REPORT

State Population Health Strategies that Make a Difference:

Reducing Infant Mortality in Georgia and Florida

by David K. Jones, PhD, and Christopher J. Louis, PhD

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Message from the President

How much does state health policy really matter? Can public and private sector leaders actually enact steps that systematically improve the health of entire populations? Or is the health of communities completely determined by forces resistant to state-level change—global economics, local political cultures, and the behavior of individuals?

If state health policy matters, how does effective policy happen? We are awash with "evidence" and advocacy to persuade policymakers. Legislators pass laws, the executive branch implements and enforces them, and providers and payers play their roles in delivering services. But what are the activities necessary for public officials to enact meaningful change?

These are more than questions of passing interest for the Milbank Memorial Fund. Since our mission is to improve population health by connecting leaders and decision makers with the best evidence and experience, we have a lot riding on these questions and their answers.

To pursue them, we engaged Boston University researchers David Jones and Christopher Louis to work backward—to determine if there are states that appear to have systematically and significantly improved their performance in multiple investigations of statewide measures of specific areas of population health. Then, if these states could be identified, go to those states and investigate what actually happened to generate that improvement.

Jones and Louis did indeed identify instances where states made big improvements in population health measures. Some "big mover" states made progress in reducing chronic disease burden and others reduced infant mortality. The researchers' investigations showed that state health policy in fact drove these changes. Their findings, however, yield no secret formula but instead uncover important steps for health care leaders and anyone committed to this work.

This research is highlighted in this report, a companion report, and a summary of the project and findings. We hope it helps inform and inspire all who engage in the important work of developing policies to help people live long and fulfilling lives.

Christopher F. Koller
President, Milbank Memorial Fund

Identifying Solutions from the "Big Movers"

State health policy leaders are looking for effective approaches to improve the health of the people they serve. There is growing recognition of the important role that state policy can play in improving population health. The development of effective policy at the state level is as important as ever, given the tumult and discord surrounding national health reform politics.

In this study, we took a unique approach to identifying effective population health improvement strategies in states. Rather than look exclusively at the states that consistently have the best health outcomes or focus on an evaluation of a specific program, we sought to identify states that had made dramatic improvement on one or more key population health outcome measures (hereafter referred to as "big movers"). We sought to identify which states made progress and examine how and why.

We did not focus on identifying the states that had the best outcomes or were consistently the highest performers, largely because the resources, political dynamics, and history of policy development in these states might make their lessons impractical and less relevant for low-ranking states. In our judgment, peers may be able to learn more—or at least different lessons—from states that improved from a ranking in the 40s to the 20s, for example, compared to the highest-performing states.

We used a rigorous process to analyze prominent health scorecards (America's Health Rankings, The Commonwealth Fund, and Kids Count) to identify states that have made particularly impressive improvement in identifiable categories of population health. We examined 157 population health measures across the scorecards before settling on the issues of chronic disease and birth outcomes. Finally, we sought confidence, using probability analysis, that the improvement was real and not random variation.

Two states met our criteria for improvement in the area of chronic disease between 2007 and 2012 (see the Appendix for more details on our data, methods, and why we used these time periods):

1. Delaware, improving from 32nd to 23rd
2. Iowa, improving from 20th to 11th

Four other states met our criteria for improvement with respect to infant mortality, a subset of birth outcomes, between 2004 and 2014:

1. Florida, improving from 33rd to 25th
2. Georgia, improving from 43rd to 31st
3. Maryland, improving from 41st to 31st
4. Missouri, improving from 38th to 29th

Having identified states that had made dramatic improvement in each of these important areas, we traveled to two states from each category—Delaware and Iowa for chronic disease; Florida and Georgia for infant mortality—to learn directly from key leaders (see the Appendix for more details about case study selection and methods). We used this comparative case study approach to answer the following questions:

- What policies did leaders put in place to achieve these gains?
- What challenges did they face?
- How were such challenges overcome?
- What can leaders in other states learn from their experiences?

Our study does not assess the causal relationship between certain policies and health outcomes; rather, it serves to generate ideas for promising population health strategies at the state level.

This report focuses on the lessons we learned from leaders in Florida and Georgia about how to reduce infant mortality and improve birth outcomes. A companion report examines how leaders in Delaware and Iowa improved wellness and chronic disease.

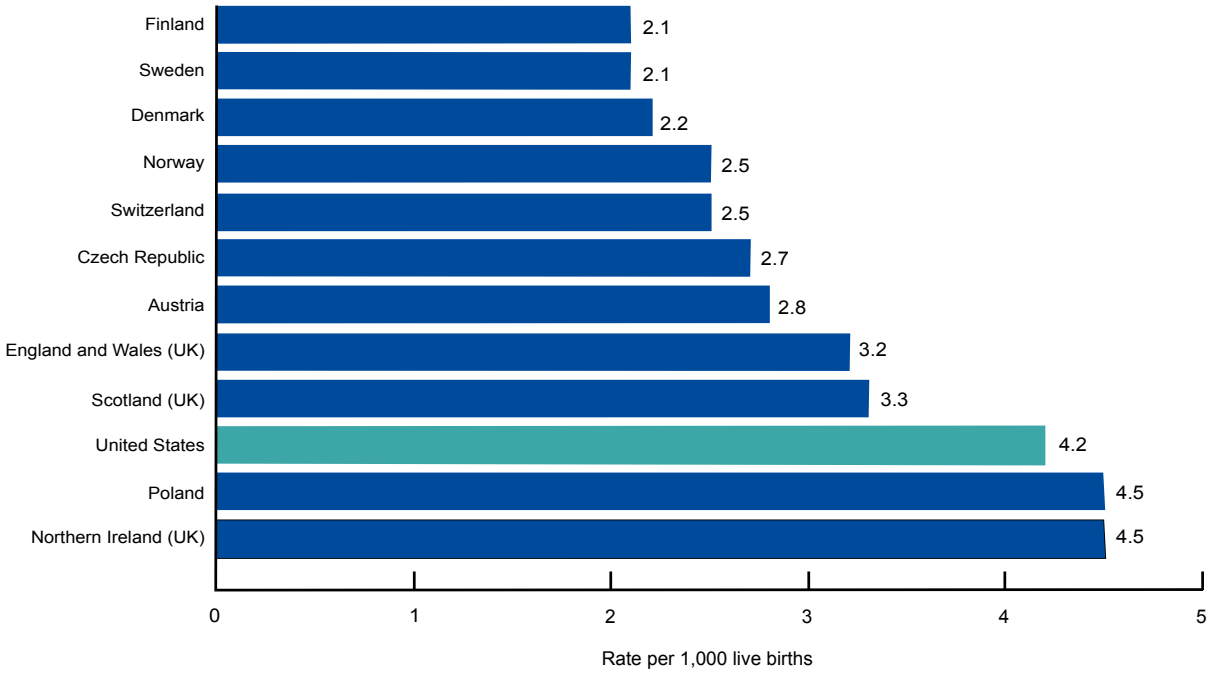
This report proceeds as follows: first, we describe why infant mortality is a major issue in the United States. Second, we highlight what has been done in Florida and Georgia. Finally, we wrap up with broader themes and lessons across the two states.

Infant Mortality: A National Embarrassment

After examining several measures used by state scorecards to assess birth outcomes and early childhood development, we decided to focus on infant mortality as our area of analysis given its importance as a major public health outcome, its role as an indicator of many other problems, and the consistency of data available to us across the states.

