



PERSONNEL AND  
READINESS

**UNDER SECRETARY OF DEFENSE**  
4000 DEFENSE PENTAGON  
WASHINGTON, D.C. 20301-4000

**AUG - 8 2022**

The Honorable Jack Reed  
Chairman  
Committee on Armed Services  
United States Senate  
Washington, DC 20510

Dear Mr. Chairman:

The Department's response to Senate Report 117-39, pages 198-199, accompanying S. 2792, the National Defense Authorization Act for Fiscal Year 2022, which directs the Secretary of Defense to report on the Department's efforts to review and address maternal deaths at military medical treatment facilities (MTFs), is enclosed.

The Military Health System (MHS) continues to innovate and strategically adjust practices to ensure the highest quality of care for all beneficiaries, including mothers and infants, using data-driven methods, along with partnerships with Federal, State, and international entities. While rates of maternal mortality in the MHS Direct Care system are lower than those of the overall United States, prevention of conditions that can impact maternal health remain a focus of the MHS. The MHS continues to innovate, evaluate, and collaborate with partners and leading collaborative and professional organizations to refine and evaluate quality of care to improve health, wellness, and readiness of MHS beneficiaries and their families. The Department continues to leverage existing processes to conduct case reviews at MTFs in accordance with Department of Defense Manual 6025.13, "Medical Quality Assurance and Clinical Quality Management in the MHS."

Thank you for your continued strong support for the health and well-being of our Service members, veterans, and families. I am sending a similar letter to the House Armed Services Committee.

Sincerely,

A handwritten signature in black ink, appearing to read "Gilbert R. Cisneros, Jr.", is located below the "Sincerely," text.

Gilbert R. Cisneros, Jr.

cc:

The Honorable James M. Inhofe  
Ranking Member



PERSONNEL AND  
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**UNDER SECRETARY OF DEFENSE**  
4000 DEFENSE PENTAGON  
WASHINGTON, D.C. 20301-4000

**AUG - 8 2022**

The Honorable Adam Smith  
Chairman  
Committee on Armed Services  
U.S. House of Representatives  
Washington, DC 20515

Dear Mr. Chairman:

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Thank you for your continued strong support for the health and well-being of our Service members, veterans, and families. I am sending a similar letter to the Senate Armed Services Committee.

Sincerely,

Gilbert R. Cisneros, Jr.

cc:

The Honorable Mike D. Rogers  
Ranking Member

# **Report to the Committees on Armed Services of the Senate and House of Representatives**



## **Review of Maternal Deaths at Military Medical Treatment Facilities**

**Requested by: Senate Report 117–39, Pages 198-199,  
Accompanying S. 2792, the National Defense Authorization Act for  
Fiscal Year 2022**

The estimated cost of this report or study for the Department of Defense is approximately \$133,000 in Fiscal Years 2021 - 2022. This includes \$43,000 in expenses and \$90,000 in DoD labor.

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## EXECUTIVE SUMMARY

This report is in response to Senate Report 117–39, pages 198-199, accompanying S. 2792, the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2022, which requests the Secretary of Defense to provide a report on the Department’s efforts to review maternal deaths at military medical treatment facilities (MTFs) as well as details on the Department’s effort to implement recommendations presented in the Department’s June 10, 2019 report to Congress, “Maternal and Infant Mortality Rates in the Military Health System” (Defense Health Agency, 2019).

Senate Report 117–39 of the NDAA for FY 2022 requests the Secretary of Defense to provide:

- 1) The extent to which the review of each death is conducted by a multidisciplinary group of experts;
- 2) The extent to which the Department seeks input from physicians, epidemiologists, patient advocates, and civilians with experience with reviews of maternal mortality records, and other experts;
- 3) Measures taken to ensure data collection is transparent, consistent, and comprehensive;
- 4) Measures taken to ensure confidentiality protections and de-identification of any information specific to maternal morbidity case or severe maternal morbidity case;
- 5) Efforts to facilitate data and records sharing with State maternal mortality review committees; and
- 6) The Department’s process for accessing National Death Index data and State death certificate data at the Centers for Disease Control and Prevention (CDC).

