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Curbing Diabetes Prevalence and Reducing Risk Through Policy

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Executive Summary

The purpose of this policy brief is to illuminate the dire circumstances surrounding the ongoing diabetes epidemic in Kentucky. Type II diabetes mellitus, a preventable and manageable chronic illness, affects nearly 465,000 Kentuckians currently. Beyond the daily struggle associated with diabetes, many acute complications can arise that are severly detrimental to quality of life, such as blindness or lower extremeity amputation. Additionally, the costs associated with diabetes are tremendous, to patients, to providers, and to the state. It is in the best interest of all stakeholders to do whatever we can in order to reduce prevalence and improve management of already established cases. While major efforts have been very successful in increasing our biomedical understand of the disease and treatments, it has taken much longer for research into lifestyle intervention programs to receive similar attention. These provide several different opportunities for policy intervention that have been proven successful, yet challenges surrounding access, awareness, and cost are real. The National Diabetes Prevention Program (DPP), established by the Center for Disease Control (CDC), has been proven by clinical trial to reduce risk of developing diabetes. Chronic care management (CCM) services are designed to strengthen the point of care of individuals who have higher needs of care. This is done through monthly check-ups via phone or internet calling, and can help patients with the burden of scheduling appointments, refilling medication, and maintaining healthy behavior goals. Finally, there are aspects of our society that substantially increase risk of developing diabetes that individuals have little control over, deemed social determinants of health. Targeted policy interventions designed to mitigate the negative social determinants of an individual's health can greatly improve overall quality of life and reduce the chance of developing diabetes. Some of these opportunities for intervention carry larger costs than others, and there are various methodologies behind implementation that require different levels of burden to be overcome. Many of the major legislative recommendations in this memo face extreme difficulties in terms of political feasibility. However, it is imperative that we continue to push for action and innovative solutions. Do not be mistaken, the solution to this epidemic lies beyond the front door of primary care clinics and hospitals. It is a social disease that will require a social cure.

Purpose and Overview

With this brief, I intend to highlight interventions to curb prevalence and serious consequences that arise from type II diabetes mellitus, one of the leading causes of death in the state of Kentucky. Type II diabetes diminishes quality of life, exposes those suffering to additional risk of other negative health outcomes, and imposes substantial costs to the state. Most importantly, it is preventable and manageable: with proper nutrition, education, and physical exercise, risk of developing diabetes, as well as the additional dangers to overall health associated with already established cases, can be reduced. I first explore the current state of diabetes in Kentucky. Next, I detail the historical significance of various efforts to curb the prevalence of diabetes, from the federal government to local efforts, as well as a brief overview of private enterprises and where they fit into the puzzle. I discuss several opportunities to curb the prevalence of type II diabetes in Kentucky, from minute, technical changes to broad, sweeping legislation. With every potential solution comes tradeoffs, and it is important to understand that real progress on this issue will take a coordinated, dedicated effort from all stakeholders, along with a multifaceted approach that combines multiple policy interventions.

Problem Definition

As of 2019, an estimated 464,000 Kentuckians were living with diabetes, which is roughly 13.3% of the population. **Since 2000, this number has doubled**, and growth that rapid is extremely troubling. The likelihood that someone suffers from diabetes is partially contingent on their location, for 17% of adults in Appalachia are afflicted compared to 12% of those in non-Appalachian counties[1]. Also, 18% of those on Medicaid in Kentucky suffer from diabetes, while only 9% of those on Kentucky Employee's Health Plan have the same outcome, suggesting disparity based on income as well. An additional 11% of people suffered from prediabetes, meaning that their blood sugar levels were higher than normal, but not high enough to be considered diabetic[1,2]. While reversible, these people are at higher risk of developing diabetes, as well as the associated complications. The list of complications from diabetes includes blindness, kidney damage, lower extremity amputations, stroke, heart disease, and death[2]. Kentucky has the 4th highest mortality rate from diabetes in the country, and it is currently the 8th leading cause of death in the state[1]. Not only does the threat of complications make reducing prevalence all the more urgent, it helps to show how the benefits of treating diabetes can be seen in many different ways.

