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Standardizing Perinatal Mental Health Interventions: A Guide for the U.S.

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**Standardizing Perinatal Mental Health Interventions:
A Guide for the U.S.**

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MPH Candidate 2022

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Abstract

The term perinatal individual refers to women and other individuals who are pregnant or who have been pregnant within the last 12 months. Every year, in the United States there are 700 pregnancy-related deaths and 10% are due to mental health causes including death by suicide. Mental health conditions including but not limited to anxiety, depression, substance use disorders, and post-traumatic stress disorder affect one in five perinatal individuals throughout the United States. This increases perinatal morbidity, hospitalization costs, and economic burden nationwide.

After 43 days postpartum, mental health conditions are the second leading cause of death. The United States lacks a standard of care for the treatment and linkage to perinatal mental health services. The evidence of this shortcoming is visible in the rising perinatal mortality rate in the United States. Research on causes and potential interventions for reducing pregnancy-related mental health deaths have been conducted and yield recommendations for improving screening, access to care, and education on perinatal mental health for both the provider and perinatal individual.

While legislation varies by state, this paper recommends a standard for the United States to ensure a perinatal individual's life expectancy is not contingent on their location, and instead equitable opportunities for screening, treatment, and education are available in all states.

Key words: telepsychiatry, perinatal mental health, perinatal mortality, pregnancy-related mental health deaths, suicide, screening, social determinants of health.

Introduction

Every year, approximately 700 perinatal individuals in the United States die from pregnancy-related complications, including mental health causes (CDC, 2022). The term perinatal individual refers to women and other individuals who are pregnant or who have been pregnant within the last 12 months. While most national data use the term women, not all perinatal individuals identify as women. The perinatal period is separated into three different periods: (1) pregnancy, (2) one day to 42 days after giving birth, and (3) 43 days to 12 months after giving birth.

Perinatal individuals with a mental health condition are less likely to seek health care, may have a greater risk of pregnancy and labor complications, and their suffering can be significant and increase their risk of suicide. Pregnancy-related mental health deaths occur by suicide or drug overdose and are almost all preventable (Moran, 2021). According to data from fourteen state mortality review committees from 2008-2017, around 10% of pregnancy-related deaths were due to mental health causes and 75% of them had a history of depression (Trost et al., 2021).

The overwhelming number of physical health issues affecting perinatal individuals during pregnancy in the United States cannot be separated from the mental health stressors involved in pregnancy. Over 50% of pregnancy-related mental health deaths occur between day 43 to 1 year after birth (Commonwealth Fund, 2020). During this time period, mental health causes are the second leading cause of death, second only to cardiac conditions (Commonwealth Fund, 2020).

Where access to hospitals, mental health resources, and clinics is limited, ensuring a safe pregnancy, birth, and postpartum care is critical for reducing pregnancy-related mental health deaths. All pregnant people are at risk for developing mental health conditions including

depression and anxiety, and those who were diagnosed with mental health disorders prior to pregnancy are at a significantly higher risk of death (Howard & Khalifeh, 2020).

Innovative methods to reduce perinatal suicide rates are currently being explored by myriad public health actors and healthcare providers. Telemedicine has become an innovative platform for healthcare delivery and is widely utilized in the psychiatry sector throughout the United States. One type of telemedicine is telepsychiatry where patients can meet with a psychiatrist and access mental health treatments. Investment in prevention measures and early treatment of poor mental health in pregnant people through telepsychiatry care is essential for reducing pregnancy-related mental health deaths.

Background and Literature Review

U.S. perinatal mortality vs. other developed nations

Despite being a high-income nation, the United States is the only developed country with an increasing perinatal mortality rate (CDC, 2019). In just three years, from 2017 to 2020, the perinatal mortality rate climbed from 17.4 to 23.8 deaths per 100,000 live births (CDC, 2020).

Figure 1 shows how perinatal mortality in the U.S. drastically outstrips that of other industrialized nations.

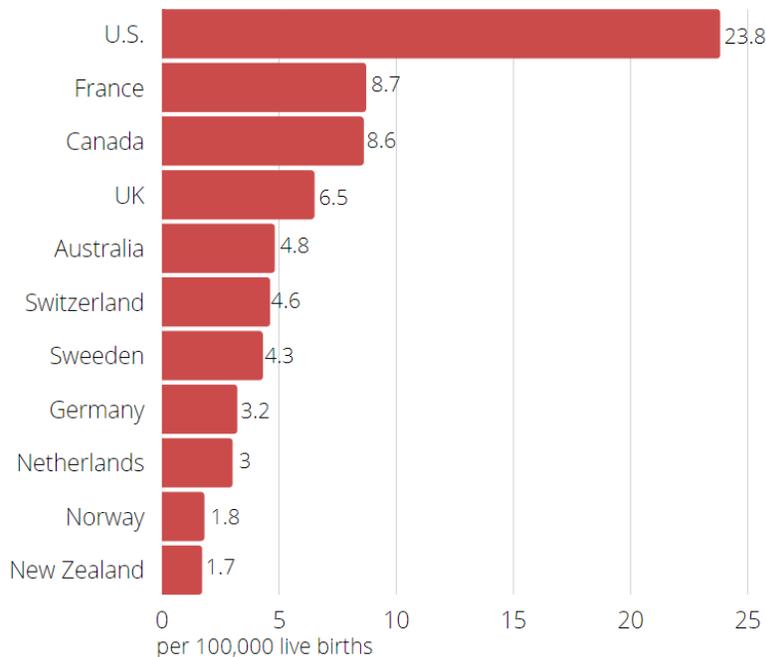


Figure 1: Perinatal Mortality in the U.S. Far Outstrips That of Other Industrialized Nations

When comparing this to other developed countries with similar economic compositions, the United States is a huge outlier among nations and has a maternal mortality rate almost three times higher than France, the country with the next highest rate (CDC, 2020). The United States must formulate a response for this immense shortfall and protect perinatal individuals nationwide. This section will detail contributing factors to the increasing perinatal mortality rates and the consequences to perinatal individuals' mental health.