Infant mortality—defined as the number of child deaths that occur before age one—is a major public health problem in the United States. More than 23,000 infants died in the United States in 2014.[1] Using a rate per 1,000 live births as a comparison, the United States is ranked 26th among Organisation for Economic and Development countries. Despite our spending far more per capita than any other nation in the world on health care, babies born in the United States are less likely to see their first birthday than babies born in Slovakia, Belarus, or Cuba. Moreover, Figure 1 suggests that babies born in many European nations are up to two times more likely to see their first birthday.[2] As a result of these data, a 2014 article in the *Washington Post* called infant mortality in the United States "a national embarrassment."[3]

Figure 1. **Infant Mortality: The United States Compared to Selected European Countries**

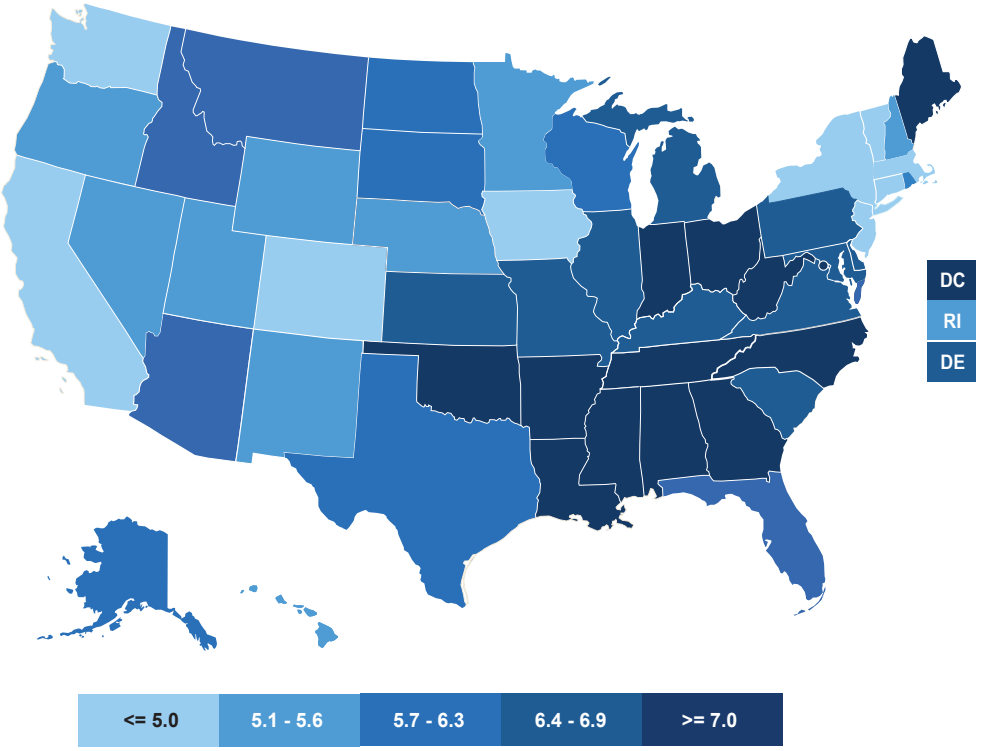


Notes: Countries included are those that provided these data to the European Perinatal Health Report. UK is United Kingdom.
Sources: CDC/NCHS, linked birth/infant death data set (U.S. data); and European Perinatal Health Report (European data).

Source: MacDorman MF, Matthews TJ, Mohangoo AD, Zeitlin J. International comparisons of infant mortality and related factors: United States and Europe, 2010. National Vital Statistics Report. 2014;63(5). https://www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63_05.pdf.

Figure 2 depicts the infant mortality rates for each state. The infant mortality rate varies dramatically within the United States, from 4.2 deaths per 1,000 live births in Massachusetts to 9.3 in Mississippi.[4]

Figure 2. **Number of Infant Deaths (Before Age One) per 1,000 Live Births, 2015**



Source: Explore infant mortality in the United States. 2015 annual report. America's Health Rankings. http://www.americashealthrankings.org/explore/2015-annual-report/measure/IMR/state/ALL.

Evidence suggests that infant mortality is related to sociodemographic factors, with higher rates in areas with low socioeconomic status, high rates of unmarried mothers, and high rates of mothers younger than 15 years old. Mortality rates are also higher among non-Hispanic black infants compared to non-Hispanic white and Hispanic infants.[5]

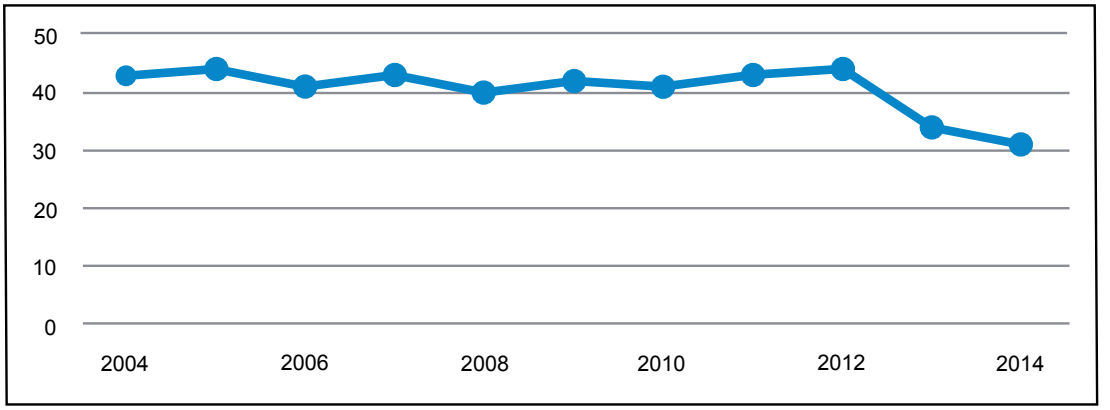
Studies have shown improved prenatal care, including reducing maternal smoking and alcohol consumption, to be effective in reducing infant mortality.[6] Other prenatal strategies include regular exercise, taking 400 micrograms of folic acid, and reducing intimate partner violence.[7] Additional studies find that a postnatal strategy focused on home nursing visits can reduce the incidence of sudden infant death syndrome (SIDS) and accidents.[8]

Both Florida and Georgia made marked improvement in their state's ranking in infant mortality between 2004 and 2014. We traveled to each state to examine how and why. In neither case was there a single policy or program that clearly explained the improvement. We now turn to case studies of each to examine the policies that were adopted, the role of key leaders, and the major cross-sector collaborations.

Case Study: Georgia

Georgia improved 12 rankings in infant mortality between 2004 and 2014, from 43rd to 31st (Figure 3), with the biggest change happening between 2012 and 2014. The ranking specific to the infant mortality for the Latino population improved 8 spots during this period, from 34th to 26th. The state also improved 12 places in teen birthrate, from 47th to 35th.

Figure 3. **Trend in Georgia's Infant Mortality Rate Ranking, 2004-2014**



Source: America's Health Rankings. http://www.americashealthrankings.org/.

When Brenda Fitzgerald took over as commissioner of the Department of Public Health (DPH) in 2011, she turned to data to help guide the setting of her priorities. She cites America's Health Rankings as being a particularly useful tool for identifying the issues most in need of her attention. Perhaps because of her background as an obstetrician, she was alarmed by Georgia's low ranking—consistently in the 40s out of 50 states in recent years—in the area of infant mortality. She, along with other leaders in the state, used a multipronged strategy to improve infant mortality. Three key elements of this approach included (1) developing consensus on the importance of the issue, (2) launching a safe sleep campaign, and (3) improving postnatal care. (See Figure 4.)

Figure 4. **Timeline of Notable Events: Reducing Infant Mortality in Georgia**

Abbreviation: CoIIN, Collaborative Improvement and Innovation Network.

