Evaluation of the Role of Baby Boxes in Infant Mortality Prevention

Response to House Concurrent Resolution 58

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LOUISIANA DEPARTMENT OF HEALTH

Contents

Executive Summary

Louisiana's infant mortality rate is one of the highest in the nation, with a rate of 8.1 deaths for every 1,000 live births (United Health Foundation, 2016). Approximately 90 of these deaths each year are classified as a Sudden Unexpected Infant Death (SUID). A SUID is defined as the sudden and unexpected death of an infant less than 1 year of age whose cause of death is not immediately obvious before a thorough investigation. In Louisiana, most SUID's are determined to be caused by accidental suffocation or strangulation in the infant's sleeping environment. (Department of Health and Hospitals, 2013). The Louisiana Department of Health (LDH) and the Department of Children and Family Services (DCFS) work to advance the health and well-being of families in the state and both state agencies have programs in place to help prevent SUID.

House Concurrent Resolution (HCR) 58 of the 2017 Regular Session of the Louisiana legislature directed LDH's Bureau of Family Health to work in conjunction with DCFS and the State's Child Death Review Committee (CDRC) to evaluate the feasibility and desirability of implementing a "baby box" program as a means of reducing infant mortality, and to report findings of the evaluation to the legislative committees on health and welfare. A baby box is a sturdy cardboard box that contains a firm mattress and a fitted sheet that, when used correctly, may be considered a safe sleep environment for infants. Providing a safe infant sleep environment is a critical strategy to prevent SUID.

Findings from the study illuminate several important points and recommendations:

1. There is insufficient evidence to show that baby boxes reduce infant mortality rates. The baby box may be useful for parents as an alternate sleeping environment for an infant, but further studies are required to support investment in the baby box as an infant mortality reduction strategy.
2. It is recommended that Louisiana support the examination and adoption of evidence-based practices that have been shown to prevent sleep-related fatalities and reduce infant mortality. Recommended evidence-based practices include: supportive family health policies, quality and consistent education on safe infant sleep, and breastfeeding support.
3. Baby boxes may play a role as temporary infant sleeping environments during disasters or emergencies, which may prevent accidental suffocation and other SUID. It is recommended that the use of portable cribs and baby boxes in an emergency response be expanded and included in the state's emergency preparedness and response plan.
4. It is recommended that hospitals, birthing facilities, community organizations, or other maternal and child health agencies who are interested in starting local baby box distribution programs follow best practices when implementing such programs. This includes providing high quality education on safe infant sleep, and careful attention to logistics such as distribution and staffing. It is also critical to build-in program evaluation to assess outcomes and impact.

Factors related to the prevention of infant mortality and SUID are complex. It is therefore essential to keep abreast of emerging best practices and innovative approaches that address these issues. In the U.S., community level and statewide baby box programs are in their infancy, and have no evaluation results. LDH proposes continuing to monitor findings related to baby box programs.

Though baby boxes may not make an impact on their own, baby box programs may contribute to larger supportive social environments for families in Louisiana.

1. House Concurrent Resolution 58

HCR 58 (Appendix A), passed during the 2017 Regular Session of the Louisiana House of Representatives, requests "an evaluation and report concerning prospective implementation of a 'baby box' program as a means of reducing infant mortality." A baby box is a sturdy cardboard box that contains a firm mattress and a fitted sheet that, when used correctly, is considered a safe sleep environment for infants. The safest location for an infant to sleep, through 12 months of age, is on a firm, flat surface that is separate from – but located in close proximity to – their caregiver. Safe infant sleep is a critical strategy to prevent infant mortality.

2. Study Process

As per HCR 58, the LDH, Office of Public Health (OPH), Bureau of Family Health (BFH) worked with DCFS and the Louisiana State CDR to conduct the study. A committee was assembled to reflect diverse perspectives along the continuum of care for infants, including the Louisiana Chapter of the American Academy of Pediatrics (LA AAP), Louisiana Hospital Association, LDH-OPH Women Infant & Children Supplemental Food Program (WIC), LDH Center for Community Preparedness, Louisiana Department of Education, Woman's Hospital, MEE Productions, Jefferson Parish Coroner's Office, as well as medical providers, a health equity consultant, and a parent. A complete list of committee participants can be found in Appendix B.

The committee met biweekly from August to December 2017. A literature review was conducted to identify and explore key issues related to the implementation of baby box programs as a strategy to reduce infant mortality, and key providers were surveyed regarding their perceptions, policies, and use of baby boxes. Organizations and provider systems were asked specifically about their position on baby boxes and their experience with distribution, cost, and evaluation. Consumer input focused on familiarity with the product and willingness to use it. Both survey tools can be found in Appendices C & D. Findings and recommendations were compiled, and a draft report was reviewed by key stakeholders, including the Louisiana Commission on Perinatal Care and the Prevention of Infant Mortality.

3. Background

3.1 The History of Baby Boxes

Baby boxes originated in Finland in the late 1940s as a component of a government program to improve maternal and child health. Families with new babies received cardboard boxes filled with newborn care items, and the box itself could be used as a safe sleep environment (Kela, 2017). Safe sleep environments are a key protective factor against SUID and Sudden Infant Death Syndrome (SIDS, a type of SUID). SUID is a term used to explain any sudden and unexpected death in infancy, whether explained or unexplained, including entrapment, suffocation, asphyxia, infection, indigestion, poisoning, or SIDS (National Institute of Child Health and Human Development, n.d.).

Since the 1940s, Finland's infant mortality rate decreased from 65 per 1,000 to its current rate of 1.9 per 1,000 live births, one of the lowest in the world (Official Statistics of Finland, 2010) (The

World Bank, 2017). Finland has not researched the effect of baby boxes on this decrease, but experts say it is likely the result of a strengthened maternal and child health care system, widespread access to affordable health care, extended family leave, and other social supports (American Academy of Pediatrics, 2017). This year, Anita Haataja, Senior Researcher at Kela, the Finnish government agency responsible for distributing the boxes, told the New York Times "The [Finnish] box as a sleeping box is a marginal issue; the baby's health is associated with the maternal health care system. Our low infant mortality rate is due to free of charge high quality maternal and child health care services and child care guidance (Peachman, 2017)." See Appendix E for a timeline of implementation of key supports with the reduction of infant mortality in Finland.

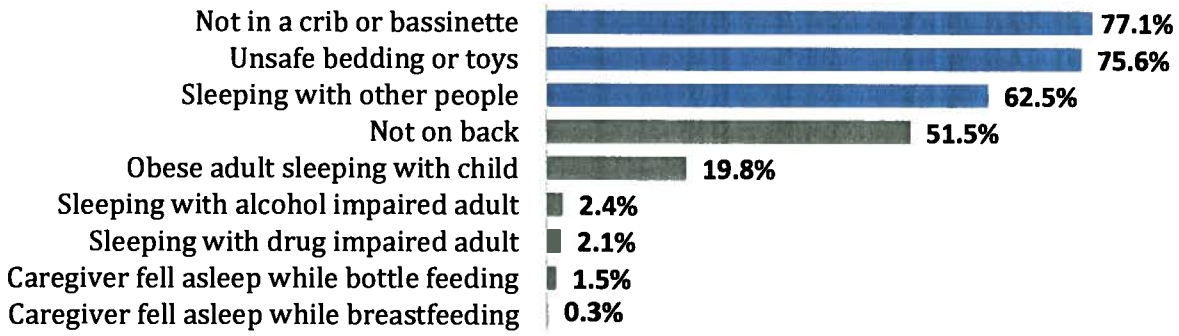
Several states and communities within the U.S. have also implemented baby box programs. The Baby Box Co. is a U.S.-based company that produces most of the baby boxes found in America. A Baby Box Co. box is a 26" x 16" durable cardboard box with a foam mattress and tight-fitting sheet that, when used correctly, may provide a safe sleeping environment for infants. Baby boxes may be used as a sleep environment until infants are able to pull themselves up in the box, generally 4-6 months of age (The Baby Box Co., 2017).

3.2 Infant Mortality and Safe Sleep

Louisiana leads the nation with an infant mortality rate of 8.1/1,000 live births (United Health Foundation, 2016). The leading preventable category of death among Louisiana's infants is SUID, with approximately 90 infant deaths each year. While SIDS deaths account for a small subset of SUID cases, examination of autopsy and scene reports reflect that most SUIDs in Louisiana are due to suffocation on loose bedding, overlay, or wedging (Department of Health and Hospitals, 2013). From 2013-2015, the top three risk factors for sleep-related SUID in Louisiana were related to the sleep environment – either the infant was not placed in a crib or bassinet, or the sleep environment contained loose bedding, toys, or other people (Figure 1) (Louisiana Department of Health, 2016).

Figure 1: Risk Factors Present in SUIDs in Louisiana, 2013-2015

The Top 3 Risk Factors for SUID in Louisiana were related to Sleep Environment



Enabling caregivers to consistently practice safe sleep behaviors would be a significant step toward reducing Louisiana's infant mortality rate. Evidence consistently shows that the safest location for an infant to sleep, through 12 months of age, is on a firm, flat surface that is separate from – but located in close proximity to – the caregiver (American Academy of Pediatrics, 2016). Bassinets, cribs, and portable cribs are the most commonly recommended safe sleep environments in the U.S., and baby boxes are gaining popularity. However, the presence of a safe sleep environment in the home does not ensure a good outcome. Any sleep environment can be made unsafe by including

loose bedding, stuffed animals, or anything else that can obstruct a child's airway (American Academy of Pediatrics, 2016).

Infants who have a safe place to sleep continue to be at risk of SUID if those places are not used correctly and consistently. Louisiana's Child Death Review data show that, among infants who died of SUID from 2013-2015, 46% had a safe sleep space such as a crib, bassinet or portable crib in the home. Of that population, 38.7% died in an adult bed, 32.7% in a crib, and 19.7% in a bassinet. These data confirm that infants are still sometimes placed in an adult bed, regardless of whether there is a safe sleep surface available.