Black perinatal individuals die at three times the rate of their white counterparts due to a pregnancy-related cause (CDC, 2020). The CDC notes this is a conservative number due to the length of the perinatal period and underreporting or attribution of pregnancy-related mortality causes. These issues directly affect perinatal individuals and the health and development of their children. While there are a multitude of reasons why the U.S. is in a maternal mortality crisis, the fact that the U.S. is the only high-income country that does not guarantee paid leave for perinatal individuals after is a contributing factor (Commonwealth Fund, 2020). One lesson the U.S. could learn from other developed countries with low perinatal mortality rates is to invest in support for perinatal individuals to relieve the economic stressors they endure, in addition to the psychological and physiological demands of caring for a child.

Mental health conditions affect people's emotions, thinking, behavior, and greatly alter their day-to-day living. Commonly diagnosed mental health conditions in the perinatal period include anxiety, depression, obsessive compulsive disorder, post-traumatic stress disorder (PTSD), substance use, etc. (Maternal Mental Health Alliance, 2022). One in five perinatal individuals is diagnosed with a mental health condition, including but not limited to postpartum depression, anxiety, and psychosis (Rivera, 2021). According to a 2018 Listening to Mother Survey in California, 72% of people with perinatal depression or anxiety never received counseling or treatment (Sakala et al., 2018). This reveals a major gap in linkage to care and must be addressed.

Economic costs associated with perinatal morbidity and mortality

Morbidity—referring to an illness or disease—and mortality—referring to death—both describe statistics about health. Mental health conditions increase perinatal morbidity by 50% and increase delivery hospitalization costs throughout the U.S. (Brown et al., 2021). Perinatal

individuals with trauma- or stress-related mental health conditions are among those with higher rates of perinatal morbidity and longer hospitalization stays (Brown, et al, 2021). This showcases the necessity for evaluation of cost-effectiveness analyses of perinatal mental health (PMH) programs.

The economic costs associated with perinatal morbidity is an estimation of the value of the years of potential life lost (YPLL). Perinatal morbidity can result in lost productivity for missing days of work due to an illness or providing care for someone else who is ill (CHBRP, 2018). In such a large health industry, the total societal cost of perinatal mortality must be addressed as perinatal morbidity costs the United States approximately \$30 billion per year (The Commonwealth Fund, 2022).

Inequities in perinatal health

Inequities in perinatal health outcomes due to social and political legislation influenced by racism, classism, and gender oppression impact the economic burden of perinatal mortality and morbidity throughout the U.S. (Crear-Perry et al, 2021). While these aspects of maternal morbidity may not appear to be related to pregnancy-related mental health deaths, these are in fact reasons why maternal mortality rates are increasing. Even though perinatal mental health conditions have some of the highest total costs, non-medical interventions such as education, screening, and awareness campaigns—low cost and lifesaving interventions—are not being utilized nationwide to combat perinatal mental health conditions.

Social determinants of health (SDOH) are the conditions influencing both individual and group differences in health status such as economic stability, education, food, access to health

services, and housing. Figure 2 displays how SDOH affect perinatal health outcomes. When