Beyond the debhilitation and risk of death, one of the major issues regarding chronic illnesses is the risk of hospitalization, particularly rehospitalization in a short window. In 2019, over 10,000 Kentuckians visited the emergency department a total of 16,497 times for diabetes[1]. Even worse, 8,270 Kentuckians were admitted for at least one hospital stay for diabetes, and in 11,545 hospitalizations, diabetes was the primary diagnosis[1]. These numbers highlight the issue of rehospitalization, for there are far more emergency department visit and hospitalizations than individuals. However, there is no way to tell the number of visits per patient from the data. Thus, there could be a large number of people with a few visits per year or a smaller population with frequent visits to the hospital. Regardless, both visits to the emergency department and hospitalizations are expensive to the patient, as well as the provider. For the Medicaid and Medicare populations, the state covers a vast majority, if not all, of the cost of treatment, thus placing the costs on taxpayers. **In 2019, total costs for emergency department visits with diabetes coded as the primary reason reached almost $92 million, and total costs for hospitalizations reached over $453 million**[1]. Specific to the Kentucky Medicaid population, the total cost for 97,720 beneficiaries suffering from diabetes amounted to over $128 million[1]. It is apparent that a reactive approach to treating diabetes, where patients come to the emergency room once their complications have reached a near breaking point, is far too expensive to be

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[1] Kentucky Cabinet for Health and Family Services, & Kentucky Personnel Cabinet. (2021). 2021 Diabetes Report. In *Kentucky Cabinet for Health and Family Services* (pp. 1–68). https://www.chfs.ky.gov/agencies/dph/dpqi/cdpb/dpcp/2021DiabetesReport.pdf

[2] Mayo Clinic. (2022, December 7). *Diabetes - symptoms and causes*. Mayo Clinic. https://www.mayoclinic.org/diseases-conditions/diabetes/symptoms-causes/syc-20371444

sustainable in the long run. Current efforts to get ahead of this disease, to manage and prevent it before complications become too severe, need to be built upon.

Policy Background

While advances in medical treatment of diabetes have been astounding, the public health challenges that diabetes presents have seen far less attention. The first federally commissioned report on the disease, titled "The Long-Range Plan to Combat Diabetes" and published in 1975, was centered around the biomedical opportunities to fight diabetes on an individual level. There was a plethora of good that arose from this report, including a large increase in funding towards research into the pathology and potential treatments of diabetes complications, newer medications that can help control blood glucose levels while mitigating risks associated with previous methods of blood sugar control, and the establishment of research centers across the country[3]. The Long-Range Plan even helped to establish the CDC's Diabetes Control Program with the goal of maintaining robust understanding and data collection on the development of diabetes at a societal level. There was a general understanding that a part of the burden of care fell to the patients, and that lifestyle changes could improve overall health and management of their case. However, it wasn't until 1996 that a randomized clinical trial was performed in order to test for the effectiveness of a lifestyle intervention program for diabetes management and prevention[4]. Initial results were extremely promising, and in 2010, the CDC published the National Diabetes Prevention Program (National DPP). The National DPP is a structured lifestyle intervention program that focuses on healthy eating and increasing physical activity, and **it has been shown to reduce the likelihood that someone with prediabetes becomes type II diabetic by 58%**[5].

The proven effectiveness of the National DPP is undeniable, yet access to the program is still a challenge. Important steps forward have been made, for the number of CDC-accredited organizations in the state has improved from 2 in 2012 to 33 in 2020, with an estimated total enrollment of 12,930 as of July 2020[1]. While online access is available, not having an in-person program can act as a barrier to certain individuals. Figure 1 represents a heat map of diabetes prevalence in each Kentucky county, and Figure 2 shows the number of CDC-recognized providers in each county as well.

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[3] Schillinger, D., Bullock, A., & Herman, W. (2022). An All-Of-Government Approach To Diabetes: The National Clinical Care Commission's Report To Congress. *Forefront Group*. https://doi.org/10.1377/forefront.20220111.855646

[4] *Key National DPP Milestones | National Diabetes Prevention Program | Diabetes | CDC*. (2018, December 31). Www.cdc.gov. https://www.cdc.gov/diabetes/prevention/milestones.htm

[5] Center for Disease Control. (2019, April 4). *Research Behind the National DPP*. Www.cdc.gov. https://www.cdc.gov/diabetes/prevention/research-behind-ndpp.htm