Infant Safe Sleep: Risk and Protective Factors

The best way to prevent or reduce SUIDs, including SIDS, is to maximize evidence-based protective factors and minimize known risk factors. Table 2 (below) is adapted from 2016 recommendations for infant safe sleep put forth by the American Academy of Pediatrics (American Academy of Pediatrics, 2016). It summarizes the protective and risk factors that can arise during pregnancy, infancy, sleep, and at mealtimes. As risk factors increase, caregivers should be encouraged to focus on protective factors like safe sleep, breastfeeding, maintaining a smoke-free home, and regular well-baby checkups. The 2014 Pregnancy Risk Assessment Survey revealed that one in five infants in Louisiana is exposed to three or more risk factors (Louisiana Department of Health, 2014).

Table 1. 2016 AAP Recommendations for Infant Safe Sleep

Situation	**Protective Factors**	**Risk Factors**
Sleeping Environment	• Back sleeping for every sleep • Room Sharing • Firm sleeping surface, with no objects (toys, pillow, blankets, bumpers) • Smoke-Free Home • Room at a comfortable temperature and not overdressing the baby • Offer a pacifier at nap time and bedtime after breastfeeding is established	• Stomach or side sleeping • Swaddling when a baby is placed on his stomach or side or is able to roll to the prone position independently • Sharing a sleeping surface with sleeping adult(s), children, or pets • Sleeping on a couch, sofa, or armchair, either alone or with someone • Sleeping on soft surfaces, waterbeds, swings, car seats, or hammocks, either alone or with someone • Impaired caregiver • Soft objects, loose bedding, cords, wires, etc. in or near the sleeping area
Before Baby is Born	• Regular prenatal care	• Smoking during pregnancy • Drinking or using drugs during pregnancy
Baby's Health	• Regular well-baby check ups • Being up to date on immunizations • Tummy time when awake	• Preterm • Low Birth Weight
Feeding/ Eating	• Breastfeeding exclusively for at least 6 months, and continue for at least 12 months	• Falling asleep while feeding an infant

3.3 Current SUID Prevention Efforts and Investments in Louisiana

LDH OPH BFH and DCFS work closely with several partners to reduce infant mortality in the state. Among them are LDH WIC clinics, Louisiana Medicaid's Managed Care Organizations and the federally funded Healthy Start projects in Louisiana. Current SUID prevention efforts of these programs and agencies are outlined below.

LDH OPH Bureau of Family Health

BFH administers programs that work to advance the health and well-being of women, children, adolescents, and families throughout the state. Several programs work specifically to prevent SUID.

- Louisiana's Mortality Surveillance program works to identify and prevent maternal, infant, and child morbidity and mortality from a policy perspective. The program convenes multi-disciplinary community teams to review de-identified infant and unexpected deaths of children in or to identify issues and gaps, and work to improve service systems for women, infants, and families. The Mortality Surveillance Team manages the SUID Case Registry, a SUID monitoring program that is supported by the Centers for Disease Control and Prevention (CDC).
- The Maternal, Infant, Early Childhood Home Visiting (MIECHV), is a program that provides family support and coaching to improve the health and well-being of pregnant women and parenting families with young children. Families are paired with registered nurses or parent educators who provide personalized education, guidance, and referrals to services. MIECHV implements two evidenced-based models, Nurse-Family Partnership (NFP) and Parents as Teachers (PAT). Home visiting staff discuss infant safe sleep with all clients.
- An ongoing statewide *SIDS Risk Reduction and Safe Infant Sleep Campaign* uses media strategies and community outreach to provide information and resources to Louisiana caregivers. Messages are designed to help families create safe sleeping environments for infants and reduce the risk of SIDS and suffocation. The campaign's website, GiveYourBabySpace.org, provides information for families, caregivers, providers, and community partners, as well as resources and media materials.
- *The Gift* is an evidence-based program for Louisiana birthing facilities designed to increase breastfeeding rates and hospital success by improving the quality of maternity services and patient-centered care in the hospital setting. *The Gift* reinforces safe sleep messages through various touch points, including monthly coaching calls with hospitals, collaborative learning opportunities, staff and provider training, and alignment of messaging between breastfeeding and safe sleep.
- Louisiana's Childcare Health Consultant (LACCHC) program helps early care and education centers statewide meet annual licensure requirements for health and safety training. Recent updates to the state's Louisiana Department of Education licensure regulations mandate that every childcare facility have an infant safe sleep policy in place that reflects the AAP recommendations. In addition, all child care facility staff must be trained and oriented to infant safe sleep practices within seven calendar days of employment. The LACCHC program provides the necessary training and support for facilities related to safe infant sleep.

Department of Children and Family Services

DCFS Child Protection Investigators are required to ensure that all families they investigate have a safe place for their infant to sleep. If the family does not, the investigator must obtain a safe sleep environment for the child, set it up, and teach the family how to use it. A follow-up visit is conducted by the investigator within 30 days. DCFS also offers safe sleep education to foster

parents and the public through parenting education classes. In addition, DCFS's website provides families with information, videos, and brochures concerning safe sleep, and visitors are directed to GiveYourBabySpace.org for additional information.

Louisiana Women, Infants and Children (WIC) Program

WIC provides safe sleep education to participants largely through the distribution of printed health education materials. WIC is required by their federal funding agency, the United States Department of Agriculture (USDA), to ensure that all safe sleep education is guided by and adheres to AAP recommendations. Louisiana WIC offices distribute a mix of national and state-specific safe sleep education materials, including those available through the Bureau of Family Health's campaign and website GiveYourBaby Space.org.

Medicaid Managed Care Organizations

Louisiana Medicaid has five Managed Care Organizations (MCOs) that provide health insurance to the eligible individuals and families – AmeriHealth Caritas of Louisiana, United Healthcare of Louisiana, Healthy Blue, Aetna Better Health of Louisiana, and Louisiana Healthcare Connections. The five Medicaid MCOs finance more births in Louisiana than all the private insurers combined (The Henry J. Kaiser Family Foundation, 2017). The committee spoke to each MCO to determine their policies on safe sleep.

> *"Because of [Medicaid] expansion, I now have coverage that provides case management for my pregnancy."*
>
> **Jennifer**
> Jefferson Parish
> LDH Medicaid Dashboard Testimonial

All MCOs have a pregnancy reward program that provides pregnant women with some combination of health education, baby items, and financial rewards for healthy behaviors. MCOs address safe sleep in different ways. For example, AmeriHealth Caritas provides safe sleep education during case management sessions between pregnant women and nurses. United Healthcare, on the other hand, encourages providers to discuss safe sleep directly with patients.

Healthy Start

Healthy Start is a program of the national Health Resources & Services Administration's Maternal and Child Health Bureau focused on reducing infant mortality. Healthy start works to improve the health of mothers and children before, during, and beyond pregnancy. It increases access to early pre-natal care, and removes barriers to healthcare access. Participants receive information, resources, and support to ensure a healthy pregnancy and to help nurture their children. Louisiana has Healthy Start programs in New Orleans, Baton Rouge, Lafayette, and Jefferson Parish.

Healthy Start New Orleans (HSNO) for example, is a case management program in New Orleans with that uses the Parents As Teachers Curriculum to educate program participants on infant safe sleep. During pregnancy, case managers provide educational material and promote safe sleep at biweekly or monthly home visits. After delivery, participants receive a newborn home assessment that includes appraising the baby's sleep environment. Families are eligible for a portable crib from HSNO's Parent Resource Center if a case manager determines that an infant is sleeping in an adult bed, sofa, or other unsafe sleeping environment.

HSNO also promotes safe sleep by providing monthly health education classes available to the community, known as Group Connections. During Group Connections parents share experiences, exchange resources, and learn about important topics such as safe sleep. Program participants are

provided step by step demonstrations as well as handouts to take home, and these classes are offered in English and Spanish.

4. Key Findings: Infant Mortality

4.1 Is There Evidence that Baby Boxes Reduce Infant Mortality?

The AAP states that "Currently, there is insufficient data on the role cardboard boxes play in reducing infant mortality (American Academy of Pediatrics, 2017)." The CDC, National Center for Child Fatality Review, and several hospitals, to name a few, have formally adopted the AAP's position on baby boxes.

Experts agree that baby boxes are unlikely to make much of an impact on their own, but the boxes may contribute to larger social environments that are supportive of healthy families (Peachman, 2017) (American Academy of Pediatrics, 2017) (Cribs for Kids, n.d.). When combined with robust and continued health education, adequate maternal and family health care, and policies that make infant care easier for families, baby boxes may play a part in reducing infant mortality rates.

Study findings reveal that additional key issues related to infant mortality and baby boxes must be taken into account when considering implementation of a program that distributes them. These are outlined below.

Barriers to Practicing Safe Sleep

Creating a safe sleep environment every time an infant needs to sleep can be a tremendous challenge for caregivers. It can be difficult to balance the need for infant safety with the caregiver's and infant's need for rest, feeding, comfort, bonding, and touch (Blair, Heron, & Fleming, 2010) (Ball & Volpe, 2013) (Volpe, Ball, & James, 2013).

When evaluating the desirability of a baby box program to reduce infant mortality in Louisiana, it is important to consider whether such a program would make it easier for caregivers to consistently practice safe sleep and other healthy behaviors, such as breastfeeding. This is especially important for populations who are at higher risk for SUID. Premature and low birth weight infants, Black and Native American infants, and infants whose caregivers are stressed, resource-deprived, young, single, undereducated, or under-supported all are at higher risk (Thompson & Mitchell, 2006) (Zundo, Richards, Ahmed, & Codington, 2017).

Some families may find it especially difficult to consistently follow safe sleep recommendations for a number of social and economic reasons, including shift-work or other non-traditional work schedules, exhaustion, inability to afford safe-sleep products, conflicting advice from family members or friends, cultural practices, misconceptions about safe sleep practices, or concerns about infant comfort, preference, or safety (Gaydos, et al., 2015) (Salm Ward & Balfour, 2016). An infant's sleeping environment can vary (e.g. holidays, travel, emergencies, alternate caregivers), and many families share a sleeping surface, whether they plan to or not.