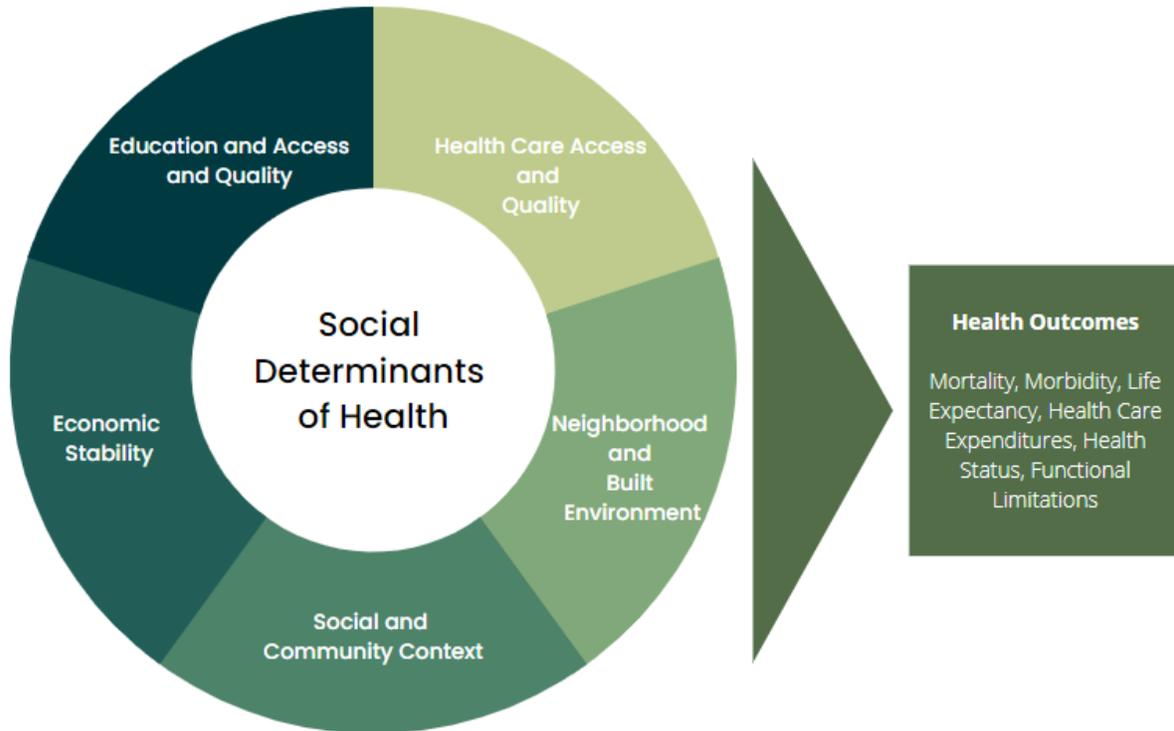


Figure 2: Social Determinants of Health

perinatal individuals do not have access to resources vital to their health prosperity, perinatal morbidity increases. Similarly, socioeconomic status (SES) is associated with perinatal mental health conditions including depression, anxiety, etc. due to external stressors such as transportation, food, financial, and housing insecurities (Grote et al, 2015). This further inhibits PMH as these barriers often impact perinatal individuals' ability to attend perinatal appointments. The stigma of being diagnosed with a mental health condition and low health literacy also disproportionately affect perinatal individuals with low SES which further increases perinatal morbidity.

The mental toll economic and workforce hardships can bear on parents—especially single parents—can induce mental health conditions, most commonly anxiety and depression. This occurs due to the lack of financial support the U.S. provides for perinatal individuals. Separation

during the immediate postpartum period negatively affects families' physical and mental health as this is a crucial time for developing forms of attachment and breast-feeding (Moore, 2021). There are many consequences of not treating perinatal mental health conditions as they can have long-term negative impacts on the child, parents, and their support system (Lifeline4Moms, 2020). Ensuring these inequities are addressed and actively combatted through programs supporting perinatal individuals is essential for reducing perinatal mortality.

Socio-Ecological Model (SEM)

The Socio-Ecological Model was used to identify and analyze current interventions utilized in different states to address education, access to care, screening, and current legislation. These current interventions span five different levels and are displayed in Figure 3 below.



Figure 3: Socio-Ecological Model (SEM)

Current Interventions

Policy level

Screening for Perinatal Mental Health Conditions.

Legislation providing screening for postpartum depression has been enacted in a handful of states including New Jersey, Illinois, West Virginia, and California (Rhodes & Segre, 2013). In California, AB-2193 requires a health service plan or insurer to develop a maternal mental health (MMH) program by July 1, 2019 and requires providers offer or appropriately screen perinatal individuals for MMH conditions (CHBRP, 2018). This is a feasible avenue for identifying and treating PMH conditions before they are exacerbated during the perinatal period.

While AB-2193 increased total net annual expenditures by over \$4.5 million per year in California, it provides consistent improvement in access to maternal mental health treatment options (CHBRP, 2018). Through AB-2193, Maternal Mental Health NOW has implemented screening practices through multiple integration projects throughout Los Angeles County. Los Angeles County has launched a Maternal Mental Health resource directory to assist perinatal individuals regarding mental health concerns during the perinatal period. Results from AB-2193 have not been documented yet, however the effort to train providers for screening is currently being implemented by Maternal Mental Health NOW, suggesting the results could be positive. This program could be generalized to the U.S. as a whole since Los Angeles County has a population larger than 43 of the 50 states.

Extension of Medicaid services.

While Medicaid provides pregnancy-related coverage through 60 days postpartum, most insurance plans do not cover the most dangerous window—up to a year after giving birth—for perinatal individuals who might develop postpartum depression (Goldman-Mellor & Margerison, 2019). California passed legislation in late 2021, providing an opportunity for an extension from 60 days to 12 months to support maternal mental health

(KFF, 2021). California is joined by ten other states—Louisiana, Michigan, Tennessee, South Carolina, Kentucky, Oregon, Illinois, New Jersey, Virginia, and Florida—and the Centers for Medicare & Medicaid Services announced they are working with an additional ten states—Indiana, Maine, Minnesota, New Mexico, Pennsylvania, West Virginia, North Carolina, Washington, Connecticut, and Washington D.C—to extend postpartum coverage (American Hospital Association, 2022). Since PPD is usually diagnosed after 60 days postpartum, ensuring the ability to access mental health services during this time is essential for preventing the likelihood of pregnancy-related mental health deaths.

Education for Providers and Perinatal Individuals.

Education for both pregnant people and providers about how to identify and treat signs and symptoms of postpartum depression took effect in California on January 1, 2020 with Assembly Bill 3032. AB-3032 requires the following: birthing hospitals must inform perinatal individuals and their families of PMH conditions, treatment options, and available resources; providers in labor and delivery departments must receive information about PMH conditions; and hospitals must develop and provide additional services (individually determined by hospitals) to ensure adequate care (AB-3032, 2020). This bill provides necessary training during a critical time in postpartum care and is an essential component of decreasing pregnancy-related mental health deaths when combined with screening and other interventions. While there is no data on the progress of the program available, the continuation of funding for this bill indicates its success.

Community Level

Provider Response to Perinatal Mental Health Conditions.

Programs focused on provider response to perinatal mental health conditions and how to best facilitate PMH support through screening and treatment methods are essential for reducing pregnancy-related mental health deaths. Maternal Mental Health Now is in collaboration with two Los Angeles County based initiatives: (1) UCLA Prevention Center of Excellence which works to educate providers who serve low income populations on best practices for responding to perinatal mental health conditions and (2) Streetsyze which is expanding online perinatal mental health resources through community voices (CHCF, 2022).

Organizational

Perinatal Mental Health Programs.

Peer promoters with a proven track record of championing health in their micro/macro community would be utilized. ChapCare, Central Neighborhood Health Foundation, Alliance Medical Care, and Open Door Community Health Centers are California community health centers that participated in research that assessed the impact of provider-to-provider longitudinal remote consolation for the management of perinatal depression (CHCF, 2022). While these programs are still in process, other PMH programs funded by California Health Care Foundation have shown improved perinatal outcomes and similar results are expected.