Information was also requested on the Department’s meaningful participation in quality improvement programs, specifically to include the Alliance for Innovation on Maternal Health program, a perinatal quality collaborative, or other similar maternal health quality improvement initiatives (hereafter referred to as Element 7).

The Military Health System’s (MHS) dual mission is to provide high quality health care in support of the full range of military operations, and to sustain the health of all those entrusted to its care. Health care services are provided through a combination of both Direct Care (DC) (i.e., care provided in MTFs), and Private Sector Care (PSC) (i.e., community based care), serving approximately 9.5 million beneficiaries, including uniformed Service members, military retirees, and family members. Female active duty members and female active duty family member beneficiaries (i.e., spouses, dependents) represent over 40 percent of the MHS population, and maternal and adolescent health care remains the largest utilization. Each year across the MHS, more than 100,000 babies are born, with approximately 40,000 deliveries in DC, and approximately 60,000 deliveries in PSC. DC hospitals, medical clinics, and the TRICARE program are managed by the Defense Health Agency (DHA).

Data provided herein reflects information consistent with the Department’s previously published 2019 report to Congress on this topic, and reflects maternal deaths identified among active duty members and TRICARE eligible beneficiaries which occurred within DC during the time periods noted. Data are provided by the National Perinatal Information Center (NPIC). Data limitations,

including the inability to perform external validation of death records, are detailed in Appendix 1.

All content provided in this report further reflects efforts undertaken during a time of major MHS organizational reform, and coincided with the worldwide coronavirus disease 2019 (COVID-19) pandemic. MHS reform continues to be guided by the Department's focus on the quadruple aim: improved readiness, better health, better care, and lower cost, and aligns with direction from the Secretary of Defense and the National Defense Strategy. During FY 2022, DHA continues to expand its responsibilities to provide management and administration to all MTFs globally, in tandem with enduring response efforts to the COVID-19 pandemic. DHA also continues to work with the Military Departments (MILDEPs) to ensure the MHS operation continues in an efficient and effective manner during transition from the MILDEPs to DHA.

## INTRODUCTION AND BACKGROUND

Lowering maternal death rates, also referred to as maternal mortality, is an important goal of many health organizations worldwide as maternal death is an important indicator of the health of their populations and is a reflection of the overall health of a country or nation. Despite this importance, rates of maternal mortality in the United States have been increasing, and about 700 women die each year as a result of pregnancy or delivery complications (CDC, 2020). As described below, maternal mortality at MTFs is relatively uncommon, but nevertheless processes are in place to further reduce maternal mortality.

The CDC broadly defines maternal mortality as the death of a woman during pregnancy, at delivery, or soon after delivery (Reproductive Health, 2020); however, there are many other commonly used measures of maternal deaths beyond this definition, several of which are outlined below. It is important to note that while they all measure different contributors to maternal mortality, they are not all equivalent.