Safety Concerns related to Baby Boxes

A number of public health organizations and associations, including the CDC, Cribs for Kids National Infant Safe Sleep Initiative, Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN), and the AAP have expressed concerns over the safety of the boxes, noting they have not been tested or approved by the Consumer Product Safety Commission (CPSC) or the American

Society for Testing and Materials (ASTM). Further, there is no existing safety standard category for baby boxes within the CPSC or the ASTM (The Baby Box Co., 2017). Baby boxes are considered bassinets in Canada, the United Kingdom, and Europe, but they are categorized differently in the U.S. because bassinets have legs that raise the bed area off of the floor. Efforts are currently underway to create a safety standard category for baby boxes, but the boxes have not been formally evaluated by these organizations (The Baby Box Co., 2017).

The Baby Box Company has tested its boxes against CPSC and ASTM standards for water resistance, air flow, flammability, and durability using bassinet structural standards, and the foam mattresses within Baby Boxes have been independently certified as non-toxic and non-flammable by CertiPur-US (The Baby Box Co., 2017). The company's Terms of Service state that consumers use the box as a sleeping space at their own risk:

> "If you receive or purchase a baby box sleeping solution from either Baby Box Co. or a Distributor, the following terms apply: You agree that your use of the Baby Box Sleeping Solution is entirely at your own risk. To the extent allowed by applicable law, Baby Box Co. has no responsibility of liability whatsoever for any damages you may suffer as a result of the baby box for any damages you may suffer as a result of your use of the Baby Box Sleeping Solution or (if applicable) any third party products included in the Baby Box Sleeping Solution at the time you received such box. Baby Box Sleeping Solutions are provided 'as is' without warranty or guarantee of any kind, either express or implied (The Baby Box Co., 2017)."

Cardboard may be damaged, weakened or warped if it makes contact with liquid or bodily fluids, especially if that liquid is not removed quickly. The absorbency of cardboard, coupled with the inability to clean baby boxes as one would a product engineered of nonporous materials, could render the box unsanitary over time. While the Baby Box Company states that "[consumers] can easily wipe off spit-up, drool, or spilled milk," they also warn against letting the box get "excessively wet (The Baby Box Co., 2017)." Humidity, a reality of Louisiana's climate, also weakens corrugated cardboard boxes (Liu, Yang, Wang, & Ji, 2010).

Depending on their placement in the home, baby boxes may be vulnerable to accidents. If boxes are placed on the floor, infants inside are at risk of getting stepped on, tripped on, tipped over, hit by falling objects, or disrupted by young siblings or pets. On the other hand, a box placed on a raised surface could tip over should the infant inside the box shift (Cribs for Kids, n.d.). By the time infants are four months old, they have the upper body strength to use their arms and by six months old they are able to roll over (Cribs for Kids, n.d.).

Age and Size Limitations

The Baby Box Co. reports that most parents are able to use the box as a sleeping space for the first 5-6 months of an infant's life (The Baby Box Co., 2017). Finnish babies, however, use baby boxes as a sleeping space until they outgrow it, around 3-4 months of age (Cribs for Kids, n.d.). The Baby Box Co.'s box is 26.75 inches long by 16.75 inches wide and 11.5 inches deep, nearly identical to the Finnish box (The Baby Box Co., 2017). A 3-month-old infant is, on average, 23-24.7 inches long, and by six months the average infant is 25.3-27.2 inches long. Cribs for Kids National Infant Safe Sleep Initiative has raised concerns that infants will be placed to sleep in an adult bed or another unsafe sleeping surface once they outgrow the box (Cribs for Kids, n.d.).

Baby Box vs. Portable Cribs

Baby boxes have been compared to other portable sleep products, such as portable cribs (e.g. Pack 'n Plays), but there are several differences between these items. Portable cribs are foldable and transportable and are typically used as play pens or sleeping places. Portable cribs are much larger than baby boxes, making them less convenient to transport and potentially more difficult to fit in small living spaces (The Baby Box Co., 2017). A portable crib's larger size, however, means that babies can safely use them for sleep throughout the first 12 months of their life, or the entire period of risk for SUID. Conversely, babies outgrow boxes at around 4-6 months of age. The larger size of the portable crib also means that it is less likely to be stepped on or involved in accidents with pets or other children, and the cloth and mesh material of portable cribs is more durable, water-resistant, and easy-to-sanitize compared to a cardboard baby box (Cribs for Kids, n.d.).

Baby Boxes in Emergency Response

Baby boxes have shown some promise in emergency situations. In August 2016, thousands of infants in central Louisiana were displaced due to flooding from an unnamed storm. BFH provided safe sleep education and baby boxes or portable cribs to shelters in an attempt to reduce any risk of unexpected deaths due to unsafe sleeping conditions. It is critically important that infants at higher risk for SUID, such as those born prematurely or low-birth weight, have safe sleep environments at all times, including during disaster and other emergency situations.

The current LDH position on the use of a baby box in an emergency situation is:

> "The Louisiana Department of Health is supportive of other facilities and stakeholders exploring and using/distributing Baby Boxes. As an important risk reduction measure to prevent accidental suffocation and other SUID, the agency also supports the use and distribution of the Baby Box by LDH to families in disaster and emergency situations (along with appropriate safe sleep education and instruction) (April 12, 2017)."

More recently, The Baby Box Co. partnered with The United Nations Population Fund and Johnson & Johnson to distribute baby boxes to Haitian mothers and babies affected by Hurricanes Irma and Matthew. Beginning in September 2017, 2,500 boxes were distributed in Marigot, Haiti (The Baby Box Co., 2017). No evaluation was done for either distribution project.

4.2 Best Practices and Evidence-Based Strategies for Infant Mortality Reduction and Prevention

While there is no evidence that baby boxes reduce infant mortality, there are best practices and evidence based strategies that have been proven to make an impact.

Family Health Policy

Infant health begins long before conception – healthy women are more likely to give birth to healthy infants. Certain policies foster environments and systems that support health and wellness across generations. Access to affordable healthcare, for example, improves birth outcomes; however women are more susceptible to poverty than men and often pay more for health insurance (Dubus & Traylor, 2015). In 2015, 65% of births were financed by Medicaid (The Henry J. Kaiser Family Foundation, 2017). LDH's Medicaid Expansion Dashboard shows that since Medicaid Expansion in Louisiana in July 2016, 276,831 women enrolled in health insurance; and indicators across the board show that Louisianans seek out healthcare when it is affordable. More women are seeking preventive care and receiving treatment for top causes of low birth weight and

prematurity, including hypertension, diabetes, and co-morbid substance use disorder (Louisiana Department of Health, 2017).

Policies that promote paid family leave have been shown to also improve maternal and child health outcomes. Experts have found that "longer and more generously paid maternity leave led to fewer low-weight babies and a decrease in infant mortality" in other developed countries (Ruhm, 2000) (Patton, Costich, & Lidstromer, 2017) (Nandi, et al., 2016) (Engster & Stensota, 2011). These health improvements are a result of programs that assist women in re-entering the workforce, improving their financial situations, and increasing their workforce participation (Baum & Ruhm, 2016)
(Chatterji & Markowitz, 2005).

"After having my first experience as a new mother - and working full time before and after pregnancy - it would be a great addition to my life experience to have had paid leave from my job! Also, I was only allowed 6 weeks of unpaid leave from my job - that is not enough time to have bonded with my baby before I had to leave him for 10 hours every day - and I'm still expected to breastfeed & pump breastmilk. There were too many necessities that are part of the mother-baby bond within the first 6 months of a child's life. I feel this needs to be better acknowledged by our community, society as a whole and out government."

Louisiana Mom
Louisiana PRAMS Survey, 2014

The Louisiana Fair Employment Practices (FEP) Act, Louisiana's current family leave policy, is outlined below. This policy protects many mothers' employment and benefits status while on leave and does not require companies pay compensation. According to Louisiana Pregnancy Risk Assessment Monitoring System (PRAMS) survey data (2014), 52% of women took only unpaid leave and 28% stated they could not financially afford to take family leave. While longer maternity leave is associated with increased breastfeeding duration as well as improved maternal mental health and child development, these findings illuminate barriers and challenges for families (Staehlin, Coda, & Zemp, 2007) (Berger, Hill, & Waldfogel, 2005).

> The Louisiana (FEP) Act requires employers with more than 25 employees to provide unpaid leave for up to six weeks for "normal" pregnancies, and up to 4 months for more "seriously disabling" pregnancies (Guerin, 2015).
>
> In accordance with the Family and Medical Leave Act (FMLA), all FMLA-eligible employees in the United States are entitled 12 work weeks of unpaid leave per year. During this time, employees are entitled to the same health benefits provided by their employer at the same cost they pay while working. When an employee's FMLA leave ends, the employee has the right to return to the same or equivalent position (United States Department of Labor, n.d.).

The 2011 Surgeon General's Call to Action to Support Breastfeeding also recommended that states provide paid maternity leave for all employed mothers. The report urges states to add maternity leave to the categories of paid leave for civil servants, or establish a funding mechanism for paid maternity leave and expansion of workplace programs that allow lactating mothers to have direct access to their babies (Office of the Surgeon General, 2011).

Health Education and Safe Sleep Media Campaigns

Significant reductions in SIDS rates nationwide have been attributed in part to public education campaigns encouraging safe sleep practices. The largest among these is the Safe to Sleep Campaign, formerly known as the Back to Sleep Campaign, a national initiative backed by the National Institute of Child Health and Human Development (NICHD). The campaign launched in 1994 and initially focused on encouraging caregivers to place infants on their backs to sleep, but expanded over the years to include additional safe sleep recommendations as new SIDS and SUID prevention findings emerged. As research arose demonstrating that certain racial and ethnic groups were at a higher risk for SIDS, the campaign added elements targeting these populations (National Institute of Child Health and Human Development, n.d.). In the ten years following the campaign's launch, the incidence of SIDS in the United States decreased by over 50%, both overall and within targeted racial and ethnic groups (Trachtenberg, Haas, Kinney, Stanley, & Krous, 2012).