Interpersonal

Perinatal Individual Response to Mental Health Condition.

Programs facilitating peer-peer communications to reduce prenatal depression are currently being pursued in New York (Postpartum Resource Center of New York, 2022). By story sharing and group learning, mothers in the perinatal period can combat and avoid

perinatal depression. Educational tools specified for pregnant people that inform them about perinatal depression and ways to prevent and treat it can reduce morbidities of PMH conditions (Burns et al, 2020).

Telepsychiatry Programs.

Throughout the U.S., multiple states have implemented their own programs to provide support for perinatal mental health conditions and they have proven to be successful. A 2020 report from LifeLine4Moms noted that 12 states implemented perinatal psychiatry access programs to address perinatal mental health by building provider capacity and implementing screening procedures. Massachusetts, a trailblazer in perinatal mental health, created Massachusetts Child Psychiatry Access Program (MCPAP) for Moms to manage mental health conditions through early intervention education, consultation, and resource and referral (Lifeline4Moms, 2020). This program addresses gaps in clinical care and supports state uptake and similar implementation of this scalable model that leverages limited psychiatric resources for improved perinatal mental health. Wichman et al launched The Periscope Project, a Wisconsin state program offering provider-to-provider telecommunication, provider education, and community specific information. They found that across the board, telemedicine is utilized and accepted by providers which encourages its use and could strengthen population health over time (Wichman et al, 2019). In the state of Michigan, a program focusing on primary care physician access for patients with PMH conditions proved to be successful as patients with psychiatric conditions reported high levels of satisfaction (Marcus et al, 2019). While these programs offer myriad options for improving perinatal mental health, national

implementation of these services would better address the increasing perinatal mortality rates.

While barriers to consistent health care services historically affect minority and low-income groups, Covid-19 has highlighted these inequities and exacerbated the hardships involved in accessing care, especially mental health services. Telepsychiatry offers an adaptive and more convenient way of accessing health care services (Moore, 2021). Massachusetts is a model for creating innovative telepsychiatry programs to combat pregnancy-related mental health deaths. States have population specific needs and gathering support at the federal, state, and county level are all equally important for standardizing the practice of telepsychiatry services for perinatal individuals. Maintaining community stakeholder engagement is essential for the success of a telepsychiatry program.

Individual

When equipped with robust legislative support, individuals can take charge of their health and develop skills to seek mental health assistance. Investment in prevention and early treatment of poor mental health in pregnant people is essential.

Health Systems Supporting PMH

It is evident that policies to improve health care systems, increase perinatal mental health screening during and after pregnancy, and address barriers to accessing clinicians are crucial for reducing pregnancy-related mental health deaths. Communication measures supporting both peer-peer and provider-patient interactions for accessing health information and promoting perinatal health must be addressed. Health systems supporting perinatal health will result in better perinatal mortality rates and increased economic productivity. From the COVID-19

pandemic, we learned telepsychiatry services are a useful way to extend services to those who may not be able to get to a clinician's office. Policies connecting mothers postpartum to telepsychiatry services must be implemented.

Methods

This literature review was conducted using both google searches for relevant articles and the University of San Francisco's online databases, where sources were obtained through PubMed Central. Key words used: perinatal mental health, maternal mortality rates, economic impacts of maternal mortality, pregnancy-related mental health deaths, maternal suicide, telehealth, social determinants, postpartum depression, cost of illness for maternal mortality, maternal morbidity, and telepsychiatry in obstetrics.

25 relevant peer reviewed articles and 15 reputable national organization web pages were utilized to assess best practices for reducing pregnancy-related mental health deaths and increasing access to perinatal mental health resources in the United States. Peer reviewed articles were filled with topic specific information and two articles identified were not included in the final literature review as they were beyond the scope of the review. This literature review focused on three specific aspects of perinatal mental health: 1) disparities and role of social determinants of health in maternal mortality / morbidity due to mental health conditions, 2) telepsychiatry services to treat pregnancy-related mental health conditions, and 3) increasing screening, education, and access to care to decrease perinatal mortality rates.

Recommendations

Decreasing U.S. perinatal mortality rates associated with mental health causes can be addressed in many different ways and requires more than one intervention. As discussed above, at least one state has implemented each of these services: (1) PMH screening, (2) provider education on PMH conditions, (3) education for perinatal individuals about PMH conditions, (4) expansion of Medicaid services for up to one year postpartum, (5) telepsychiatry services for PMH conditions. A perinatal individuals' care options should not be contingent on the state they reside in. Instead, a national standard of perinatal mental health interventions must be adopted. Appendix D and the interventions listed below provide a guide for legislation to reduce perinatal mortality.

PMH Screening

According to MCPAP for Moms, the cost of untreated PMH conditions is \$32,000 per year post birth (LifeLine4Moms, 2020). Alternatively, the cost of MCPAP for moms is estimated to be \$13 per perinatal individual each year. States that passed legislation supporting screening legislation such as California have seen an increase in programs providing screening services. While these programs are new, they are low cost ways to prevent and treat PMH conditions. Implementing national PMH screening legislation will make these services accessible for all perinatal individuals which will decrease perinatal mortality rates.

Perinatal mental health screening is essential for diagnosing and treating PMH conditions. During the first postpartum visit, utilizing one of three screening tools, providers can choose between the Patient Health Questionnaire-2 (PHQ-2), the Patient Health Questionnaire-9 (PHQ-9), or the Edinburgh Postnatal Depression Scale. This screening process and guidelines for

referral timing are a necessary part of ensuring PMH screening during the perinatal period is successful.