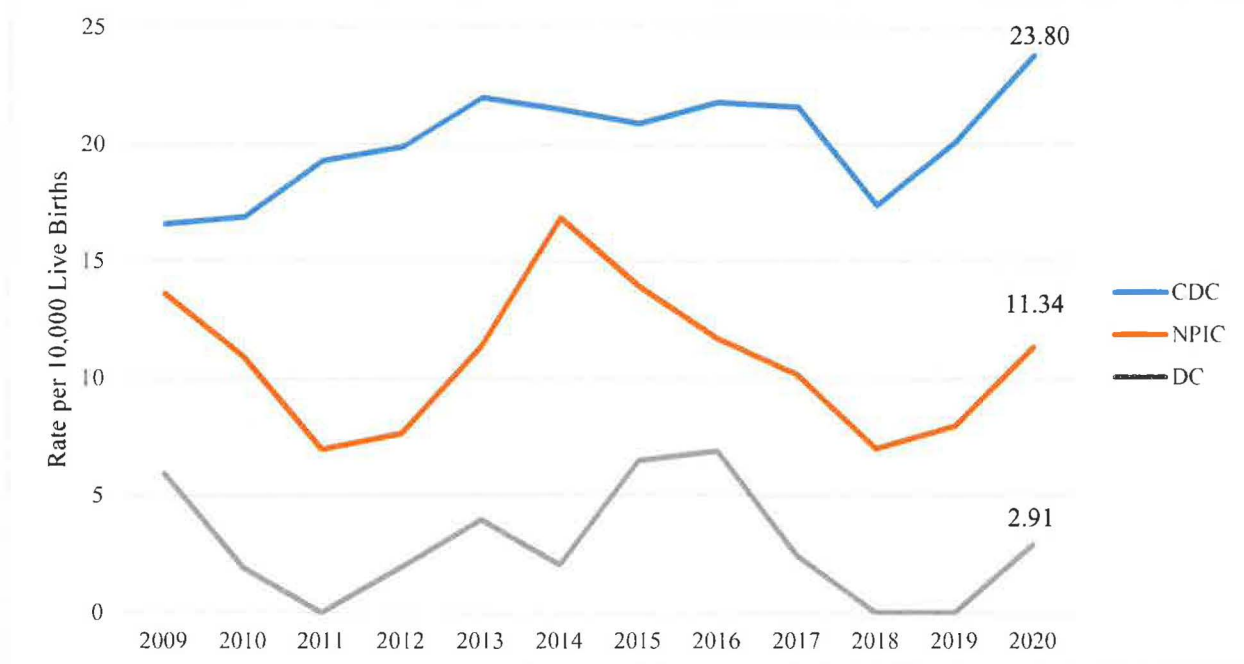
- *Pregnancy-associated mortality*: Death while pregnant or within 1 year of the end of the pregnancy, irrespective of cause.
- *Pregnancy-related mortality*: Death during pregnancy or within 1 year of the end of pregnancy from: a pregnancy complication, a chain of events initiated by pregnancy, or the aggravation of an unrelated condition by the physiologic effects of pregnancy. Used by the CDC to report U.S. trends, this measure is typically reported as a ratio per 100,000 live births (CDC, 2020), and is otherwise referred to as the pregnancy-related mortality ratio (PRMR).
- *Maternal mortality ratio*: Death while pregnant or within 42 days of the end of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. Used by the World Health Organization in international comparisons, this measure is reported as a ratio per 100,000 live births (2019).



Within the MHS, maternal mortality is reported using PRMR, which most closely aligns with national data available from the CDC.<sup>1</sup> For the purposes of this report, data is provided to update findings and trends since the 2019 report and discuss progress on recommendation made at that time (detailed in Appendix 2). Data are updated through Calendar Year (CY) 2020, the most complete year for which data is available.<sup>2</sup> Specific data methodology and limitations are detailed in Appendix 1.

As shown in Figure 1, in CY 2020, the MHS DC PRMR was 2.91 deaths per 100,000 live births, lower than the U.S. PRMR, as reported by the CDC, of 23.80 deaths per 100,000 live births (Hoyert D. L., 2022). The MHS DC PRMR was also lower than the NPIC comparative rate of 11.34 deaths per 100,000 live births for participating member hospitals. For CY 2020, the U.S. PRMR, as reported by the CDC, was more than eight times the MHS DC PRMR of 2.91 deaths per 100,000 live births during the same time period.

**Figure 1: Pregnancy-related Mortality per 100,000 Live Births\***



*\*Lower is better; methodology to identify maternal death is provided in Appendix 1*

It should be noted that the absolute number of maternal deaths in MHS DC is very small; on average, there were only one to two deaths annually at MTFs between CY 2009 and CY 2020. As such, year-to-year fluctuations may often represent a difference of a single event. Low rates of maternal deaths at MTFs, in many instances, are due in part to complex pregnancy cases being referred to PSC. There is also evidence that the risk of death can vary by race, ethnicity, and

<sup>1</sup> Data provided in this report does not specify death within 42 days of termination of pregnancy (per WHO definition), and attempts to include mortality which occurred during “pregnancy, childbirth and the puerperium.” As such, MHS maternal mortality data more closely aligns with the PRMR and, therefore, will be compared with the U.S. PRMR (as reported by CDC) and NPIC PRMR. Methodology is further detailed in Appendix 1.