It is clear from the success of the Safe to Sleep Campaign that long-term, large-scale and targeted media campaigns promoting safe sleep behaviors can be effective in reducing SIDS rates. Consistent messaging through continued media campaigns helps position and reinforces targeted health behaviors as normative. However, public health campaigns may be undermined by depictions of unsafe sleep practices in popular media. For example, a 2009 survey of magazines targeted to women of childbearing age found that two thirds of images featuring infant sleeping environments were inconsistent with AAP recommendations. Messages and imagery in popular media that are in conflict with public health messaging causes confusion and misinformation, and may inadvertently promote unsafe practices (Joyner, Gill-Bailey, & Moon, 2009).

While public education campaigns have been credited with helping to significantly reduce the national SUID rate throughout the 1990s and early 2000s, that rate has plateaued over the last decade (Moon, Hauck, & Colson, 2016). This indicates that new strategies are needed to promote safe sleep. The National Action Partnership to Promote Safe Sleep Improvement and Innovation (NAPPSS) and the National Center for Education in Maternal and Child Health recommend a "campaign to conversation" framework for health education, suggesting that safe sleep media campaigns be paired with face-to-face health education delivered by nurses and other trusted providers (Bronheim, 2017). These organizations recommend that interactions between caregivers and providers, health educators, or peer counselors focus on identifying obstacles that prevent caregivers from practicing safe sleep, and providing caregivers strategies to overcome those obstacles. This approach is rooted in the Theory of Planned Behavior, and allows health education to be highly targeted and culturally responsive (Bronheim, 2017). Both organizations also recommend that the same health education approach be applied and combined with efforts to promote breastfeeding.

The committee's literature review of health education interventions, summarized in Table 2, supports NAPPSS and National Center for Education in Maternal and Child Health recommendations. The most successful interventions use a conversational approach focused on parental concerns, and safe sleep education becomes less effective as in-person interactions diminish.

Table 2: Educational Intervention Methods and Their Effectiveness

	Intervention	*Delivery method*	*Evaluation Method*
Most effective	Educational sessions focusing on parental concerns (Moon, Ogden, & Grady, Back to Sleep: education intervention with women, infants, and children program clients, 2004).	Education delivered in person to parents of young infants in 15-minute sessions led by health educators.	Pre and post-test surveys on knowledge. Interviews 6 months after intervention
	Educational session to increase safe sleep adherence among nursing staff (Colson & Joslin, 2002).	30 minute educational session about SIDS and safe sleep, delivered in person; modeling recommended.	Unannounced audits 3 months after intervention.
	60-day mobile health intervention (Moon & Hauck, The Effect of Nursing Quality Improvement and Mobile Health Interventions on Infant Sleep Practices, a randomized control trial, 2017)	Mothers received frequent emails, texts and short videos about infant safe sleep	Maternal surveys asking about usual practice during the past two weeks
	Cribs for Kids provides free or reduced-cost Pack n' Plays or cribs to Pittsburgh families starting in 1998 (Moon & Hauck, The Effect of Nursing Quality Improvement and Mobile Health Interventions on Infant Sleep Practices, a randomized control trial, 2017)	Families receive a Pack n' Play or "Cribette," infant-related items, a sleep baby book and brochures	Pittsburgh, PA reports a drop in SUIDs from 20 in 1998 to 6-9 annually, with only one sleep-related infant death among Pack n' Play/Cribette recipients.
Moderately effective	Mass media campaign (Moon, Hauck, & Colson, Safe Infant Sleep Interventions: What is the Evidence for Successful Behavior Change?, 2016)	Fear tactic ads about safe sleep, included information about how caregivers could get a free crib	An official evaluation was not conducted, but Wisconsin Department of Health received increased requests for free cribs. This was attributed to greater public awareness of safe sleep, not the fear tactic used in the ads.
Least effective	Pennsylvania's Sudden Infant Death Syndrome Education and Prevention Act (Sudden Infant Death Syndrome Education and Prevention Program Act, 2010) (Moon, Hauck, & Colson, Safe Infant Sleep Interventions: What is the Evidence for Successful Behavior Change?, 2016)	All parents must receive SUID and safe sleep information prior to discharge. Act does not mandate how parents receive information.	Parents must sign upon discharge that they received and understood education. Does not necessarily change behavior, and nursing staff do not always comply with safe sleep practices.

Lastly, all safe sleep health education, of any form, is more likely to be effective when the reasons behind safe sleep recommendations are explained. Parents often assume their healthy, strong infant is not vulnerable to SIDS, but they do not realize that sleep-related SUIDs are largely due to injuries from entrapment, suffocation, or asphyxia. When parents understand the causes, they are more likely to adhere to safe sleep behaviors (Moon, Hauck, & Colson, 2016).

Breastfeeding

Any amount of breastfeeding is associated with a reduced risk of SUID, and the protective effect increases the more an infant breastfeeds (American Academy of Pediatrics, 2016). Louisiana has room to improve when it comes to breastfeeding - breastfeeding initiation rates and exclusivity rates at six months are low when compared with the national average (Louisiana Department of Health, 2016). Data show that in 2016, nearly half of Louisiana mothers had never breastfed their infants (Centers for Disease Control and Prevention, 2016). Among those mothers who had ever breastfed their infants, only half of were still breastfeeding at six months, and only 13% breastfed at 12 months (Centers for Disease Control and Prevention, 2016).

Racial disparities in breastfeeding rates are also present in Louisiana – Black women are less than half as likely to initiate breastfeeding as White women. Leading barriers to breastfeeding are difficulty breastfeeding, lack of support to breastfeed, lack of desire to breastfeed, and other competing responsibilities such as work, school, household chores and other children (Louisiana Department of Health, 2016) (Louisiana Department of Health, 2015).

> *"My decision to not breastfeed was strictly based on the fact that I work nine hours a day and have three other active children. I breastfed all three children and know what it involved. I also know how breastfeeding increases fatigue. With so many responsibilities and duties, I couldn't afford to."*
>
> **Louisiana Mother**
> Louisiana PRAMS Survey, 2013

In consideration of the most recent infant safe sleep recommendations from the AAP, the BFH endorses a risk-based approach to preventing SUIDs- maximizing protective factors, while minimizing risk factors. And, one of the best protective factors against SUID is breastfeeding. The AAP recommends exclusive breastfeeding for the first six months of an infant's life, followed by breastfeeding with soft foods for the following six months (American Academy of Pediatrics, 2012). In addition, consistent, unified breastfeeding and safe sleep messaging across programs that care for families plays a critical role in infant mortality prevention efforts. In 2016, BFH worked with partners along the continuum of infant care to develop a Safe Sleep and Breastfeeding Agency Position Statement that offers a family-centered, risk-based approach to developing safe sleep messages across LDH and beyond.

The 2011 Surgeon General's Call to Action To Support Breastfeeding recommended a set of actions to help mothers breastfeed, including provision of support and breastfeeding education to mothers, fathers, and grandparents, policies that support mothers to have time and flexibility to breastfeed, strengthen mother-to-mother peer counseling, and ensure maternity care practices are supportive of breastfeeding (Office of the Surgeon General, 2011). Currently existing federal provision cover salaried employees (Section 7 of the Fair Labor Standards Act) and the Louisiana state law R.S. 17:81(W) ensures workplace accommodations for some nursing mothers, but not all.

5. Key Findings: Feasibility

Phone surveys with hospitals, birthing facilities, public health agencies and professional organizations, Medicaid MCOs, and select community organizations allowed the committee to better understand and inventory issues related to the feasibility of baby box program implementation in Louisiana.

The committee recognizes that an effective statewide baby box distribution program would require the participation of maternal and child health stakeholders across the state. Surveys helped gauge stakeholder interest in, support of, and concerns about baby boxes, both in terms of their use as a means to reduce infant mortality, as well as the resources that would be required to implement a baby box distribution program at a local level.

5.1 Baby Boxes Programs in Louisiana: Participating Organizations

The committee found only two organizations that are currently distributing baby boxes in Louisiana: Ochsner St. Anne Hospital in Raceland and Women's Resource Center in Natchitoches. Ochsner St. Anne partnered with the Baby Box Company and began distributing boxes in March 2017. They have distributed around 150 baby boxes, and plan to distribute 50 more in the next few months. Women's Resource Center has not partnered with the Baby Box Company, but began purchasing and distributing cardboard baby boxes from a different vendor in September 2017. They have distributed eight boxes.

The BFH interviewed staff members responsible for the administration of each organization's baby box program to explore how these programs are implemented.

Box Recipients

Because Ochsner St. Anne is providing boxes through a partnership with the Baby Box Company, box recipients must watch 13 short health education videos (around 15-20 minutes total) on the Baby Box University website, complete a brief quiz, then download and print a certificate of completion. In exchange for the Certificate of Completion, individuals receive a baby box containing a thin, firm mattress pad, items donated by corporate sponsors, and additional health education on breastfeeding, safe sleep, and car seat safety (print materials).

Most box recipients are women who deliver their babies at Ochsner St. Anne, but anyone with a Certificate of Completion can receive a box. The box program is discussed during prenatal and childbirth education classes offered in clinics that are open to the larger community. As a result, some boxes have been distributed to non-patients who attend clinic classes.

The Women's Resource Center provides boxes to women who complete a series of prenatal classes and three parenting classes provided by the center. Their box comes with a mattress, sheets, one pack of diapers, information, and a link to parenting resources which gives recipients access to free samples of infant care supplies.

Cost of the Program

Ochsner St. Anne's program is funded entirely by the Baby Box Company. Baby boxes and access to educational content on Baby Box University are provided free of charge. However, hospital staff time is needed - around 45 staff members are actively involved in program implementation and maintenance.