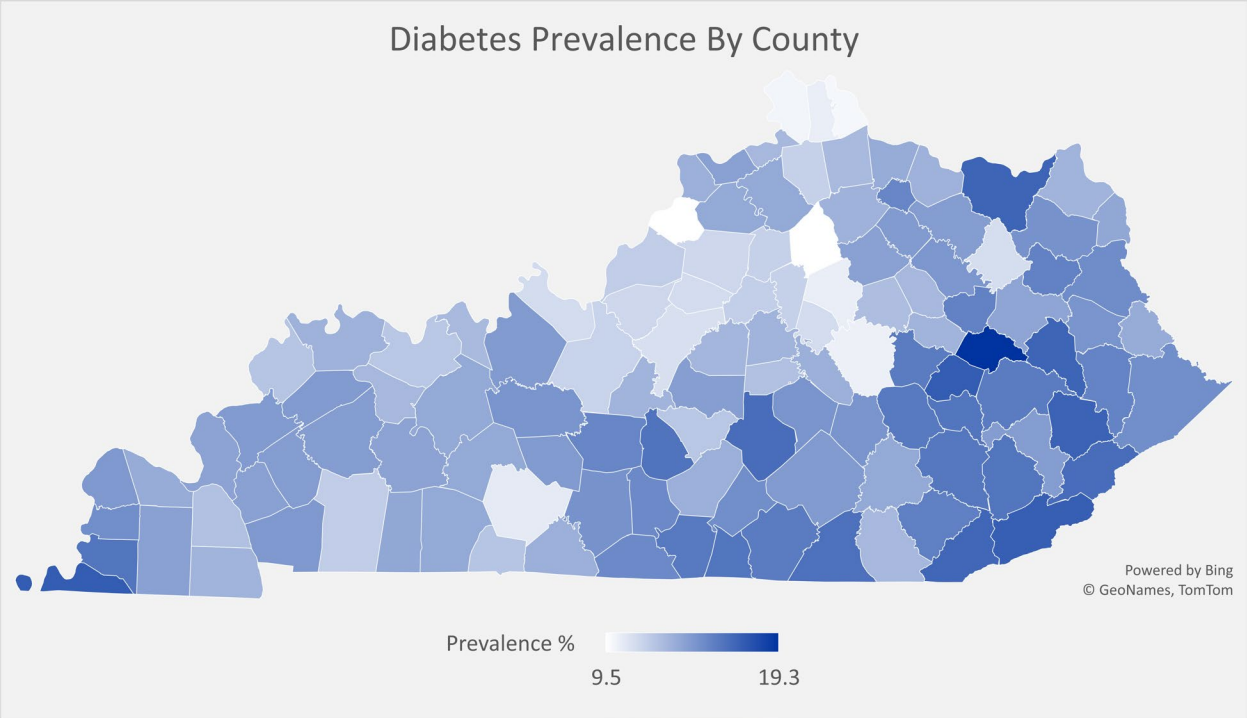

Figure 1

Source: CDC, PLACES Interactive Map, Diabetes Prevalence Rates

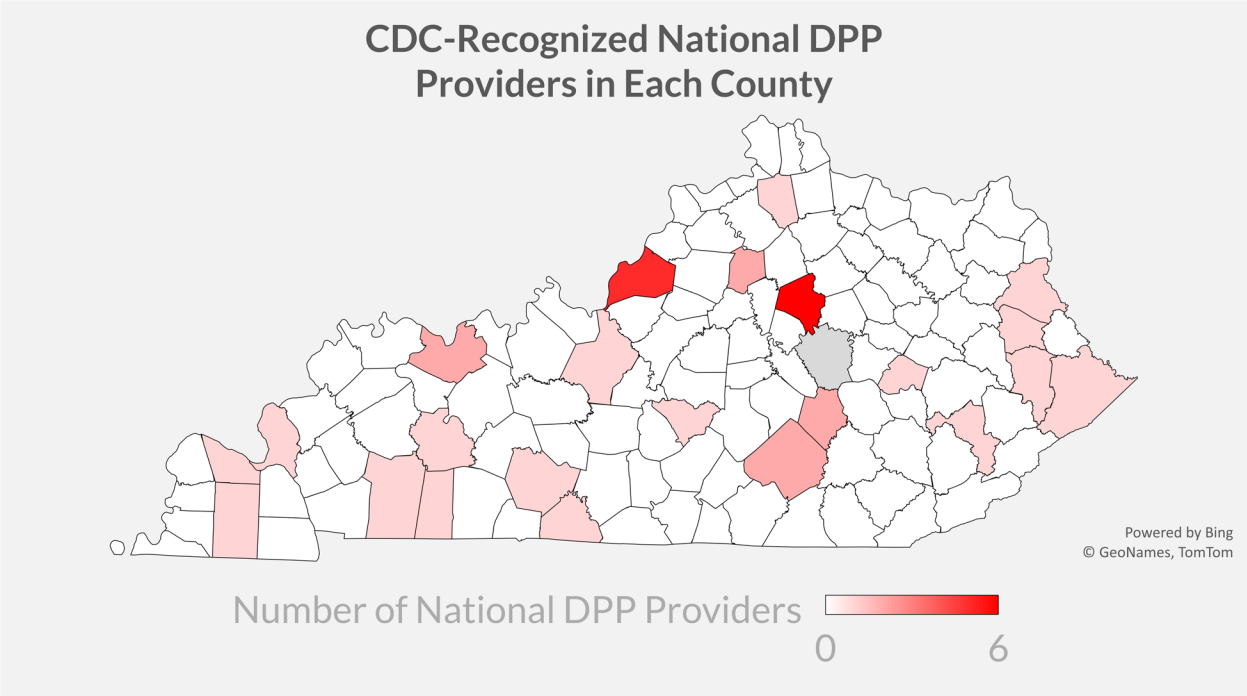

Figure 2

Source: CDC, National Diabetes Prevention Program Recognized Registry

Along with this, enrollment in the program generally comes at a monetary cost to the participant. It is estimated that the average direct cost per participant who completes the entire program is around $500[6]. The share of that cost that is placed upon the participant varies due to a number of factors, such as insurance status, coverage plan, and more. The Affordable Care Act, passed in 2010, aimed to lower costs for health insurance while expanding the Medicaid Program to more people. In 2014, Kentucky approved Medicaid expansion, meaning all adults whose income reached 138% of the federal poverty line or less would have access to Medicaid insurance plans[7]. These plans are operated by Managed Care Organizations, or MCOs. MCOs consist of hospitals, physicians, and other providers that work to manage care for the beneficiaries under their plan. Aetna, one of the Kentucky MCOs, is currently developing a pilot program that would include the National DPP as a covered benefit for their beneficiaries[8].

Implementation of the National DPP occurs at the community level, with providers ranging from county health departments to private entities. In Kentucky, CDC-accredited primarily consist of health departments, with most major hospital networks and rural clinics running the program as well. There are also a few private organizations, as well as the University of Kentucky Barnstable Brown Diabetes Center, which acts as a