Shining a Light on Infant Mortality

The first step to tackling infant mortality in Georgia was to shine a spotlight on the issue and create a sense of urgency among other leaders to find a solution. In 2011, her first year in office, Commissioner Fitzgerald tasked staff at the DPH with examining the state's data in detail and developing a public report. The department released "From Preconception to Infant Protection: A Regional Look at Periods of Risk for Georgia's Newborns" in 2012—the year Georgia saw its highest infant mortality rate and just before the state made a turn in the right direction. Commissioner Fitzgerald described the report as "a call to action to work together to reduce infant mortality and protect the health and well-being of families in our community."

The report focused specifically on data from 2002 to 2006 and led with the statistic that during this period "an infant died in Georgia every 7 hours and 36 minutes." This was described as being 15% to 20% greater than the national average and 42% higher than the Healthy People 2010 goal. The relative impact of specific causes of death was examined, highlighting that the major drivers of the infant mortality rate in Georgia were disorders related to preterm birth and low birth weight, as well as sudden infant death syndrome (Table 1).

Table 1. **Georgia Infant Mortality Rates for the 10 Leading Causes of Infant Death, 2002-2006**

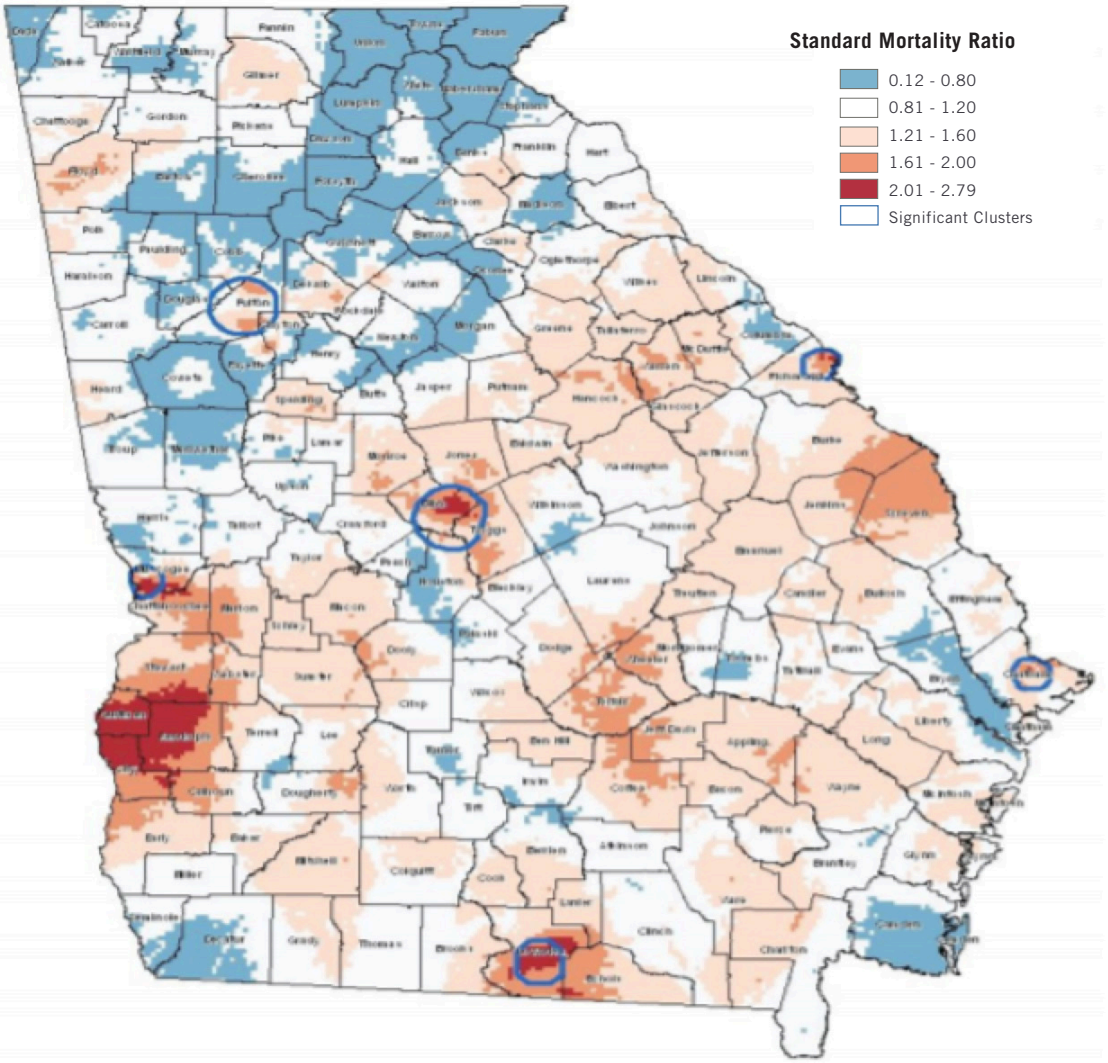
Causes of Death	Number	% of Total Deaths	Mortality Rate	Rank
All Causes	5,743	100	8.24	—
Disorders related to short gestation and low birth weight, not classified	1,117	19.5	1.62	1
Congenital malformations, deformations, and chromosomal abnormalities	964	16.8	1.39	2
Sudden infant death syndrome	621	10.8	0.90	3
Newborn affected by complications of pregnancy	321	5.6	0.46	4
Respiratory distress of newborn	245	4.3	0.35	5
Accidental/unintentional injuries	181	3.2	0.26	6
Bacterial sepsis of newborn	169	2.9	0.24	7
Newborn affected by complications of placenta, cord, and membranes	164	2.9	0.24	8
Necrotizing enterocolitis of newborn	134	2.3	0.19	9
Disease of circulatory system	131	2.3	0.19	10

Rates are infant (under 1 year) deaths per 1,000 live births.

Source: Chapple-McGruder T, Zhou Y, Freymann G, Castrucci B. From Preconception to Infant Protection: A Regional Look at Periods of Risk for Georgia's Newborns. Georgia Department of Public Health, Maternal and Child Health Program, Office of Epidemiology; March 2012. https://dph.georgia.gov/sites/dph.georgia.gov/files/MCH/preconceptiontoinfantprotection.pdf.

One of the most important aspects of the 2012 DPH report was the use of data to map the problem. This process of "hot spotting" allowed leaders to identify how the infant mortality rate varied across the state. Figure 5 depicts the Georgia infant mortality rate by county from 2002 to 2006 and identifies six clusters where the problem was particularly acute. These clusters were identified at the census tract level, straddling county borders. Some areas were urban, whereas others were more rural.

Figure 5. **Georgia Infant Mortality Rate by County, 2002-2006**



Source: Chapple-McGruder T, Zhou Y, Freymann G, Castrucci B. *From Preconception to Infant Protection: A Regional Look at Periods of Risk for Georgia's Newborns.* Georgia Department of Public Health, Maternal and Child Health Program, Office of Epidemiology; March 2012. https://dph.georgia.gov/sites/dph.georgia.gov/files/MCH/preconceptiontoinfantprotection.pdf.

The 2012 DPH report also emphasized the importance of collaborations between the state and specific communities, as well as of "forging strong partnerships among stakeholders."[9] A new task force was created in 2012 to catalyze this process. Led by neonatologist Mitch Rodriguez, MD, the Infant Mortality Task Force included representation from the state, regional perinatal centers, the Georgia Hospital Association, medical societies, private foundations, the March of Dimes, private industry, nurse midwives, hospitals, academia, and care management organizations.[10]

Further stakeholder engagement was accomplished through the Collaborative Improvement and Innovation Network (CoIIN) to Reduce Infant Mortality. CoIIN involved a partnership among multiple states with federal organizations such as the Health Resources and Services Administration, the Association of State and Territorial Health Officials, the Association of Maternal and Child Health Programs, the Centers for Disease Control and Prevention (CDC), CityMatCH, the Centers for Medicare and Medicaid Services, the March of Dimes, the National Governors Association, and the National Institutes of Health.[11] Each state in the network developed its own plan to reduce infant mortality, identifying specific aims, strategies, and measures.