Provider Education on PMH Conditions

Programs in California, Massachusetts, and Wisconsin focus on provider education and collaboration to address specific needs for each perinatal individual. These state funded programs ensure providers who interact with and screen perinatal individuals for PMH conditions have adequate education on PMH. This helps to mitigate the underdiagnosis of perinatal mental health conditions, provides linkage to services, and in turn reduces perinatal mortality. These programs also ensure providers know how to talk to patients in a sensitive and compassionate manner, and provide training on how to approach mental health topics with perinatal individuals. The cost of these programs is low as investment in educational materials created in California can become the national standard if it is found that they are successful. Provider education on PMH conditions is an essential aspect of ensuring mental health topics are discussed with perinatal individuals and will reduce pregnancy-related mental health deaths in the U.S.

Education for Perinatal Individuals About PMH Conditions

California's AB-3032 is a noteworthy model for incorporating hospital level interventions for education on PMH conditions. By utilizing labor and delivery providers in birthing hospitals, perinatal individuals can learn about what might be next in terms of their mental health. This approach combines clinical and preventative care to improve health outcomes and is a low-cost intervention to reduce pregnancy-related mental health deaths throughout the United States. Costs associated with this intervention include training providers

and utilizing staff time to share PMH information with perinatal individuals but the payoff makes it feasible.

Expansion of Medicaid services for one year postpartum

With eleven states having already passed legislation and ten states considering it, expanding Medicaid services for perinatal individuals up to one year postpartum should be the national standard. States who have previously implemented this legislation have reported positive feedback from perinatal individuals as it removes the financial burden that accompanies seeking treatment for PMH conditions. Encouraging low-income perinatal individuals to utilize health care services reduces morbidities associated with PMH conditions.

Telepsychiatry services for PHM conditions

Telepsychiatry services for perinatal individuals with mental health conditions have yielded compelling results in 12 states; therefore, adoption at the federal level is the next step. Measures to not only increase access to mental health services through digital tools including telepsychiatry services but increase clinician and insurance provider support for these services are necessary to reduce pregnancy-related mental health deaths. While telemedicine does not need to replace in-person care visits as a whole, it is a trusted and convenient avenue for increasing access to providers. Telemedicine offers opportunities for those who cannot leave work for an appointment, have transportation limitations, or are reluctant to visit a mental health clinician in person due to stigma.

COVID-19 has altered the new reality of many health systems. One positive alteration is the increasing use of telehealth consultation. This has made the economic and insurance coverage aspects of telepsychiatry much more feasible as existing health plans incorporate new telehealth services. Telepsychiatry utilizes a low-cost structure as providers can provide

treatment for patients from their respective homes or location of choice, meaning stakeholders are inclined to support this financially.

Logic Model

A logic model showcases the relationship between resources, activities, and intended outcomes. Appendix E reviews the inputs, outputs, and outcomes of creating a standard for perinatal mental health interventions throughout the U.S. External factors including individual behavior or funding requirements and assumptions such as perinatal individual's desire to care for their mental health, are all considered in the logic model and are dynamically interacting with outcomes. Reducing perinatal mortality is the goal and states should be required to deploy at least the following: PMH screening, provider / perinatal individual education on PMH conditions, Medicaid coverage through one year postpartum, and telepsychiatry services for PMH conditions.

Implications and Discussion

Through provider support at multiple levels of care during critical times in the perinatal period and connection to telepsychiatry services, pregnancy-related mental health deaths will be reduced. Comprehensive legislation at the national level will bridge evidence-based practices used in some states, to all states and prevent the current silo in services. Having a national plan to combat pregnancy-related mental health deaths will help decrease the United States' rising perinatal mortality rates.

Limitations

Telepsychiatry

While there is a multitude of evidence that progressive legislation supporting PMH improves perinatal outcomes, what works for some states might not work for all. For example, there is no guarantee that broad implementation of telepsychiatry services will help perinatal individuals in all states. Even with the immediate adoption of telemedicine throughout the U.S. due to the Covid-19 pandemic, opposition is still prevalent. Opposition driven by limitations to telepsychiatry include the (1) possibility of technical and connection difficulties, (2) security breaches, (3) regulatory barriers, (4) potential for decreased continuity of care, (5) legal and regulatory hurdles, (5) multistate licensing, (6) increased risk of misdiagnosis, (7) difficulty finding a private location, and (8) medical liability (Gaiarawala, Pelkowski, 2021).

Telepsychiatry for perinatal mental health has only recently been implemented and data is not widely available. However, the fact that states are passing legislation to provide telepsychiatry services indicates positive results. While these are all valid risks to telepsychiatry delivery, the continual adaptations and technological advancements remain encouraging for widespread adoption.

Federal Policy Implementation

In terms of funding, most interventions are low-cost, however current hostile political climates around reproductive health may result in federal opposition to additional funding for perinatal services. Federal health programs have historically been difficult to pass through the legislative branch and presumably, this would be no different. However, with the overturning of *Roe v. Wade* in June 2022, implementing federal legislation is essential now more than ever as there will be an increase in perinatal individuals who are forced to keep an unwanted pregnancy and the mental health consequences could increase suicide rates. With different priorities and agendas of state legislators, and potential budgetary restrictions at the federal level, immediate and robust adoption of the interventions discussed previously may not be feasible at once.

Implications

Recommendations to improve screening of PMH conditions, extend Medicaid coverage through the perinatal period, implement provider and perinatal individual education, and utilization of telepsychiatry services will reduce pregnancy-related mental health deaths in multiple ways. Tele-psychiatric services empower individuals to manage their own health and can be the catalyst for those who are unable to leave their home or job to access care. For those in rural areas or smaller towns with little access to high quality care, telepsychiatry now links those individuals to different provider options and will help decrease perinatal mortality rates. By assisting perinatal individuals to access the assistance necessary for their health, others will benefit, especially their child and those closest to them. Improved quality of life for the child would be an outcome as screening and telepsychiatry services would decrease the chances of a PMH condition impacting the child's long-term health. These impacts would help relieve the effects of poor PMH and adverse health outcomes for the child and mom.

