributed broadly, business working with those in the high-risk category will and should continue with significant restrictions. This would include nursing homes, senior centers, and any healthcare facilities as an example. These businesses particularly cater to the elderly or have a high density of elderly customers and therefore will need significantly higher levels of ongoing restrictions until we have achieved a level of herd immunity. Clearly this virus has a very high mortality rate for those in certain health care categories including those over 60 years old.

Further, public health can and should create standards for targeted quarantining when people are diagnosed with new cases of the virus. This could include quarantining all family members that live with that individual, those who have been in immediate contact with that individual, and businesses or other organizations who have had particular breakouts indicating a larger problem or breakout. These targeted quarantines and punishments will motivate individuals and businesses to maintain a high level of public health standards so they aren't individually impacted. This is far more impactful then punishing all due to the misdeeds of a small minority. I won't bother linking to the dozens of articles and studies that show that 'collective punishment' doesn't work. In fact, as those like myself who came from the military can attest, it results in vigilantly-ism and creates a society where people begin to target and attack others who don't comply with the masses. This is one reason why we see doctors attacking children who were not socially distanced while none of them were sick or actively spreading the disease.

A key thing to note is that the concept of 'herd immunity' never assumes everyone is vaccinated. For example, in any given year, only 54% of Kentuckians get the flu vaccine (source: https://www.healthy-ky.org/newsroom/news-releases/article/270/half-of-kentuckians-got-flu-shot-in-past-year). Other more common vaccines like those required for school have higher rates of compliance but are still way below 100% in Kentucky (source: https://www.ksba.org/ImmunizationsinKentucky.aspx). The good news is that reports indicate upwards of 50% of those infected with Coronavirus get no symptoms (source: https://www.marketwatch.com/story/iceland-finds-that-half-its-citizens-with-coronavirus-have-shown-no-symptoms-2020-04-10). This means that by the end of this, without a vaccination, 50% of our population will be immune or will never get symptoms from this. The problem is that they can also spread the disease without knowing until they are immune. The bottom line is until we get widespread testing (almost for every person) or a vaccine, we can expect some kind of ongoing, targeted protections against outbreaks and public health officials should create this plan with public input as quickly as possible to help us transition. Once the vaccine is adequately distributed, we can expect life to go on as it did beforehand with very minor exceptions.

Action Steps:

1. Agree on a model we are following so we can track progress.
2. Release a regular (daily if possible) accounting of our current health care capacity including material (e.g. PPE, ventilators), infrastructure (e.g. hospital beds and space), and personnel (doctors, nurses, etc.).
3. Agree on a set of benchmarks and steps that would trigger the reopening of society and the lifting of executive orders.
4. Quantify the affect the 'cure' is having on public health to ensure we aren't creating a public crisis that is larger than the disease.
5. Agree, in conjunction with business leaders and public health officials, how to reopen businesses and continue to reduce the risk of continuing the spread the virus.
6. Document an exit strategy plan and submit it for public scrutiny.

Conclusion

I end as I began. This is a very, very draft document that I hope will help begin a conversation with GLI's Task Force. I am releasing this publicly prior to the meeting in the hopes that some may benefit from the ideas, that other public officials will feel emboldened to put forth their ideas and plans, and so that people far smarter than me can either improve on this or create their own superior plan so our leaders have the best ideas at their fingertips when we have to start executing. Finally, I once again want to voice my support for all the initial actions our local officials took to mitigate the impact of this. They are in the arena and putting themselves on the line to improve their communities. My hope is they feel emboldened to transition from their current posture of reaction to one of future planning and action. We will all soon learn that stopping things is easy. The real hard work is building and creating a thriving society and economy. Without immediate planning for that inevitability, I fear that we will be ill-prepared and we will trade one tragedy for another.