Many people we interviewed described to us the importance of the task force and CoIIN. Both allowed leaders to develop consensus on the importance of the issue, the likely sources of the problem, and potential directions for future initiatives. CoIIN was particularly useful for learning across state lines, with stakeholders speaking to their counterparts in other states about the problems they were facing and how they were dealing with them.

Key stakeholders also participated in multiple collaboratives and learning networks focused on the related issue of maternal mortality, including (1) the Georgia Perinatal Quality Collaborative, a network of perinatal health care providers, public health leaders, and community partners; (2) the Georgia Maternal Mortality Review Committee, begun in 2012 to review cases of maternal deaths and make recommendations on ways to improve care; (3) the CDC Collaborative for Maternal Mortality, a 15-state initiative to establish national guidelines for maternal mortality review; and (4) the Every Mother Initiative, a three-year initiative launched by the Association of Maternal and Child Health Programs and Merck in 2012 to streamline maternal mortality review in six states.

Safe Sleep. In addition to developing collaborations to establish buy-in on the importance of reducing infant mortality, the task force was charged with helping develop targeted educational campaigns. Reducing sudden infant death syndrome (SIDS) was identified as a major focus given its prominence as a leading cause of post-neonatal mortality, both statewide and in most of the six clusters where the problem of infant mortality was most acute.

The Safe to Sleep campaign was launched in 2012 to educate Georgians about the importance of laying infants on their backs to sleep, not allowing a baby to sleep in the same bed as his or her parents, and placing babies on a firm surface free of soft objects and loose bedding.[12] The DPH used the hot-spot maps to target the campaign in the six areas with the highest levels of infant mortality.

The campaign had two major components, each focused on a different audience. One targeted hospitals and health care providers to be aware of the most recent guidelines and recommendations. This part of the campaign encouraged leaders to establish safe sleep policies in their neonatal intensive care units and well-baby nurseries and to train staff on how to talk to parents. The other component focused on educating parents. Flyers and

educational materials were developed emphasizing the ABCs of safe sleep for infants: **A**lone, on their **B**ack, and in an empty **C**rib.[13] More than 5,500 posters were printed and distributed statewide to county health departments; Women, Infants, and Children program offices; and Early Head Start and Head Start facilities.[14]

Sandra Deal, wife of Governor Nathan Deal, joined the campaign and made SIDS one of her priorities. Press conferences and events with First Lady Deal attracted increased attention to the issue. The campaign has expanded and now includes giving mothers onesies for their babies with the words "this side up" printed on the front and "turn me over" printed on the back.

Postnatal Care. Women with problematic pregnancies and/or recoveries are more likely to be at risk the next time they have a baby. Guided by this philosophy, key leaders in Georgia focused on improving postnatal care. Much of this work came into place in 2014 and so is not likely responsible for the trend we observed during our study period of 2004 to 2014. However, this focus on postnatal care is worth highlighting because it was such a major emphasis by the DPH and the task force in prior years, and it speaks to whether Georgia will be able to sustain and extend its improvements in infant mortality.

The primary goal was to lengthen the interval between births so that women could be emotionally and physically healthy as they planned their subsequent pregnancies. One of the primary ways this has been done is through programs to increase the use of long-acting reversible contraception (LARC). Hot-spotting data helped leaders prioritize implementation of this program in the six parts of the state with the greatest need.

This program was possible because of an increased focus on case management, including home visits, for high-risk women in these targeted clusters. But Medicaid's reimbursement policy was initially a major barrier. In April 2014, the state received a Medicaid waiver so that insertion of a LARC immediately postpartum in a hospital setting—along with an ultrasound for guiding its placement—would be covered by Medicaid.[15] This change in Medicaid reimbursement policy is likely to be meaningful for improving infant mortality because of the large percentage of births in Georgia covered by Medicaid (nearly two-thirds: 85,000 out of 134,000[16]) and because infant mortality is a more acute problem among low-income women.

The focus on expanding the use of LARCs was part of a broader strategy that included supporting the development of centering programs. Centering is a group model of care that brings together 8 to 12 women of similar gestational ages to learn together, share lessons, and provide emotional support. State leaders provide tools, but the actual programs are carried out by a variety of local partners. The United Way of Greater Atlanta and the Georgia Chapter of the March of Dimes took lead roles in facilitating the growth of centering at multiple sites around the state.[17]

Another related initiative focused on reducing the number of early elective deliveries. State leaders tapped into their stakeholder engagement networks to educate other leaders about the importance of allowing pregnancies to go full term and for labor to happen spontaneously. The Department of Community Health changed its reimbursement policy effective October 2013, stating that it would no longer cover non-medically necessary induction and deliveries prior to 39 weeks of gestation.[18] This is a meaningful change in Georgia, where as many as 14% of deliveries involved induction or an elective cesarean section without medical cause between 37 and 39 weeks of pregnancy.[19]

Political Dynamics

The success of the stakeholder engagement and the development of programs such as the Safe to Sleep campaign, the use of LARCs, centering, and reducing early elective deliveries to a large extent depended on the ability of state leaders to overcome potential political barriers. Partnering with First Lady Deal to draw attention to the Safe to Sleep campaign is a good example of this. Cross-agency collaboration between the DPH and Medicaid within the Department of Community Health is another important example. However, the political challenges and opportunities are even more structural.

Brenda Fitzgerald's appointment as commissioner of public health in January 2011 coincided with a decision to elevate the department from being embedded within the Department of Community Health, which handles Medicaid, among other things, to be its own stand-alone agency. This change was far from symbolic. The new structure elevated Commissioner Fitzgerald to a Cabinet-level appointment, increasing the department's clout and access to the governor. Many people we spoke with cited this organizational change, along with Commissioner Fitzgerald's savviness, as a major reason the DPH managed to maintain a stable budget or even receive additional funds during a recession period when many agencies were being cut.

Data-Driven Policymaking

Data has played a major role in Georgia's efforts to reduce infant mortality. Upon taking office, Commissioner Fitzgerald used the America's Health Rankings scorecard to identify priority areas to focus on. Infant mortality became a focus because the data showed it to be one of the state's major problems.

Data was also creatively used to generate hot-spot maps to determine which parts of Georgia had the highest infant mortality rate. These maps identified six clusters in all corners of the state. Implementation of new policies and interventions—such as increased use of LARCs—was then focused on these clusters so the areas with the greatest need would receive the most attention.

It is not possible to use data in such a targeted way without reliable and accessible data. Commissioner Fitzgerald focused considerable energy during her first year at the DPH on strengthening the quality and usability of the department's data. She explained that when

she stepped into her role in 2011, most of the state's vital records were still on paper in stacks of boxes. She devoted staff time and resources to organizing and digitizing these records, while also strengthening a public online platform named the Online Analytical Statistical Information System (OASIS).[20]

OASIS is not only a useful tool for leaders at the DPH, but is a valuable way for local officials to assess community needs and evaluate programs. Rather than submit a request for data that would take the department a long time to process, anyone can go online and examine data themselves.[21] Users can create tables, maps, or charts of health data for a variety of topics, with information in most cases specific to individual census tracts.

Lessons from Georgia

We asked leaders whether they were surprised that our rigorous approach to identifying states that had made dramatic improvements led us to focus on infant mortality in Georgia. Most were not surprised and seemed pleased that an independent analysis that did not begin as an evaluation of their programs still singled them out. They have been working hard and have devoted significant resources to the issue for many years. And there is more good news. The state's teen birthrate improved, going from 45th in 2004 to 35th in 2014. The progress on these measures can be tricky for leaders to talk about given that there is so much improvement to be made.