In the future, Emergency Departments (ED) would be less overwhelmed as parents who are depressed or anxious are more likely to take their child to either a doctor's office or ED (Lifeline4Moms, 2020). This would relieve financial pressure on the health care system.

Additional economic benefits include reduced economic strain on the United States as perinatal mortality costs would decrease.

In terms of future legislation to continue addressing causes of high perinatal mortality rates, success around perinatal mental health would pave the way for passing additional legislation for supporting perinatal health.

Conclusion

This recommendation seeks to reduce perinatal mortality rates by utilizing programs, technology, and provider capacity that are well equipped to implement screening protocols, extend Medicaid services through the perinatal period, educate for providers and perinatal individuals on PMH conditions, and provide telepsychiatry services for all perinatal individuals in the U.S. Adoption and implementation of services at the federal level to support PMH is essential for reducing pregnancy-related mental health deaths. By addressing the role mental health has in exacerbating perinatal morbidities, perinatal individuals' overall health will improve. Programs in various states have found success in the interventions listed above and federal implementation of will procure improved perinatal health outcomes.

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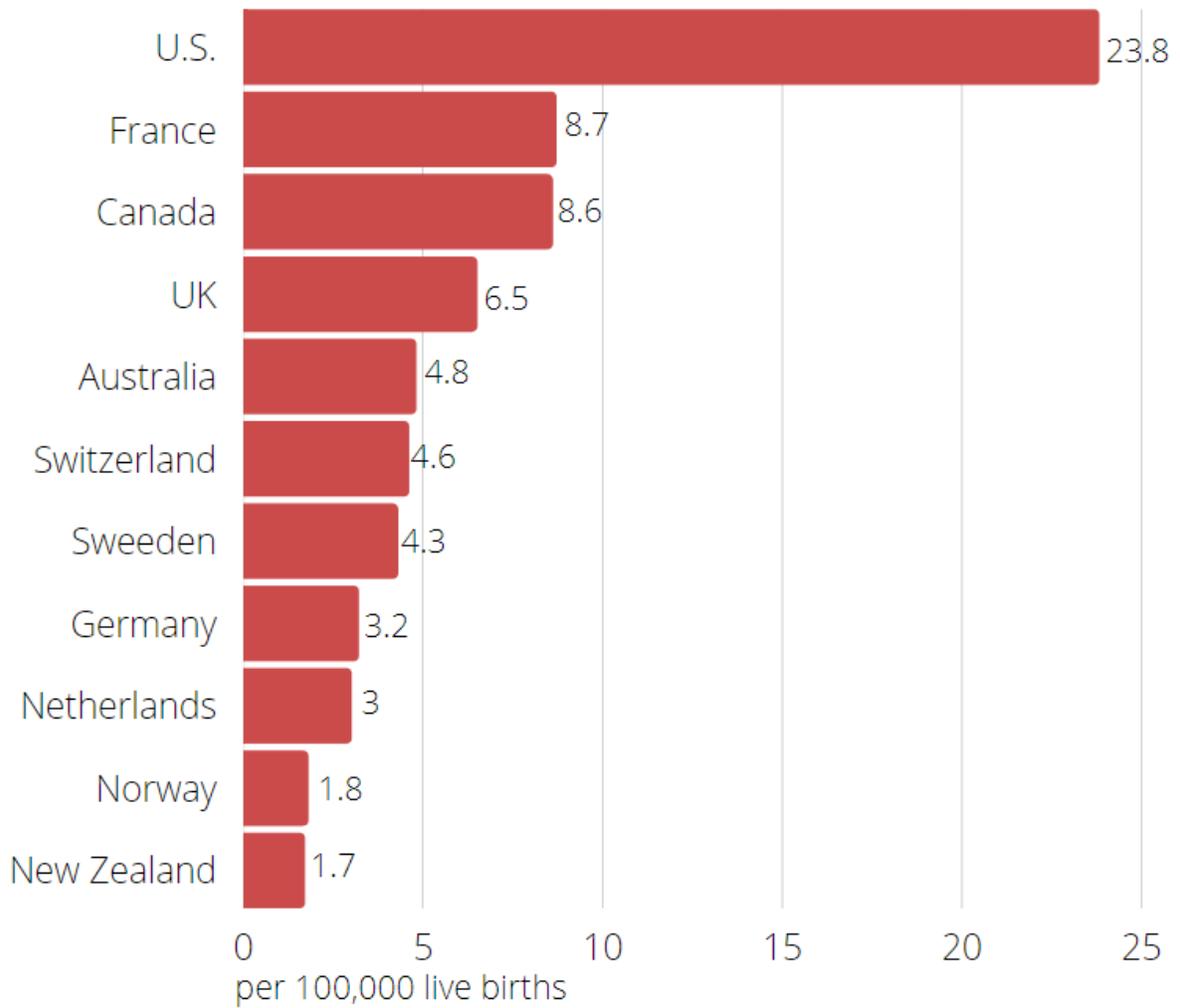
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Appendix A