clinic, an educational resource hub, and a research center. The wide variety of providers indicates the numerous potential avenues through which access to the program could be expanded. One that has gained some traction is through the Kentucky Cooperative Extension Service (CES), an extension of the University of Kentucky College of Agriculture. With an office located in every county, the Kentucky CES provides educational services in an expansive list of topics. Specific to health, there are programs designed to improve eating habits, promote active living, fight substance abuse, and more[9]. Some of the current programming is already targeted towards the diabetic population, and a qualitative study on the perception of lifestyle coaches on using CES as a means of implementation of the National DPP highlighted both the potential success and barriers of the combination[10].

Another common avenue of care for chronic diseases like diabetes is known as chronic care management (CCM). Typically reserved for individuals with two or more chronic illnesses, CCM provides an extremely stable connection between a provider network and their highest at-

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6 National Association of Chronic Disease Directors, & Center for Disease Control. (2022, December 7). *Cost & Value*. National DPP Coverage Toolkit. https://coveragetoolkit.org/cost-value-elements/#:~:text=National%20DPP%20Lifestyle%20Change%20Program%20Costs

7 U.S. Centers for Medicare & Medicaid Services. (2021). *Affordable Care Act (ACA)*. HealthCare.Gov; U.S. Centers for Medicare & Medicaid Services. https://www.healthcare.gov/glossary/affordable-care-act