Even so, being ranked 31st in the nation in terms of infant mortality is not yet a full success, however, and other measures are worse. For example, the state's ranking in low birth weight moved from 41st place in 2004 to 46th in 2014. The state's ranking for preterm births dropped from 33rd to 41st during the same period. Their improvement in infant mortality needs to be celebrated without losing any sense of urgency about the gravity of current challenges. This challenge is reflected by the state's infant mortality ranking slipping back to 42nd in 2016.

The reduction in Georgia's infant mortality rate likely cannot be traced to any single program. Rather, we highlight four broad lessons that can be learned from Georgia's efforts to reduce infant mortality:

1. **Stakeholder engagement.** State leaders developed a multipronged strategy with a primary emphasis on generating support among a variety of stakeholders. This was crucial because so many of the initiatives that were developed required local leaders to play a strong role. Rather than simply being told what to do by the state, they felt that they had a role in shaping the development and implementation of programs. Buy-in from local stakeholders was crucial given that the success of any campaign or program would depend on their level of engagement.

2. **Champions.** Statewide collaboration and partnerships do not happen on their own. Leadership from people in positions to bring others together is crucial. Many people identified DPH Commissioner Fitzgerald and DPH Director of Maternal and Child Health

Seema Csukas as particularly skillful champions. They navigated the political waters of a tricky transition that saw the commissioner of the DPH elevated to a Cabinet-level position with the department standing alone rather than subsumed in another agency. They developed relationships with legislative leaders and the governor's staff such that they maintained and some years even increased their budgets despite the cuts experienced by other agencies. They secured support from First Lady Deal whose status brought further attention to the issue. Infant Mortality Task Force Chair Mitch Rodriguez was identified as another statewide champion.

3. **Data.** Data was an important part of every stage of the Georgia story. Commissioner Fitzgerald used the state's poor placement in the annual America's Health Rankings to identify infant mortality as a priority, as well as to convince others of the urgency of the problem. She focused significant attention on improving the quality and accessibility of data. Not only did this help local partners, but it allowed the DPH to identify which parts of the state to prioritize and what issues to focus on within those areas.

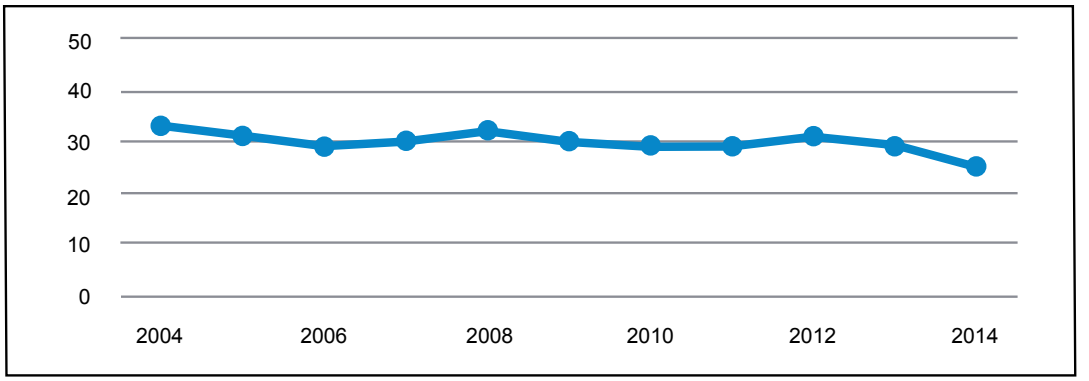
4. **Partnerships focused on postnatal care.** It may seem counterintuitive that a promising approach to reducing infant mortality is to focus on the health care of women who have already had babies. Nevertheless, good postnatal care reduces the likelihood that women recovering from high-risk pregnancies will be at risk again in subsequent pregnancies. As part of this effort, state leaders wanted to increase the use of LARCs in the parts of the state identified by their hot-spot data. But Medicaid did not cover these services. Multiple state agencies joined forces to apply for a federal waiver that provides Medicaid reimbursement for women to receive LARCs almost immediately after delivery. This example epitomizes the importance of the other three lessons. It would not have been possible without strong leadership, effective partnerships, and application of data.

Case Study: Florida

Florida's performance in infant mortality offers lessons not only in improvement but also in the importance of persistent attention and the risks associated with changes in gubernatorial administrations and policy. Florida improved eight rankings in infant mortality between 2004 and 2014, from 33rd to 25th (Figure 6). However, to understand the story of infant mortality in Florida it is important to go back more than a decade further. The state ranked 37th in 1991. Major state legislation was passed that year creating the Healthy Start program, which focused on improving health for pregnant women and infants. The state's ranking rose to 25th by 1998 and held steady before dropping back to 33rd in 2004. New initiatives were created in 2007 focused on reducing racial disparities in infant mortality. Since then the ranking hovered around 29th before improving to 25th in 2014.

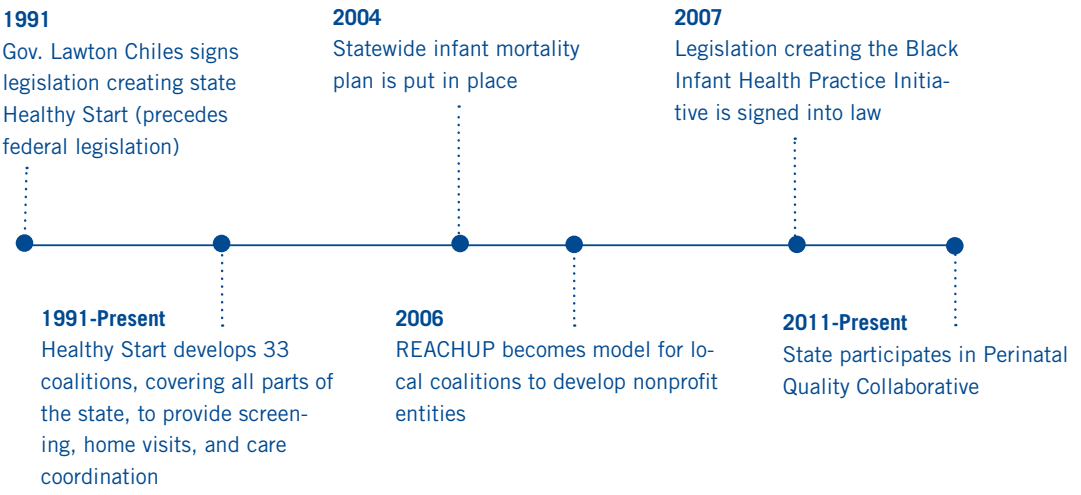
In other words, the state's ranking on infant mortality has seen periods of improvement and retrenchment. This case study examines what was done during these periods of improvement to identify lessons that can be learned in other states.

Figure 6. **Trend in Florida's Infant Mortality Rate Ranking, 2004-2014**



Source: America's Health Rankings. http://www.americashealthrankings.org/.