The Women's Resource Center's program is funded through general donations to the center. The Center purchases boxes wholesale and has found them to be slightly less expensive than Pack n' Plays on a per-unit basis. The Center distributes boxes to women at no cost.

Health Education Paired with the Box

Ochsner St. Anne

Many box recipients attend the hospital's prenatal classes. These classes focus on preparing women for childbirth, safe sleep, breastfeeding, and car seat safety.

Pregnant women and expecting parents who deliver at Ochsner St. Anne also receive health education in the hospital. Hospital staff show new parents how to practice safe sleep, help them with breastfeeding, and distribute printed health education materials to patients before they are discharged.

Because all parents or caregivers must watch the Baby Box University videos to receive a box, the videos are shown in prenatal classes, and computer rooms are available for patients and community members who need to watch the videos and print certificates. If necessary, a nurse or other women's services staff will show a new mom the videos bedside after she delivers her baby, then will print a Certificate of Completion for her.

Ochsner St. Anne staff reported that the Baby Box Company selected the videos that are currently included in their program curriculum, and that they are required to use those videos. Staff report being satisfied with them.

Everyone who delivers at Ochsner St. Anne or participates in prenatal classes is provided face-to-face instruction on how to use the box as a sleep space. If parents already have a crib or Pack n' Play, staff introduce the box as a sleep space parents can use when they visit relatives or stay in a hotel, or as a place for the baby to nap in various rooms of the house. Parents who report that they do not have a safe sleeping space are instructed to use the box as a primary sleep space.

Women's Resource Center

Women's Resource Center provides infant safety and safe sleep information as part of the prenatal classes that box recipients are required to attend. The proper use of the baby box is now part of the class, and the box is positioned as a place for a baby to sleep in his/her early months. Expecting parents are encouraged to acquire a Pack n' Play or crib for when the baby is older.

Classes also cover prenatal health, delivery preparation, breastfeeding, and parenting. Written health education materials are provided in addition to the classes, including national resources on safe sleep.

Distribution and Tracking

Ochsner St. Anne has a more developed distribution and tracking system than Women's Resource Center, most likely because they distribute a higher volume of boxes and must follow the Baby Box Company's tracking requirements.

Because most recipients at Ochsner St. Anne are also patients, most boxes are provided upon discharge from the hospital. Non-patients can pick up boxes at the hospital or at clinics. All clinic and hospital staff has been made aware of the program and know where to direct people looking for baby boxes.

In order to receive more boxes from the Baby Box Company, program staff must log and send all Certificates of Completion to the company. Boxes come in shipments of 50. While shipments initially took 4-8 weeks to arrive, recent shipments have arrived within 2 weeks of ordering.

Women's Resource Center distributes boxes at the center.

Storage and Assembly

Baby boxes from the Baby Box Company do not come pre-assembled – Ochsner St. Anne hospital and clinic staff must assemble the boxes themselves, then add in health education materials and diapers. The boxes no longer come with lids due to safety concerns.

The hospital must adhere to certain storage standards, including storing the boxes off the ground.

It is unclear whether the boxes that Women's Resource Center uses require assembly, and it is unclear how they are stored. Storage has likely not been a concern because the Center's program is so new and only eight boxes have been distributed so far.

Program Awareness and Outreach

At this time, Ochsner St. Anne is not conducting baby box program outreach. Because of this, few people in the greater Raceland community are aware of this program, unless they are connected with the hospital or clinic system in some way. It is unclear whether Women's Resource Center is conducting outreach activities for their program.

Liability Considerations

The Baby Box Company's terms of service states that all baby box recipients use the box at their own risk (see Section 4.1).

Program Evaluation

Ochsner St. Anne is not evaluating its baby box program or health education at this time. Women's Resource Center is not specifically evaluating their baby box program, but they do follow up with the families for a year after delivery. They have not received any feedback specific to the boxes, since most women who received the boxes either just delivered their babies or will be delivering soon.

Sustainability

Ochsner St. Anne intends to continue the program as long as possible. In the event that the Baby Box Company stops providing boxes free of charge, program staff intend to request funds from Ochsner or other sources to continue the program. Because Women's Resource Center is currently paying for boxes using donations, they hope to partner with a community group to reduce costs to the Center.

Summary of Findings

Survey findings indicate that any organization seeking to implement a baby box distribution program must consider a number of logistical aspects beyond the financial cost of supplying baby boxes. At minimum, organizations must consider how the boxes will be stored, assembled and distributed, and how to maintain adequate inventory. If an organization partners with the Baby Box Company, a system for logging Certificates of Completion will also need to be in place.

Because all existing programs require box recipients to complete health education-focused requirements, organizations must consider what and how much health education should

accompany the box, and how that education will be delivered to box recipients. Organizations need to consider any barriers that pregnant women and parents may face when attempting to complete those requirements, and how the organization can help reduce those barriers.

Organizations may also want to consider aspects of a prospective program related to liability, outreach and promotion, sustainability, and evaluation, and the resources needed to address those aspects.

Staff time and training is required to address everything mentioned above. The amount of staff required to implement a baby box program effectively will vary depending on the reach of the program.

5.2 Louisiana Healthcare Provider Positions on Baby Box Programs

Hospitals, birthing facilities, and managed care organizations could be key distribution points for a statewide baby box program. It is important to consider these organizations' positions on baby boxes and their capacity to be distribution centers when considering the feasibility of a statewide baby box program.

Hospitals and Birthing Facilities

The committee interviewed over 25 hospitals and birthing facilities in Louisiana to determine their positions, if any, on baby boxes. With the exception of Ochsner St. Anne, no hospital had a baby box program in place, and only one, North Oaks Medical Center in Hammond, had a formal position on baby boxes (North Oak Medical Center does not recommend the baby box due to concerns regarding appropriate use of the box by parents and lack of support for boxes from the AAP).

Almost half of those interviewed said that they had not identified a need for a baby box program within their organization, often because most patients indicated that they already had a crib, Pack n' Play or bassinet in their homes. Several hospitals reported that they didn't have enough information about the feasibility of implementing a baby box program to begin considering one, and many cited financial/funding concerns. Some of those expressing concerns about funding seemed open to implementing a program if boxes were donated or funding became available. A few hospitals stated that they were too busy with other major projects to explore a baby box distribution program. A few also expressed concerns with the safety or practicality of baby boxes, and preferred to recommend cribs or Pack n' Plays as safe infant sleep environments.

Survey findings indicate that baby box programs are not a primary area of interest for Louisiana hospitals and birthing facilities. Some may be interested in implementing baby box programs in the future, but would need more information related to program feasibility, specifically the amount of funding and other resources needed to sustain such a program. However, it does not appear that most hospitals and birthing facilities are actively seeking out that information.

Medicaid Managed Care Organizations

The committee interviewed two Medicaid Managed Care Organizations. Representatives from AmeriHealth Caritas Louisiana and United Healthcare reported that while their organizations do not currently have a program or an official position on the use of baby boxes, they could see baby boxes potentially fitting into the organizations' pregnancy rewards programs.

5.3 Consumer Reaction to Baby Boxes

When considering the feasibility of a statewide baby box program in Louisiana, it is important to explore whether pregnant women, caregivers, and families in Louisiana would be interested in using a baby box as a sleeping environment for their babies. A preliminary exploration into this issue reveals that consumer reactions to baby boxes are mixed.

Both Ochsner St. Anne and the Women's Resource Center reported that pregnant women and parents respond positively to the boxes. Some new mothers who have been inadvertently discharged from Ochsner St. Anne without a box have called the hospital to request one. Parents report that the box is useful because it provides them a safe sleeping space to put on another floor or in another room of their home, in addition to their baby's primary sleeping space (e.g. crib in a nursery). Parents also report that they like having the baby sleep in the box next to their bed, as opposed to in a crib in a separate room of their home.

It is important to note that these parents' positive reactions to the baby box may be in part due to both organizations' efforts to normalize the box as an infant sleeping space.

In contrast, a representative from AmeriHealth Caritas Louisiana reported that when the managed care organization spoke to mothers receiving Medicaid about the baby box, they were "appalled at the idea of putting a baby in a cardboard box."

The committee also worked with the Bureau of Family Health's home visiting program staff to gather opinions from their clients (pregnant women and new mothers) across the state. A survey (Appendix D) was used to gauge clients' receptivity to using the box as a sleeping environment for their baby. Of the 721 survey responses, 472 responded that they would use the box as a sleeping environment, 231 responded that they would not, and 18 were unsure.

> *"If I had one, I'd let my baby sleep in it and still be able to have him/her near me."*
>
> **Home Visiting Client**
> Northwest Louisiana

Clients who reported they would use the box noted that they could use it for traveling or to keep the baby close by in any room of the house. Some clients responded positively to the box's novelty and felt that it was a good new option for safe sleep.

"Better than nothing. If I had no access to a crib, this would give my baby a safe place to sleep."

Home Visiting Client
Central Louisiana

Clients who reported they would not use the box- often had strong negative feelings about it. Several mentioned that they associated they box with homelessness, poverty, or coffins. Some clients voiced concerns with the safety of the box, expressing discomfort over the idea that box would sit directly on the ground and could be knocked over, or concern that their infant would tip the box over while moving around.

> *"I would be skeptical about it, but I would use it going other places...or if busy around the house. It would be kind of uncomfortable because it makes you think of a coffin, or punishment."*
>
> **Home Visiting Client**
> Southwest Louisiana

"It makes me feel like my child is homeless and I am cheap"	*"Yes, I would like to use this box if it is free...please let me know how I can get into that program"*	*"My mother took a look at it and said no one is going to put her grandchild in a shoebox"*
Home Visiting Client Southwest Louisiana	**Home Visiting Client** Southeast Louisiana	**Home Visiting Client** Northeast Louisiana

Regardless of their opinions about the box, most clients also reported that they already had at least one safe sleeping option for their baby (crib, Pack n' Play, and/or bassinet) in their home.