8 National Association of Chronic Disease Directors, & Center for Disease Control. (2022a, August 21). *Engaging MCOs to Attain Coverage*. National DPP Coverage Toolkit. https://coveragetoolkit.org/mcocoverage/

9 University of Kentucky College of Agriculture, Food, and Environment. (n.d.). *Extension*. University of Kentucky Cooperative Extension Service. Retrieved December 13, 2022, from https://extension.ca.uky.edu/

10 Breazeale, N., Norman-Burgdolf, H., Counts, K., & Williams, L. B. (2021). Process Evaluation of the Early Implementation Stages of the National Diabetes Prevention Program through Kentucky Cooperative Extension: Perceptions of Adopters and Potential Adopters. *Journal of Human Sciences and Extension*, *9*(3), 189–205. https://www.jhseonline.com/article/view/1116

risk patients. It consists of montly contact with the patient where a case manager can help refill some prescriptions, schedule appointments, and connect patients to other resources that might be useful to them[11]. In 2015, Medicare expanded to include CCM as a benefit under Part B, but the service usually comes with a copay of around $7-10 a month[11]. While not an enormous financial burden, it has been proven that enrollment in CCM programs increases dramatically when the copay is eliminated. In some cases, CCM is run by the provider network themselves. In others, the service can be contracted out to a private company. In Kentucky, there is a mixture of both, where the most extreme cases are reserved for UK Healthcare's CCM team and Chartspan, a CCM company, handles the rest of the patients that are enrolled.

Lastly, it is important to highlight the most recent national report, submitted to Congress in 2021, because it emphasizes the role of federal and state policy in the prevention and mitigation of type II diabetes. The findings from the National Clinical Care Commission define diabetes as both a medical and societal problem, stating: "The social and environmental conditions that shape people's daily experiences have a huge impact on whether people will develop diabetes or suffer from its consequences." The recognition of this opportunity to improve societal conditions as a means of improving health is the first step to addressing the social determinants of health. Along with policies directed at improving access to diabetes prevention resources directly, the commission advocates for improving access to healthy foods, education, cleaner environments, and other facets of overall wellbeing that can contribute to an increased likelihood of developing diabetes[12].

Policy Opportunities

The role that policymaking plays in determining the health of citizens is becoming more and more clear. There are several different avenues for change regarding the current landscape of diabetes prevention and management methods in Kentucky. The ones that will be further analyzed in this brief are:

- Expanding the number of National DPP providers in the state of Kentucky
- Ensuring that participation in National DPP programs is fully covered by insurance
- Incentivize referrals to the National DPP by physicians or other social service outlets
- Improve access to and utilization of CCM services by increasing funding for service
- Eliminate cost-sharing for CCM services

[11] Lamboley, L. (2022, January 31). *Chronic Care Management patient costs: justifying their investment*. Blog.prevounce.com. https://blog.prevounce.com/chronic-care-management-patient-costs

[12] National Clinical Care Commission. (2021). Report to Congress on leveraging federal programs to prevent and control diabetes and its complications. In *Health.gov* (pp. 1–105). https://health.gov/sites/default/files/2022-01/NCCC%20Report%20to%20Congress.pdf

- Implementing recommendations from the 2021 National Clinical Care Commission Report, which advocates for updating and increasing funding for nutrition assistance programming via the Department of Agriculture, increased paid maternity leave and other programming aimed to increase breastfeeding rates, authorize the Federal Trade Commission to regulate marketing by fast food and beverage companies directed at children, promote housing opportunities for low-income Americans in health-promoting environments, and more.

Discussion

In regards to the National DPP, the content of the curriculum has been proven effective, but the level of access needs to be improved in order to reach the full potential population. This could be achieved through heavy investment into implementation of the program. The most recent diabetes report published by the Cabinet for Health and Family Services recommended a $300,000 investment into survey metrics to gain more understanding of the impact diabetes has on the state, a $300,000 investment into the Office of Health Equity to address potential barriers and inequities for vulnerable populations in low-access areas, and a $3 million investment into state and local diabetes prevention efforts[1]. While the investments would be very beneficial and good sign of prioritization of the issue, this would allot around $25,000 to each county. From the estimation of a cost of $500 per participant above, this would be enough money to pay for the yearly participation of around 50 individuals in each county. To fully account for the public health challenge diabetes presents, the amount of money invested into the National DPP alone should eclipse this figure.