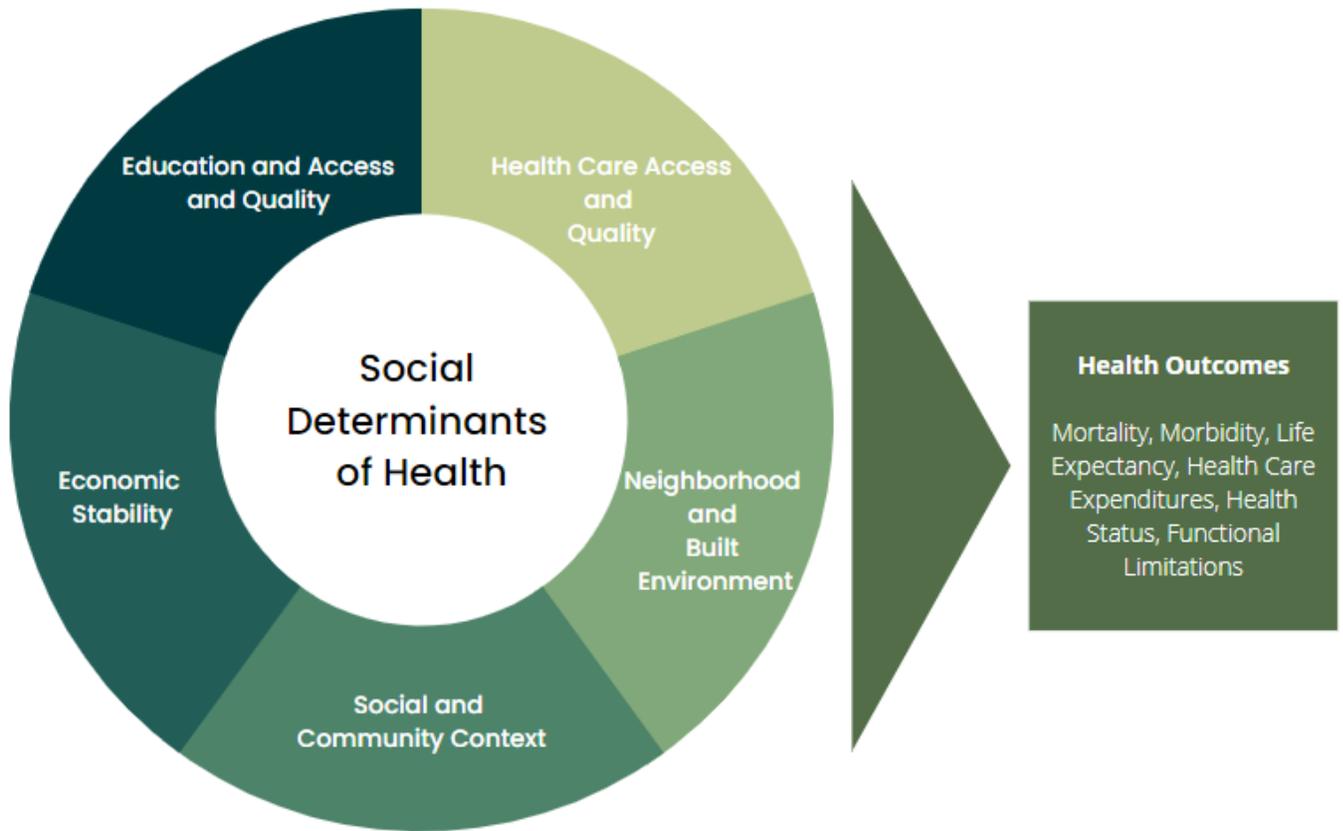
Perinatal Mortality in the U.S. Far Outstrips That of Other Industrialized Nations



Source: [The Century Foundation, 2022](#)

Appendix B

Social Determinants of Health Effect Health Outcomes



Source: [Healthy People 2030, 2019](#)

Appendix C

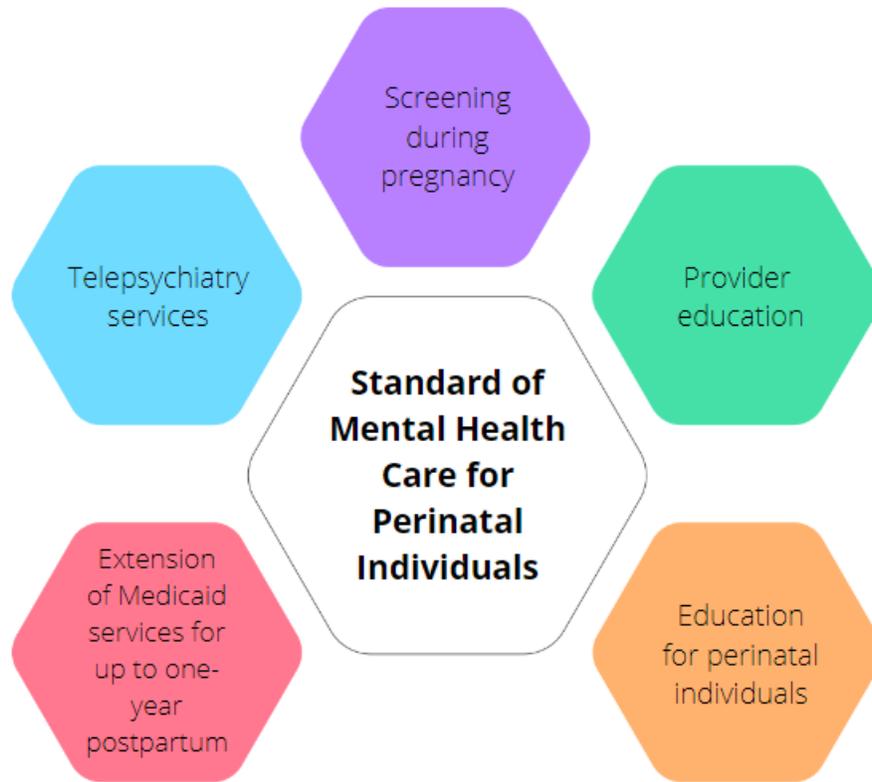
Socio-Ecological Model



Source: [Lee et al., 2017](#)