5.4 Baby Box Program Costs and Sustainability

At this time, the Baby Box Company provides boxes and educational videos at no financial cost to its partners. Cardboard baby boxes and similar products are available from other vendors, and range in price from $30-$90 (prices may be lower if these items are bought in bulk). Consumers can also purchase baby boxes from the Baby Box Company directly from their website, and their boxes range in price from $69.99 - $225.00, depending on the amount and type of items included with the box.

Comparatively, most Pack n' Plays range in price from $40 - $150 when purchased directly from distributers like Walmart and Amazon.com. Programs such as Cribs for Kids provide Pack n' Plays and similar products for less money per unit for program partners, but partnering with Cribs for Kids requires funding.

Baby box programs also require staff time and training to be implemented effectively. As noted in Section 5.1, the Ochsner St. Anne Baby Box Program requires the active involvement of 45 staff members.

At minimum, staff time is needed to:

- Provide at least a minimal amount of education about baby boxes and program requirements (how to use boxes safely, requirements for obtaining a box, how to access Baby Box University or other required education/classes, etc.)
- Monitor inventory and ensure additional boxes are ordered in a timely manner (recipients need boxes before they deliver their babies)
- Assemble boxes
- Distribute boxes and ensure that box recipients have completed program requirements
- For Baby Box Company partners only: Log Certificates of Completion and submit certificates to Baby Box Company

5.5 Potential Conflicts of Interest

Partnership with Baby Box Company

Baby Box Company is a for-profit company. Government and non-profit partnerships with any for-profit entities must be approached judiciously.

Baby Box programs are funded at least in part by corporate sponsors, though the extent of this funding is unclear. Most items included in the box are donated by corporate sponsors. A call with the Baby Box Company revealed that these sponsorships, in combination with profits from direct sales of baby boxes, allow the Baby Box Company to distribute boxes at no cost to partner organizations.

An LDH partnership with the Baby Box Company and statewide distribution of those boxes may be seen as an endorsement of those sponsors and their products. A review and assessment of items to be included in the box for no-cost baby box programs would be required.

Public Health and Professional Organizations

As discussed in Section 4.1, several key national public health and professional organizations, including but not limited to the AAP, the CDC, and the AWHONN, have urged caution when considering baby box programs. These organizations cite a lack of evidence for baby boxes' protective effect against SUID, and concern over the fact that boxes are not currently subject to any mandatory safety standards.

LDH regularly partners with these organizations on a number of different maternal and child health programs and initiatives. It will be important to bear these partnerships in mind, should LDH become involved in a statewide baby box distribution program.

Internal Louisiana Department of Health Programs

LDH recognizes the critical need for consistent, standardized messaging around safe sleep and breastfeeding across programs and maternal and child health stakeholders. Regardless of box vendor, all health education and media – including videos, print materials, online education, etc. – that accompanies an LDH-sponsored or LDH-supported statewide baby box program would need to be reviewed to ensure health messaging meets agency standards in terms of accuracy, cultural competency, health literacy, and evidence-based communications and health education practices.

LDH would also need to ensure that the products, health education materials, and messaging associated with baby boxes are not in conflict with other agency messaging and policies across programs. In addition, any products or items included in the boxes would need to be assessed to assure they are not considered controversial, and are presented to families with appropriate sensitivity, context and education, or if those requirements cannot be met, are left out of the box.

6. Overview of Baby Box Programs across the United States

6.1 Statewide Baby Box Programs

In 2017, Alabama, New Jersey, Ohio, Texas, Colorado and Virginia partnered with the Baby Box Co. to provide expecting parents with free baby boxes (The Baby Box Co., 2017). The boxes are provided at no cost either directly to parents or to Baby Box Company partners.

Parents interested in receiving a box are required to create a free Baby Box University account, watch videos focused on maternal and infant health (generally totaling 15-20 minutes), and complete a brief online quiz (The Baby Box Co., 2017). A certificate of completion is provided for parents to submit to order their box, or print and present to staff at local distribution points (usually the partnering organization serves as the distribution point) (The Baby Box Co., 2017).

The Baby Box Company reports that online education is customizable, stating that participating hospitals, states or communities can select the health topics they would like parents to review. The Company states that distributors can use premade videos or produce videos of their own. Existing programs have provided education on safe sleep, breastfeeding, prenatal health and newborn health.

Based on conversations with Baby Box Company representatives and Ochsner St. Anne Hospital baby box program managers, it is unclear the extent to which partnering organizations can deviate from using videos produced by the Baby Box Company. It is also unclear if the Baby Box Company requires their partners to include videos on a core curriculum of health topics and recommendations.

Committee members spoke to the Virginia Department of Social Services, the lead agency for that state's baby box program, and learned that while the Virginia Department of Health supports the safe sleep education provided in tandem with the program, they do not support the boxes themselves. Accordingly, state health department offices do not serve as baby box distribution points.

Committee members reached out to state health departments in Alabama, New Jersey, Ohio, Texas, and Colorado to determine their level of involvement in their respective states' baby box programs. Only New Jersey and Alabama responded to the committee's inquiry. The New Jersey Department of Health stated that they do not endorse the baby box program. The Alabama Department of Public Health (ADPH) stated that while they are a partner in the baby box program, the Alabama Department Human Resources is the lead agency. According to the ADPH, Bureau of Family Health Services' State Perinatal Program Director, ADPH provides "education and resource information related to the baby box. [ADPH] is not a distribution center for the baby boxes."

6.2 Community-based Baby Box Programs

Smaller-scale baby box programs have been implemented in communities across the country. Local organizations, counties, and hospitals have teamed up in Des Moines, Milwaukee, St. Paul, Minneapolis, Tennessee and Missouri to provide baby boxes to families in those areas (Babies Need Boxes, n.d.) (Prevent Child Abuse Tennessee, 2016) (Stork and Company, n.d.) (Missouri Bootheel Regional Consortium Inc., 2017). Not all community-based baby box programs are associated with The Baby Box Company, but for those that are not, the premise is similar: parents receive a baby box filled with infant-related items and safe sleep information.

6.3 Hospital-Based Baby Box Programs

One hospital-based baby box program that included preliminary evaluation measures is the SAFE-T Program, implemented in Temple University Hospital in Philadelphia, Pennsylvania (Temple University, 2017). The program sought to help reduce infant mortality and improve the health of families, and was implemented in three-phases (Temple University, 2016):

- Phase 1: Patients received standard nursing discharge instructions, including instructions on safe sleep
- Phase 2: Patients received safe sleep education based on AAP recommendations delivered in person by nurses, as well as safe sleep materials from Cribs For Kids.
- Phase 3: Patients received safe sleep education based on AAP recommendations delivered in person by nurses, safe sleep materials from Cribs For Kids, and baby box with select materials

The SAFE-T Program found that, Phase 3 patients who had face-to-face education combined with the baby box reported a reduced rate of bed sharing by 25% in the first eight days of life, as compared to patients in Phase 1. The majority of parents who received a box reported using the box

as a sleeping space, but only 12% of those parents used the box as a primary sleeping space (Temple University, 2017).

For exclusively breastfed infants, bed sharing was reduced by 50% as compared to Phase 1. In addition, 59% of the mothers who exclusively breastfed and used the box as a sleeping space reported that the box made breastfeeding easier (Temple University, 2017). These finding are particularly notable as it is possible that the baby box could serve as a tool to make breastfeeding easier.

As noted earlier, reduced bed sharing and increased breastfeeding are both protective factors against SUID. However, further study is required to determine impact beyond 72 hours post-discharge, and on SUID and infant mortality.

6.4 Baby Box Program Evaluations

There is little evaluation of baby box programs that currently exist in the United States. Community level and statewide programs are only in their infancy and evaluations are not yet available for any of these programs. Temple University Hospital's SAFE-T Program has provided the most evaluation data thus far, but its results do not confirm that baby box programs reduce the infant mortality rate. Further research is also needed to determine the sustainability of such programs.

7. Recommendations

An examination of key issues related to the desirability and feasibility of a baby box program as a means to reduce infant mortality has led to the following recommendations:

7.1 Prevention of infant mortality and baby boxes.

There is currently not enough evidence to support a baby box program as an effective intervention to reduce Louisiana's infant mortality rate. The Committee acknowledges the box may be useful for parents as an alternate sleeping environment for an infant, but further studies are required to support investment in the baby box as an infant mortality reduction strategy.

7.2 Supportive family health policies, quality health education, and breastfeeding support.

It is recommended that Louisiana support the examination and adoption of evidence-based practices that have been shown to prevent sleep-related fatalities and reduce infant mortality. Recommended evidence-based practices include: supportive family health policies, quality and consistent health education, and breastfeeding support.

- **Extended paid family leave:** It is recommended that Louisiana develop and support policies that promote paid family leave. A key finding from the Committee's literature review is that longer and generously paid family leave is linked to reduction in infant mortality, improvement in birth weights and breastfeeding initiation, and economic stability in families.

- **Access to high quality, affordable healthcare**: It is recommended that Louisiana continue to support Medicaid Expansion and otherwise ensure that women continue to have access to high quality, affordable healthcare before, during and between pregnancies. As noted in this study, in 2015, 65% of births in Louisiana were covered by Medicaid, and prior to Medicaid Expansion, many of the mothers did not have access to healthcare before and

between pregnancies. Since Expansion, more people are being diagnosed and treated for conditions that contribute to infant mortality, including hypertension and diabetes.