Once access to the National DPP has been improved, the next step is to promote utilization in a way that targets individuals who would benefit the most from it. There are two angles through which this can be achieved, either through primary care providers or through other social support services. Both have benefits, as well as challenges. From a provider standpoint, referring people to the National DPP straight from their doctor's office would be the most effective method of reaching individuals who are known to be diabetic or prediabetic. In some instances, however, there is a disconnect between physicians and providers of the program. In the evaluation on the potential use of CES offices as providers of the National DPP, many recognized they do not have strong relationships with physicians, hospitals, clinics, or insurance provider[10]. Also, some individuals who would benefit from enrollment in the National DPP do not have an established primary care provider, meaning they could be left out of recruitment campaigning done only through this avenue. Thus, advertising the National DPP through other social services, such as public housing, food and cash assistance programs, or any others could aid in reaching an audience not previously aware. Whichever is prioritized, it will take extensive surveying and thorough marketing campaigns in order to provide more awareness of the benefits of the National DPP to potential patients.

Additionally, the expansion of CCM services would likely lead to their further utilization, thus providing more individuals with a stronger point of care. One way to ensure this would be to eliminate cost-sharing for the service, so that patients would have no financial burden. Since the majority of those who currently utilize CCM are on Medicare, this would increase the cost of the service to the state and federal government. On top of this, the current infrastructure in place at UK Healthcare is not capable of extending the service to the entire potential population that would benefit from its use. Thus, if CCM is to be provided via UK, there would need to be significant expansion of their capacity. However, as mentioned previously, some of the service is contracted out to private companies, such as Chartspan. Increasing the volume of patients under their supervision would create less administrative burden for state-affiliated healthcare networks. On the other hand, it would require renegotiations of current contracts and more oversight to ensure a quality service is being provided.

Finally, using policy to address the social determinants of health that make it harder for some individuals to maintain a healthy lifestyle than others may be the most impactful method of curbing diabetes prevalence available. Certain aspects of society, such as what we eat and drink, how much we rely on cars, our levels of physical exercise, can all be influenced towards a lifestyle that fights against diabetes, as the National Clinical Care Commission has proclaimed. As Dr. Dean Schillinger, a professor of medicine at the University of California, San Francisco and one of the authors of the report says, **"Our entire society is perfectly designed to create type II diabetes. We have to disrupt that."**[12]. Their recommendations consist of increasing the funding for current nutrition assistance programs to promote a higher quality diet, directing the Federal Trade Commission to regulate unhealthy food and beverage marketing towards children, updating the Food and Drug Administration's labeling requirements to provide consumers with better understanding of which foods are healthy, increasing federal programming and paid maternity leave to promote breastfeeding, providing more housing opportunities in health-promoting areas, and more. On top of this, the report calls for the establishment of a national policy office directed towards sweeping initatives that would influence almost every aspect of life. While not directly related to healthcare delivery, all of these policy goals would promote living in a way that reduces risk of developing diabetes far below where it currently lies[12].

Conclusion

Type II diabetes mellitus is a crisis on the rise. The disease continues to affect more and more Americans at younger and younger ages. It is especially an issue to the state of Kentucky, where over one in every eight people are dealing with the disease. It is painful and costly to patients, and can lead to serious, even deadly, complications. It burdens our healthcare systems and costs our state hundreds of millions of dollars. While research has helped with our understanding of the disease and how to treat it, we've failed to realize other ways we can prevent and manage cases through lifestyle intervention. Improvements are being made every year, but

more has to be done in order to fight back the continuous growth in cases that we've seen over the past few decades. This can be accomplished by expanding access to and funding for the National DPP, so that anyone in Kentucky who is struggling can get the help they need, in whatever medium is most effective for them. It can be done by establishing a more proactive outlook in healthcare, where we don't have to reserve CCM services for the sickest or most vulnerable. It can be done by being bold in our advocacy for reform and aim to improve societal conditions that create the perfect storm for diabetes. In whatever manner it may be, it can be done, and it has to be done. Lives are at stake, and **the longer we wait to take decisive action, the more that Kentuckians, and other Americans, will suffer.**

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