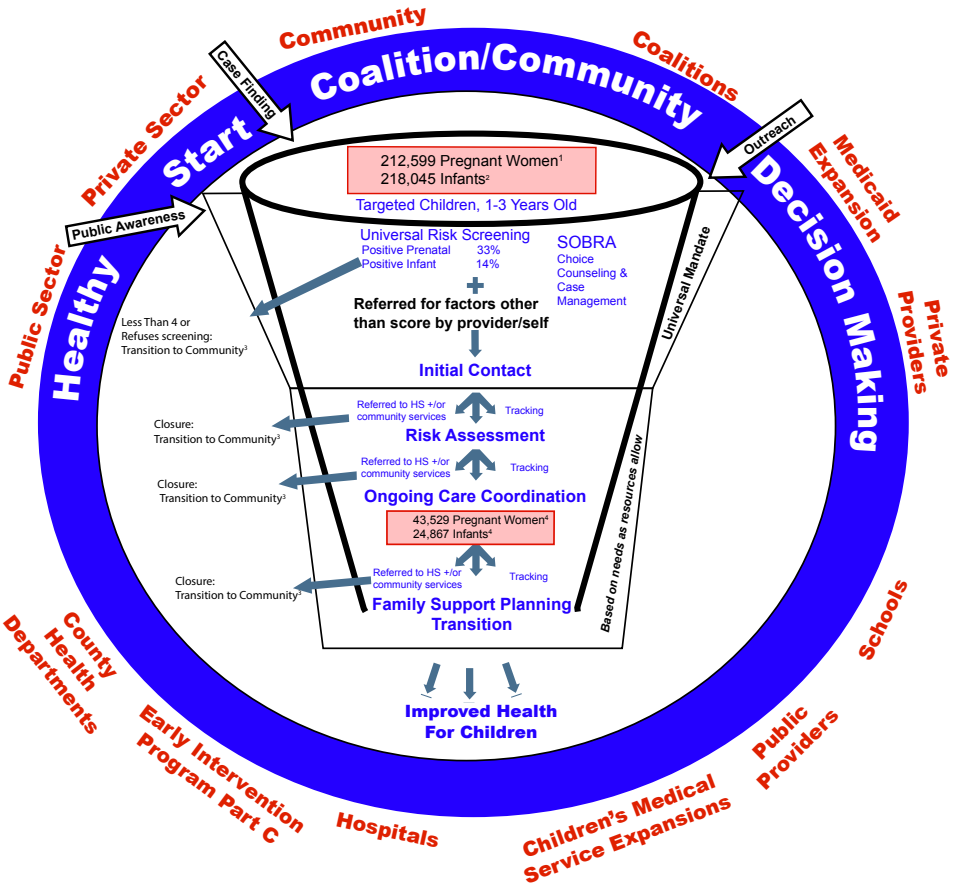
Figure 7. **Timeline of Notable Events: Reducing Infant Mortality in Florida**



Healthy Start. Healthy Start was created by Florida's state legislature in 1991, primarily to provide screening to all pregnant women to identify babies at risk for poor outcomes. Women deemed to be at risk receive home visits and highly coordinated care throughout their pregnancies. Those needing more intense interventions are provided services and supports. (Figure 8 depicts the Florida Healthy Start Model.) Leaders came to believe that nine months is too short a time to intervene and improve birth outcomes, so the program has since grown to include a wide variety of services offering prenatal and interconception care. This approach allows each Healthy Start coalition to focus its resources on women with the greatest needs.

There are 33 Healthy Start coalitions throughout the state of Florida focused on maternal and child health. One of these covers a single county, while the rest include leaders from multiple counties. Together they blanket the state. Each coalition is made up of families, community leaders, care providers, and government agencies seeking to mobilize around improving maternal and child health.

Figure 8. **The Florida Healthy Start Model, Data from 2004**



[1] Estimate based on 2004 births with adjustments for multiple births and fetal deaths.
[2] Year 2004 vital statistics
[3] Clients closed to care coordination may re-enter at anytime if risk and/or need change
[4] Based on Healthy Start Prenatal & Infant Care Coordination Executive Summary Report, Calendar Year 2004

Source: Healthy Start Standards & Guidelines 2007. In: The Healthy Start Standards & Guidelines. Florida Department of Health; 2007. http://www.floridahealth.gov/programs-and-services/childrens-health/healthy-start/_documents/new-hssg-chapter-1.pdf.
Abbreviations: HS, Healthy Start; SOBRA, Sixth Omnibus Budget Reconciliation Act.

Each coalition has the same objectives: assessing needs within its community, identifying gaps and barriers to services, and developing a plan to fill these gaps.[22] But within these and a few other parameters, each coalition has the discretion to organize itself and tailor its programs to local needs.

Healthy Start places a strong focus on the social determinants of health, with care coordination being at the heart of its services. Women with the greatest needs and risks not only receive help in a clinical setting but also are visited at home by a nurse or a social worker. Women receive counseling on psychosocial health, nutrition, and smoking cessation. They receive education on childbirth, breastfeeding, and substance abuse.[23] All pregnant women are eligible to participate, regardless of marital, immigration, or economic status. The program is free to all pregnant women and to families with children up to three years of age.

REACHUP. REACHUP, Inc. (Respond, Educate, Advocate, & Collaborate for Health in Underserved Populations) is one of the programs in Florida that has received federal funding through the Healthy Start program. It is a good example of how the state's version of Healthy Start has given local communities discretion to set their own paths. The organization is a product of the Central Hillsborough coalition based in Tampa.

The original coalition in Central Hillsborough began in 1997 when the University of South Florida (USF) partnered with the Lawton and Rhea Chiles Center for Healthy Mothers and Babies. Community meetings were held in 2003 among a variety of stakeholders, including leaders from the national and state Healthy Start coalitions. They decided that creating a new nonprofit entity would better allow them to coordinate and streamline their work. REACHUP was subsequently created and received 501(c)3 status in 2006.

Local leaders focused their efforts on three risk reduction strategies: (1) initial contact with high-risk women within five days of their screening, (2) initial assessment through an in-person visit within 10 days of their initial contact (these visits assess the physical and environmental risks women face and offer education and access to resources), and (3) care coordination through subsequent contacts. An evaluation published in 2008 using data from 2002 to 2007 found that the level of low birth weight and preterm delivery—two leading risk factors for infant mortality—was reduced by 30% for program participants compared to nonparticipants.[24] A report released three years later found that the infant mortality rate in this area had decreased from 19.2 per 1,000 to 9.4 per 1,000 between 1998 and 2010. REACHUP has become a model for many other local coalitions.

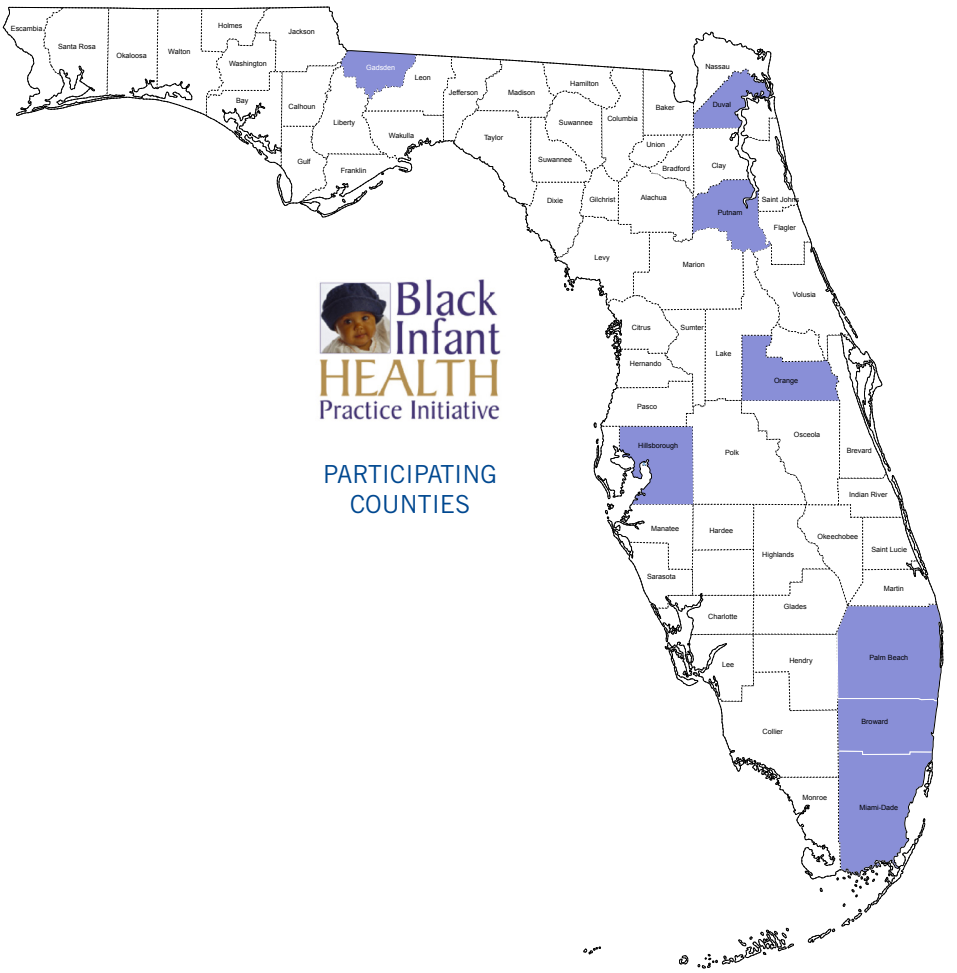
Black Infant Health Practice Initiative. In the 2007 legislative session, newly elected Rep. Betty Reed (D-Tampa) introduced House Bill 1269 to create the Black Infant Health Practice Initiative (BIHPI, pronounced Bippy).[25] The bill passed the House and Senate without a single dissenting vote and was ultimately signed into law by Governor Charlie Crist. It was the first law Rep. Reed had successfully navigated through the legislative process.26