> *"[My managed care organization] has been very helpful for my child and myself. After my pregnancy I was left with the dilemma of no health coverage. Because of the Medicaid expansion in Louisiana I am able to continue being covered through the Medicaid program and complete nursing school at Charity Delgado School of Nursing without the fear of not having health insurance."*
>
> **Louisiana Medicaid Enrollee**
> LDH Medicaid Dashboard Testimonial

- **High quality health education**: It is recommended that Louisiana promote and support high-quality health education with consistent messaging using both interpersonal and mass media communications tactics.
  - The Committee recommends that Louisiana develop and support policies that promote face-to-face interactions between providers and caregivers around safe sleep. These interactions are a necessary component of safe sleep education, and they should be family-centered and focused on helping caregivers develop protective strategies to reduce the risk of SUID. Policies that support Medicaid reimbursement for provider-patient counseling sessions focused on safe sleep could encourage more widespread adoption of such practices.
  - The Committee recommends the continued funding and promotion of the Bureau of Family Health's Give Your Baby Space statewide media and outreach campaign. The findings of the study support the role of mass media campaigns in reinforcing and normalizing safe infant sleep practices, and they also stress the importance of using plain language and engaging target audiences in all media materials. The Give Your Baby Space campaign, which includes an interactive website, print materials, and radio ads, is grounded in audience research and incorporates best practices in health communication.
  - It is also recommended that all messaging related to infant safe sleep be consistent across programs and agencies and promote the AAP recommendations. The Committee's review revealed that health education curricula and messaging are not standardized across baby box programs. It is critical that caregivers and families receive the same safe infant sleep recommendations from providers as they do from mass media campaigns. The Committee recommends that Louisiana develop and support policies that promote consistent, standardized messaging using a family-centered, risk reduction approach.

- **Breastfeeding:** It is recommended that the existing federal provision to cover salaried employees (Section 7 of the Fair Labor Standards Act) and the Louisiana state law R.S. 17:81(W) to ensure workplace accommodations for nursing mothers be expanded to include all nursing mothers. Workplace programs that allow breastfeeding mothers to have direct access to their babies or at minimum require workplaces provide a safe, clean, comfortable place to pump breast milk throughout the work day have a demonstrated return on investment for employers. Breastfeeding is a critical component of both maternal

and infant health. Breast milk provides nutrients to growing babies, and boosts the infant's immune system, promotes bonding, and is a key strategy to prevent SUID death and obesity later in life.

7.3 Emergency Response

It is recommended that the use of portable cribs and baby boxes in an emergency response be expanded and included in the state's emergency preparedness and response plan. Baby boxes may be an important risk reduction measure to prevent accidental suffocation and other SUID during disasters or emergencies, especially for infants who are faced with multiple SUID risk factors. It is critically important that infants at higher risk for SUID, such as those who are low birth weight or preterm, have safe sleep environments at all times, including disaster and other emergency situations.

7.4 Recommendations for Organizations Considering Baby Box Programs

It is recommended that hospitals, birthing facilities, community organizations, or other maternal and child health agencies who may be interested in starting local baby box distribution programs follow best practices when implementing such programs. The committee supports these organizations' commitment to promoting safe sleep, and recommends the following be considered when planning a baby box program.

Determine Level of Consumer Interest in Baby Boxes

It is recommended that organizations conduct audience research, whether formal or informal, to determine if their target population would be interested in using baby boxes. Because many pregnant women and new mothers have strong negative associations with using a cardboard box as a place for their babies to sleep, organizations should consider how promoting a baby box program may affect their credibility with the populations they serve.

Incorporate Baby Box into High Quality Health Education Program

Health education should promote AAP recommendations for safe infant sleeping. Beyond that, organizations should create education programs that allow for an individualized and culturally-responsive approach that takes into account a parent or caregiver's needs, beliefs, and the context of their lives. Providers and health educators should, to the extent possible, help families create plans for practicing safe sleep in a variety of scenarios (e.g. travel, high stress situations, emergency evacuations, etc.).

Evidence shows that face-to-face health education delivered by nurses and other trusted providers yield the best outcomes. Incorporating conversations about baby boxes into more comprehensive education efforts focused on safe sleep (such as prenatal classes, one-on-one patient-provider counseling, or home visiting sessions) is likely to produce better adherence to safe sleep practices and other health behaviors than print materials or videos alone. Baby box programs may provide more opportunities for these rich interactions.

Organizations are encouraged to use print materials, online media, and videos as tools to reinforce – but not replace – face-to-face education. All educational materials should be accessible and engaging to parents and caregivers in terms of reading level, language, and health literacy level. To prevent confusion, caregivers and families should receive the same safe sleep recommendations from all providers as they do from media materials. The Bureau of Family Health's *Give Your Baby Space* campaign can provide continuity for messaging and resources.

Anticipate and Overcome Distribution Barriers

Any baby box program may have logistical challenges related to box distribution. Organizations should anticipate those challenges to ensure that all those eligible for a box are able to get one. Key distribution barriers may include:

- **Access to Distribution Centers:** If baby boxes cannot be shipped directly to recipients, organizations should determine whether parents and caregivers can easily access distribution centers. Questions to consider include: are there distribution centers along major bus routes; and do distribution centers offer extended hours so parents and caregivers do not have to take off work to pick up a box? Additionally, organizations may want to consider a delivery system in rural areas or areas lacking public transportation.
- **Point of Contact Considerations:** All employees at an organization where baby boxes are distributed must be made aware of the program and should know where to direct people to collect their box, even if the employee is not directly involved in the baby box program. This is necessary to ensure that individuals who have met program requirements are able to get a baby box, regardless of who they speak to at participating organizations.
- **Internet and Printer Access:** Organizations interested in partnering with the Baby Box Company need to assess the ease and feasibility for parents and caregivers in their community to access Baby Box University and print Certificates of Completion. Organizations should provide computers or tablets with audio capabilities so that people can watch the required Baby Box University videos. Additionally, printers should be available for printing Certificates of Completion wherever baby boxes are distributed.

Allocate Sufficient Staff to Implement Program Effectively

Baby box programs require significant staff time and training to be implemented effectively. At minimum, staff is needed to provide supportive health education for families, and to facilitate various logistics related to the distribution and tracking of baby boxes.

Conduct a Program Evaluation

It is recommended that any baby box program be formally evaluated. This includes assessing program impact on adherence to safe sleep practices, breastfeeding and the prevention of infant deaths. Participating organizations may want to allocate staff or partner with an outside organization to perform an evaluation.

8. Conclusions

Baby boxes may make an impact on infant mortality prevention when combined with supportive family health policies, quality health education, and breastfeeding support. Should interest in baby box programs continue to grow in Louisiana, the Bureau of Family Health is dedicated to working with organizations, i.e. hospitals and community organizations and other providers to guide effective implementation of such programs. Guidance would include:

- Structural standards for the boxes
- Guidance on how to use boxes safely
- Best practices in quality safe sleep education, as well as coordination with other Louisiana-specific health education materials and resources

- Provision of a Louisiana Department of Health's Agency Position Statement on Infant Safe Sleep, which includes a recommended approach to safe infant sleep messaging
- Suggested items to include or exclude from boxes
- Additional resources for Louisiana families

The Louisiana Department of Health, Bureau of Family Health is committed to exploring innovative and evidence-based approaches to preventing infant mortality, and will continue to monitor findings related to the efficacy of baby box programs.

9. Appendices

Appendix A – House Concurrent Resolution No. 58

2017 Regular Session

HOUSE CONCURRENT RESOLUTION NO. 58

BY REPRESENTATIVES HILFERTY AND HUNTER

A CONCURRENT RESOLUTION

To urge and request the bureau of family health of the Louisiana Department of Health to evaluate the feasibility and desirability of implementing a "baby box" program as a means of reducing infant mortality, and to report findings of the evaluation to the legislative committees on health and welfare.

WHEREAS, in March of 2017, Alabama became the third U.S. state, after New Jersey and Ohio, to make free "baby boxes" available to the families of all newborns on a statewide basis; and

WHEREAS, the "baby box" distributed in these states is a sturdy cardboard box which doubles as a bassinet and comes with a firm foam mattress, a tight-fitting sheet, and breastfeeding accessories; and

WHEREAS, these baby box distribution initiatives are a variation of a program providing maternity packages in Finland which began approximately eighty years ago when that country suffered a post-neonatal death rate of nearly ten percent; and

WHEREAS, Finland's infant mortality rate has dropped by over ninety-five percent in the past eight decades and is now one of the world's lowest; and

WHEREAS, by contrast, among the thirty-five nations that comprise the Organization for Economic Co-operation and Development, the United States ranks sixth from-last (twenty-ninth) in infant mortality; and

WHEREAS, within the U.S., Louisiana has a particularly high rate of infant mortality; according to the 2016 America's Health Rankings report, at over eight infant deaths per one thousand live births, Louisiana's infant mortality rate ranks forty-eighth among U.S. states and is nearly twice that of the state with the nation's lowest infant mortality rate (Massachusetts); and

WHEREAS, promoting safe sleep and reducing other risk factors for infant mortality have been longstanding priorities of the bureau of family health of the Louisiana Department of Health, the child welfare division of the Department of Children and Family Services, and the Louisiana State Child Death Review Panel.

THEREFORE, BE IT RESOLVED that the Legislature of Louisiana does hereby urge and request the bureau of family health of the Louisiana Department of Health to evaluate the feasibility and

desirability of implementing a "baby box" program of the type described in this Resolution as a means to promote safe sleep among families with newborns and thereby reduce infant mortality.

BE IT FURTHER RESOLVED that in conducting the evaluation requested in this Resolution, the bureau of family health shall engage, collaborate with, and obtain information and perspective from the child welfare division of the Department of Children and Family Services, the Louisiana State Child Death Review Panel, and any other stakeholder groups as deemed appropriate by the director of the bureau of family health.

BE IT FURTHER RESOLVED that the bureau of family health shall submit a written report of its findings resulting from the evaluation requested in this Resolution to the House Committee on Health and Welfare and the Senate Committee on Health and Welfare no later than sixty days prior to the convening of the 2018 Regular Session of the Legislature of Louisiana.

BE IT FURTHER RESOLVED that a copy of this Resolution be transmitted to the secretary of the Louisiana Department of Health, the secretary of the Department of Children and Family Services, and the chairperson of the Louisiana State Child Death Review Panel.