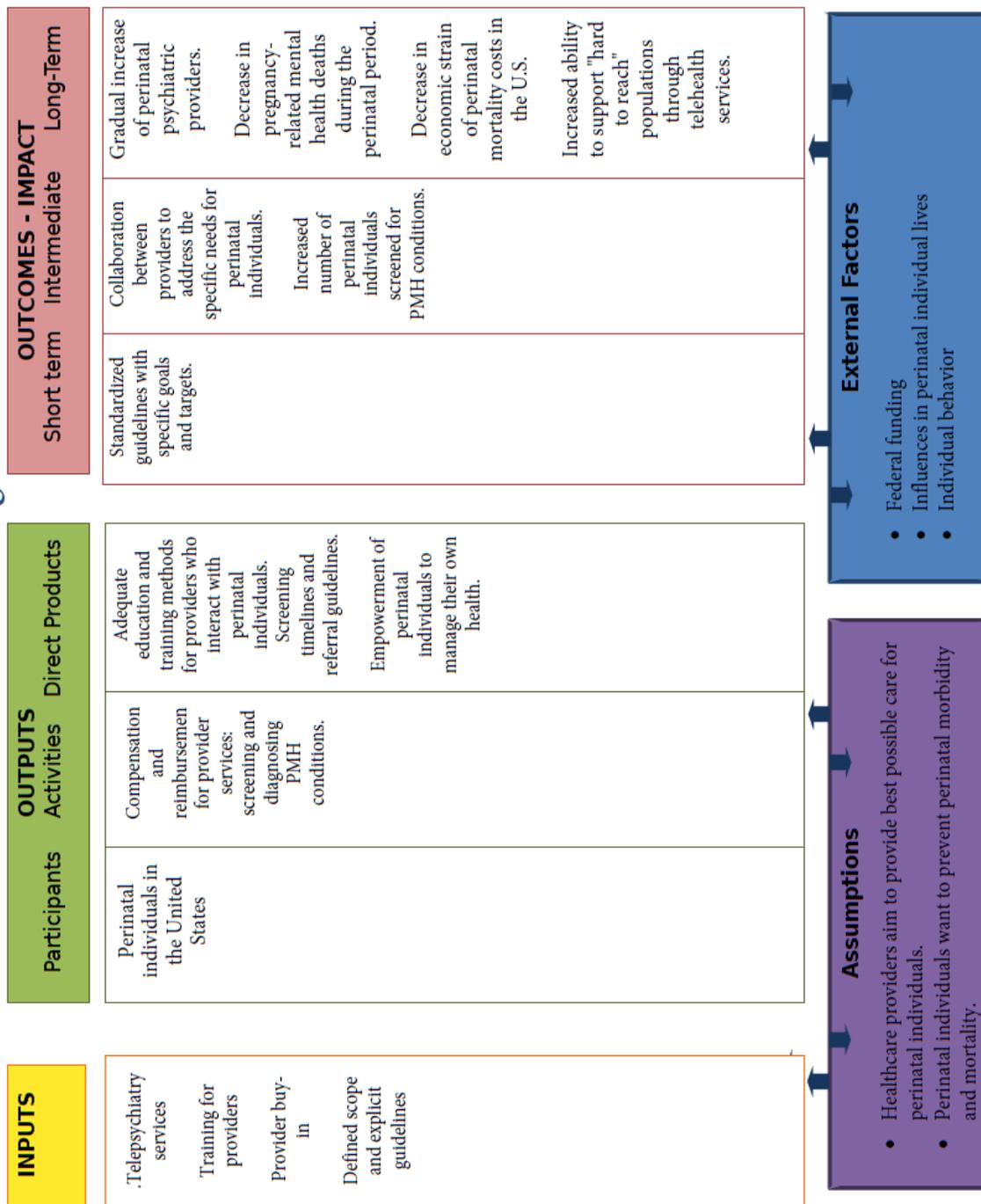
Appendix D

Standard of Mental Health Care for Perinatal Individuals



Appendix E

Perinatal Mental Health Interventions -- Logic Model



Situation

High rate of pregnancy-related mental health deaths.
 Hinders the perinatal individual, child, and their support system's quality of life.
 Social determinants of health increase the likelihood of perinatal mental health conditions.

Priorities

Reduce pregnancy-related mental health deaths during the perinatal period
 Reduce Adverse Childhood experiences due to perinatal mental health conditions
 Provide timely and adequate care

USF MPH Competencies Applied in this ILEX paper

| Foundational Competency | Description of how used for Capstone |
|--|--|
| Evidence-based Approaches to Public Health | |
| 2. Select quantitative and qualitative data collection methods appropriate for a given public health context | Compiled and analyzed primary, secondary, and tertiary sources to quantify and identify best practices for perinatal mental health interventions. |
| Planning & Management to Promote Health | |
| 9. Design a population-based policy, program, project or intervention | Critically analyzed the literature and current legislation throughout the U.S. on perinatal mental health to recommend a nationwide intervention. |
| Communication | |
| 19. Communicate audience-appropriate public health content, both in writing and through oral presentation | Outlined, drafted, revised, and finalized a literature review, recommendations, and implications in a Capstone paper on perinatal mental health interventions that was also presented orally at Health Professions Day |
| Systems Thinking | |
| 22. Apply systems thinking tools to a public health issue | Detailed inputs, outputs, and outcomes in a logic model showing how perinatal mental health interventions will reduce perinatal mortality. |

Health Policy Leadership Concentration Competencies

| Competency | Description of how used for Capstone |
|---|---|
| 4. Develop recommendations to improve organizational strategies and capacity to implement health policy | Developed recommendations based on best practices and successful legislation found in literature and identified strategies for reducing perinatal mortality throughout the United States. |