The impetus behind the law was a growing recognition of the stark disparities between the infant mortality rates of different races. In some areas, the rate of black infant mortality was more than four times the rate for whites. Similarly, Hispanics had experienced a 55% increase in infant mortality between 2004 and 2007.[27]

HB 1269 appropriated $1 million of general revenue to the Department of Health to distribute 10 grants to local Healthy Start coalitions. The chief qualification for receiving this money was that a coalition "had to serve a county that has a nonwhite infant mortality rate at least twice that of the white infant mortality rate." Recipients had to partner with local researchers to conduct annual evaluations.[28] The law also authorized the creation of one full-time employee position at the Department of Health to oversee the program.

The Department of Health developed regulations codifying the criteria for participation.[29] In 2008, eight counties were identified as eligible given their particularly stark racial disparities: Hillsborough, Gadsden, Palm Beach, Orange, Broward, Duval, Putnam, and Miami-Dade (Figure 9).

Figure 9. **Map of Counties Participating in the BIHPI, 2008**



Source: Black Infant Health Practice Initiative Participating Counties. REACHUP Inc. http://www.reachupincorporated.org/docs/default-source/default-document-library/state-map-of-participating-countries.pdf?sfvrsn=0.

A collaborative was formed following the passage of HB 1269 to guide its implementation. Qualifying counties were identified and funds were disbursed. USF and Florida Agricultural and Mechanical University were selected to provide technical assistance and scientific guidance.[30] The primary outcome of BIHPI was the development of localized reports that were given to local stakeholders and members of fetal and infant mortality review committees.

BIHPI did not last very long, but many people describe the program as being particularly meaningful because of the relationships that were built in communities with some of the greatest needs. The progress and challenges experienced as part of BIHPI have been documented in other reports, including one by the national Healthy Start coalition, which focused particular attention on Pinellas County.[31]

Leaders cautiously celebrate that the infant mortality rate for both white and nonwhite populations decreased following BIHPI but are disappointed that the gap between the two trends did not narrow.

National Coalitions. State leaders have also participated in national coalitions focused on improving maternal and child health across the country. Since 2011, the state has been part of the Perinatal Quality Collaborative, an initiative of the March of Dimes. Like Georgia, the state also participates in CoIIN, a multiyear national movement engaging federal, state, and local leaders; public and private agencies; professionals; and communities. The goal is to employ quality improvement, innovation, and collaborative learning to reduce infant mortality and improve birth outcomes, with learning across state lines.

Six cities in Florida have also benefited from participation in the federal Healthy Start initiative. Started in 1991, the program began with funding from the U.S. Department of Health and Human Services to help 15 rural and urban communities across the United States where the infant mortality rate was 1.5 to 2 times the national average.[32] National Healthy Start now funds 105 projects in 39 states, the District of Columbia, and Puerto Rico. Grants are available in five types of programs: perinatal health, border health, interconceptional care, perinatal depression, and family violence.

Political Environment

Several people we interviewed cited the recent shifts in the state's political environment to explain their concerns about the sustainability of Florida's progress. In 2017, the Republican Party has a supermajority in the House and Senate. Republican Governor Rick Scott has defunded multiple programs since taking office in 2011 and has kept funding for Healthy Start flat in recent years. This contrasts to previous state governments, such as under Governor Lawton Chiles, who championed the state Healthy Start legislation in the 1990s. Similarly, many people we interviewed described the legislature recently as lacking awareness of the import and depth of the infant mortality problem. Programs were perceived as intrusive rather than helpful.

The number of staff at the Department of Health has decreased by 2,700 people since Governor Scott took office in 2011.[33] This severely limits the ability of remaining leaders to effectively carry out programs. Another major development is that the state's Medicaid program finalized its transition to managed care in 2014, with many of the private entities administering the plans opting to pay county health departments considerably less for their services.[34]

Lessons from Florida

Leaders in Florida have been working on reducing infant mortality for more than 25 years. Their progress is a good example of the potential for state leaders to facilitate significant improvement in population health outcomes. Policymakers in other states can learn four lessons about how this progress was achieved in Florida.

1. **Comprehensive programs.** The most important feature of the efforts to improve infant mortality in Florida was the comprehensive and personal nature of the Healthy Start program. Legislation passed in 1991 established near-universal screening of women to identify virtually all women in the state with high-risk pregnancies. This was followed up with direct contact and care coordination. In-person visits from nurses and social workers made it possible for women to receive education and smoother access to helpful services. Importantly, these services were available to all women, regardless of immigration, financial, or marital status.

2. **Federal, state, and local partnerships.** Healthy Start would not have been possible without resources provided by federal and state leaders. In fact, this became confusing to talk about because two separate programs called Healthy Start were created in 1991: one by the federal government, which targeted select areas of the country; and another by the state of Florida, which sought to cover all of the state. Federal and state organizations provided the vision and leadership, as well as most of the financing needed for operation. However, key programs were implemented and carried out by local stakeholders with a deep knowledge of their community's context. They had the ability to adapt frameworks and resources to local circumstances.

3. **Sustainability and champions.** The Florida case study epitomizes the challenge of sustaining progress. The state's ranking started dropping in the late 1990s, perhaps coinciding with the death of Governor Chiles while in office in 1998. Governor Chiles was described by many as an important champion of the issue and a major force behind the Healthy Start legislation in 1991 and its subsequent implementation. Interviewees identified no specific efforts to undermine these programs by Chiles's successors but said they did not bring the same level of attention to the issue. The state did not respond with urgency as the ranking declined, causing Florida to lose some of the ground it had gained in the 1990s. New leaders with a focus on disparities brought renewed attention to infant mortality. Similarly, many people identified local champions without whom success in individual communities would not have been possible.

4. **Focus on disparities.** As progress was stalling on the state's infant mortality rate in the mid-2000s, state leaders decided to focus on the dramatic racial disparities in specific parts of the state. Legislation was passed, new coalitions were established, and additional resources were given to parts of the state with the greatest racial disparities. Not only did the infant mortality rate decrease for African Americans and other populations, but the rate came down and the ranking improved throughout the state. Further research is needed to confirm whether there is a connection, but it seems that a focus on reducing disparities contributed to an overall improvement, not just among minority populations. Unfortunately, the disparities persisted even as conditions improved all around.

Conclusion

The cases of infant mortality in Georgia and Florida exemplify the potential for state leaders to improve population health. Important differences were evident in each state's approach, demonstrating that there is no single path to progress. Even so, three common lessons stand out from these two states. To succeed, the effort requires (1) leadership, (2) partnership, and (3) data.