Appendix B – HCR58 Committee

HCR 58 Committee		
Marci Brewer, MPH	Breastfeeding Program Manager	Bureau of Family Health, Office of Public Health, Louisiana Department of Health
Doris Brown, BSN, MS,MEd	Executive Director	Center for Community Preparedness, Louisiana Department of Health
Christine Cornell, RN	Region 4 Maternal and Child Health Coordinator (also State Child Death Review)	Bureau of Family Health, Office of Public Health, Louisiana Department of Health
Dr. Joia Crear-Perry	President	National Birth Equity Collaborative
Gerry Cvitanovich, MD	Coroner	Jefferson Parish Coroner's Office
Robin Gruenfeld, MPH	State Maternal and Child Health (also State Child Death Review) Coordinator	Bureau of Family Health, Office of Public Health, Louisiana Department of Health
Jane Herwehe, MPH	Data to Action Team Lead (also State Child Death Review)	Bureau of Family Health, Office of Public Health, Louisiana Department of Health
Tonya Hunter, MD	Obstetrician	Clinician
William Juzang II, MBA	Vice President	MEE Productions Inc.
Laurel Kitto, MSN, RNC-NIC	Director (also State Child Death Review)	Neonatal Intensive Care Unit and Neonatal Transport Team, Woman's Hospital
Chloe Lake, MPH	Heath Education / Communication Program Coordinator	Bureau of Family Health, Office of Public Health, Louisiana Department of Health
Monica McDaniels, MS, LDN, RDN	Nutrition Coordinator	Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), Office of Public Health, Louisiana Department of Health
Mona Michelli, MSW, LSCW-BACS	Child Protective Services Manager (also State Child Death Review)	Child Protective Services, Department of Children and Family Services
Lydia Plante, MPH	Mortality Epidemiologist (also State Child Death Review)	Bureau of Family Health, Office of Public Health, Louisiana Department of Health
Ashley Politz, LMSW	Executive Director	Louisiana Chapter, American Academy of Pediatrics
Karis Schoellmann, MPH	Communication, Innovation, Action Team Lead	Bureau of Family Health, Office of Public Health, Louisiana Department of Health
Lacy Simms, LCSW	Child Protection Investigations Consultant	Department of Children and Family Services

Leigh Townsend	Parent Liaison	Woman's Hospital
Rosaria Trichilo, MPH	Louisiana Pregnancy Risk Assessment Monitoring and System (PRAMS) Coordinator	Bureau of Family Health, Office of Public Health, Louisiana Department of Health
Greg Waddell	Vice President of Legal, Governmental & Regulatory Affairs	Louisiana Hospital Association
Janice Zube	Program Manager (also State Child Death Review)	Department of Education

Special Thanks to Tulane University School of Public Health & Tropical Medicine Interns:

Iman Naim	Intern
Andrea Outhuse	Intern

Appendix C – Survey for Providers & Organizations

Louisiana Department of Health – Office of Public Health – Bureau of Family Health

HCR 58: Baby Box Study Committee

Survey Tool – for providers and professional organizations

Name of person administering survey: Date:
Name and title of survey participant:
What organization is survey participant representing?

Hello! My name is _____ and I am calling from ____. I am currently serving on a committee that is charged with evaluating the feasibility and desirability of a prospective program to distribute "baby boxes" (sturdy cardboard boxes that double as bassinets and come with a firm foam mattress tight-fitting sheet, and breastfeeding accessories) as a means of reducing infant mortality in Louisiana. Do you have some time to answer a few questions about baby boxes in your organization?

1. What is your agency's position on the use of Baby Boxes?
   a. If there is a statement...
      i. Can you share it? YES/NO

      ii. Who is the statement geared toward? Professionals/families?
   b. **If none**, is there a reason your agency does not have a position/policy statement?

2. Do you have a baby box program, or are you exploring the use of Baby Boxes in practice?

IF NO:
a. Why not?
b. Is there anything else you'd like to share with us regarding baby boxes?

IF YES:
a. How is the Baby Box program funded?
b. When did this program start?
c. How many have you distributed?
d. To whom do you provide the boxes to?
e. Is there a cost to the (parents, agency to whomever they provide the boxes)?
f. How do you intend for families/parents to use the box? (if they are distributing to families)
g. How do you deliver the boxes?
h. What materials are included in the box?
i. What are the parents' receptions of the box?
j. What education do you provide to the parents with the box, if any?
k. If they do:
      i. Does the education accompany the box?

Survey Tool – for providers and professional organizations (contd.)

ii. What topics do you provide education on?
iii. How do parents receive this education? (Pamphlets, face-to-face, etc.)
iv. What ways do you evaluate the education you provide, if any?
v. What is parents' overall reception of the education?
vi. How satisfied are you with the method of distribution you use for the baby box along with education component? How can it be improved?
vii. How satisfied are you with the educational materials that go along with the box? How can they be improved?
viii. What information do you provide on breastfeeding and safe sleep practices that are not linked to the box?

3. Thank you so much for sharing your thoughts with us!

Appendix D – Survey Tool for Families

Questions for Home Visiting program participants

FOR HOME VISITORS

Home visitor name:

What model are you using with this client (NFP or PAT)?

Is the client pregnant or a new mom?

Does the client already have another safe sleep space (pack 'n play, crib, etc.)? What is it?

FOR PAT ONLY: How many children does the client have?

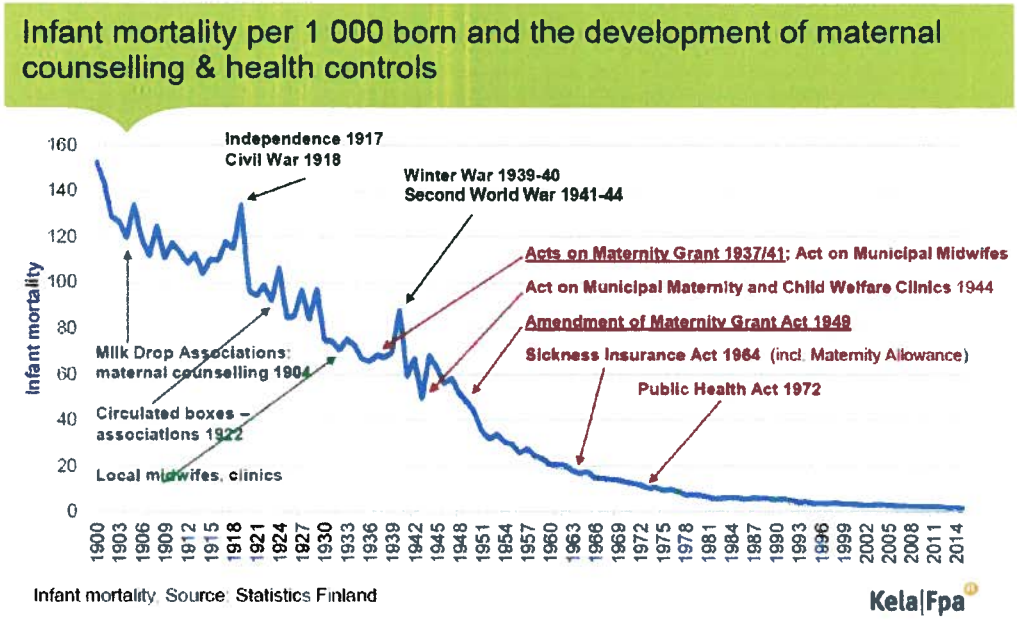
FOR CLIENTS

1) Would you be interested in using this box as an infant sleeping environment? **YES / NO**

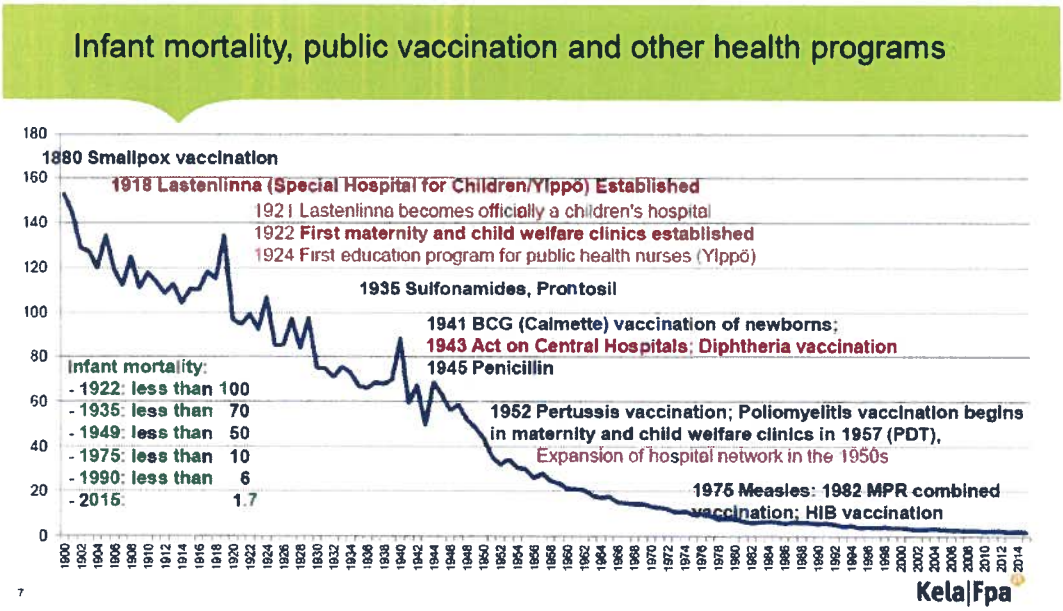
    a. Why or why not?

2) How else would you use this box?

Appendix E – Finland's Infant Mortality Rate, 1900 – 2014



- Acts on Municipal Maternity and Child Welfare Clinics, 1944: Created the maternal and child health clinic system, which provides advice, support and health care to new mothers and families with a focus on primary prevention. Services are free of charge and voluntary, and reach almost all mothers and children from birth to school age (Finland Care, n.d.).
- Sickness Insurance Act of 1964: Introduced health insurance and parental leave to Finnish residents (Sickness Insurance, 1988).
- Public Health Act 1972: Committed to activities that maintained and promoted the state of health of the population and their living environment (World Health Organization Europe).



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