Government Leaders Start It

State leadership was the catalyst for change in both Georgia and Florida, though this took somewhat different forms in each place. In both states, the legislature provided a foundation by passing a law or appropriating money, but the major changes were led by agency leaders. Georgia's leadership was more top-down, led by officials at the Department of Public Health. Florida had a strong champion for improving birth outcomes throughout the 1990s in Governor Lawton Chiles. Chiles's death in 1998 coincided with a worsening of the state's infant mortality rate that did not improve until new champions emerged.

Establish Multi-Sector Ownership for Steady Progress

State leaders cannot solve major population health problems on their own. They need buy-in from local partners who can implement new programs and carry out solutions. In fact, this ability to convene and organize collaborations is one of the most important types of leadership state officials can demonstrate. The Georgia DPH convened a task force of major stakeholders across the state to act as a sounding board, focus group, and strategizing team. Local partners then carried out the initiatives mostly designed at the state level using primarily state resources. Florida did something similar, but with an approach that was more open-ended. Local coalitions were supported by state leaders but were given significant flexibility to define their own priorities and solutions. Leaders in both states also participated in national coalitions. These collaborations helped develop attention and momentum around the importance of targeting infant mortality, and they facilitated the development of relationships with their peers and the sharing of ideas.

Measure and Analyze

Leaders in both states used data in important ways to develop programs. This was particularly true in Georgia, where DPH Commissioner Fitzgerald relied on America's Health Rankings to identify infant mortality as a major issue in Georgia and to convince others that action was needed. She then invested significant attention in her first year to upgrading the state's data systems to enable the department to identify the main drivers of infant mortality in specific parts of the state. By comparison, Florida's approach was more bottom-up, so data was not used in the same way; however, leaders regularly highlighted statistics that captured the magnitude of the infant mortality problem in Florida. State leaders also relied on data about racial and ethnic disparities to determine which 10 communities to target with special grants through BIHPI.

We are not in a position to make causal claims about what drove the improvements in Florida and Georgia. Even so, our rigorous process of identifying states that had made significant progress led us to these states. Their stories provide insight to leaders elsewhere on the challenges and opportunities inherent in using state policy to improve population health.

Appendix

I. Overview of Scorecards Used

We began this project by identifying the state health performance scorecards from which we would draw our data. We focused on three publicly available scorecards: (1) America's Health Rankings, produced by the United Health Foundation, (2) Kids Count, produced by the Annie E. Casey Foundation, and (3) The Commonwealth Fund Health Systems Scorecards. Using multiple scorecards improved the likelihood that we would detect significant trends and gave us greater confidence in our results. These scorecards were selected for several reasons. First, these data sets incorporated longitudinal data that allows for greater confidence in performance results. Second, these data sets included diverse measures that could be used to examine many issues related to population health. Third, these data sets are publicly available and easily accessible to government officials and the general public. Last, the different scorecards cover adults and children, in addition to including some measures that are stratified by various demographic factors (e.g., age, sex, race).

America's Health Rankings

America's Health Rankings is the longest-running annual assessment of the nation's health on a state-by-state basis and is the result of a partnership between the United Health Foundation, the American Public Health Association, and Partnership for Prevention.[35]

Kids Count

Kids Count was started by the Annie E. Casey Foundation and is widely considered to be the premier source for data on child and family well-being in the United States. This data set provides access to hundreds of indicators that can be downloaded to create reports and graphics from the Kids Count Data Center.[36]

The Commonwealth Fund Health Systems Scorecards

The Commonwealth Fund Health Systems Scorecards is a series of scorecards that provide performance benchmarks and improvement targets for states, communities, and the nation. The Health Systems Data Center allows users to access comparison data on a variety of metrics and populations, including low-income populations.[37]

II. Approach to Analyzing Scorecard Data

There are 157 measures focused on aspects of population health across the three scorecards. Before analyzing the data to look for states that had made significant improvement, we went through a process to decide which measures were most important. We relied on a 2015 report called *Vital Signs*, in which a panel convened by the National Academy of Medicine (NAM, formerly known as the Institute of Medicine of the National Academy of Sciences) reviewed hundreds of measures used in health and health care. They divided the measures into 15 categories and selected the indicators within each category that they thought were most important for scholars and policymakers.

We grouped our 157 measures into the categories described by the NAM report. Because our goal for this project is to make recommendations about improving population health rather than health care, we chose to exclude categories focused on clinical decision-making and clinical care. This left us with eight categories: (1) life expectancy, (2) overweight and obesity, (3) addictive behavior, (4) unintended pregnancy, (5) preventive services, (6) care access, (7) well-being, and (8) healthy communities.

After completing this categorization process, we created an alternative categorization for these measures. This was performed as a supplemental analysis where we found additional clusters of measures, above and beyond what NAM had identified. For example, any measure across the three scorecards that related to the birth of a child, which isn't a distinct NAM metric, was put into an additional category named "birth outcomes."

Once the categorization of all measures was complete, we created a database of the raw data in the scorecards for all states (excluding Washington, DC). For some measures it is better to be ranked 1 (such as percent of children receiving immunizations), and for other measures it is better to be ranked 50 (such as percent uninsured). We oriented each measure in the same direction so that 1 is the best and 50 is the worst ranking.

A stringent set of criteria was developed so we could identify states that had a marked improvement in their rankings, did not vary wildly, and did so over a minimum of five years (with most measures having 10 years of data available). In other words, these criteria helped us cut through the noise to identify states that likely had made actual progress. To be considered a big mover, our study inclusion criteria required that a state meet the following:

1. A minimum of five years of data must be available between the years of 2004 and 2014, the year for which the most reliable data was available at the time of analysis;
2. The state must have improved a minimum of eight rankings during the data years available; and
3. The state must have a maximum of a 4.0 mean squared error (MSE) during the data years available.

MSE is a commonly used statistical approach to determine how much variation exists between multiple data points. For example, a state that had an improvement of one ranking every year for eight years would have a much lower MSE—actually zero MSE—than a state that fluctuated five rankings every year but had the same change between the first and eighth years.

We approached analysis by looking at measures across a spectrum of broad to narrow. At the broadest level, we created an aggregate measure that clustered individual measures that had been averaged for every state across all three scorecards. The National Quality Forum defines a composite measure as "a combination of two or more individual *measures* in

a single *measure* that results in a single score."[38] These clusters were organized around the NAM categories of key variables. Very few states showed up as big movers in the composite measures given the strictness of the three criteria mentioned above and the requirement that states either be steady or make improvement across multiple related measures. This provides an opportunity to assess whether broad population-based changes, as opposed to individual clinical care changes, might have influenced this improved performance.

In the middle of our spectrum from broad to narrow, we were particularly interested in the NAM category "life expectancy." The NAM report suggests prioritizing infant mortality, which is a single metric but one that is indicative of many things. We analyzed this measure in connection with other indicators of birth outcomes such as low birth weight and the teen birthrate.

Finally, we analyzed each measure as an individual indicator. This allowed us to identify more specific trends that were not captured in the broader analysis and to identify narrower but still important areas where states had shown improved performance. We selected Florida and Georgia from the infant mortality category because they had made progress on multiple individual measures related to birth outcomes.

III. Qualitative Analysis

We went to each of our four case study states and interviewed top leaders. In each state, we contacted legislators, executive branch officials, academics, leaders of relevant state-level stakeholder organizations, and county-level public health leaders. We spoke with seven or eight people per state between October and December 2016 on topics ranging from policymaking to leadership to federal-, state-, and county-level programs. Approximately half the interviews took place in person, with the remainder occurring by phone. We promised interviewees confidentiality in exchange for candor, so we do not present any information in this report that might reveal identities. The Boston University Medical Campus Institutional Review Board approved this study.

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