<sup>2</sup> Complete data for CY 2021 is not expected to be available for NPIC and DC until August 2022, and complete data for CY 2021 from CDC is not expected to be available until early CY 2023.

age. In 2020, DHA requested that NPIC provide data on race and ethnicity for mothers and infants for select measures of care, and the MHS is using this information to identify trends and interventions to understand and reduce pregnancy-related deaths. Inclusion of race and ethnicity data available to date is currently provided within the *Evaluation of the TRICARE Program: Access, Cost, and Quality, Fiscal Year 2021 Report to Congress*.

Although the DC system has considerably lower rates of maternal mortality, the MHS collaborates with external organizations – including the CDC to adopt leading practices to decrease maternal mortality further. Maternal mortality, including death in pregnancy, during delivery, up to 42 days postpartum, and up to 1 year after delivery, each have unique physiological changes that are still being studied. In general, slightly more than half (52 percent) of all deaths occur after the day of delivery, while almost a third occur during pregnancy (Zephyrin, 2020). Nationally, additional studies and efforts to address comorbidities of maternal mortality that arise or increase in complexity during pregnancy (such as hypertension or high blood pressure), and in the postpartum period (such as cardiomyopathy or weakened heart muscle), are necessary to understand the actions needed to decrease preventable maternal deaths.

A component of preventing mortality is the identification and the complexities of severe maternal morbidity (SMM). SMM is defined as any unexpected or unintended outcome of the process of labor and delivery that results in significant short-term or long-term consequences to a woman's health (Callaghan, SMM Among Delivery and Postpartum Hospitalization in the United States, 2012). SMM is highly preventable and can be considered a near miss for maternal mortality because without treatment, many of these conditions could lead to maternal death (ACOG, 2016). Similar to maternal mortality, rates of SMM have been increasing in the United States, affecting more than 50,000 women in the United States in 2014, the most recent year for which data are available on a national level (CDC, 2021). Indicators for SMM are detailed in Appendix 3.

Rates of SMM have been increasing nationally since 1993, but reasons for this escalation are not fully understood; increases may be due to changes in the overall health of the population of women giving birth (e.g., increases in maternal age, pre-pregnancy obesity, preexisting chronic medical conditions, and cesarean delivery) (CDC, 2021). Tracking and understanding patterns of SMM, along with developing and carrying out interventions to improve the quality of maternal care, are essential to reducing SMM and mortality. Further efforts to decrease SMM within the MHS are patterned on the CDC processes, including Maternal Mortality and Morbidity Review Committees (MMMRCs), currently adopted in many States to develop leading practices to decrease SMM long term impact.

The MHS also seeks to ensure the public understands and has access to initiatives and data on quality, safety, and outcomes of MHS maternal care. One of the first, large-scale public reporting of maternal quality outcomes outside of the annual TRICARE report to Congress is the requirement of MTFs with inpatient obstetrics to publicly report quality performance metrics through The Leapfrog Group. The Leapfrog Group has defined six maternity care measures (rate of early elective deliveries, rate of cesarean section births among low-risk, first-time mothers [i.e., nulliparous term singleton vertex cesarean deliveries], rate of episiotomies, two maternity care process measures, and a composite measure for high-risk deliveries) (n.d.). Four of these



measures are also part of the TRICARE Performance-Based Maternity Payments (P-BMP) pilot, wherein PSC hospitals will be awarded recognition and financial incentives based on their performance (Government Accountability Office, 2020). These metrics offer another step forward in transparency and validation of quality maternity care for all TRICARE beneficiaries.

The impact of this data is reflected in the efforts described throughout this report. While the rates of maternal mortality in the MHS DC system are lower than those of the overall U.S. (as reported by the CDC), and among NPIC participating member hospitals, the MHS continues to innovate, evaluate, and collaborate with Federal partners and leading collaborative and professional organizations to refine and evaluate quality of care to improve health, wellness, and readiness of MHS beneficiaries and their families. Key findings from the seven elements are as follows. Follow up from the Department's June 10, 2019 report to Congress, "Maternal and Infant Mortality Rates in the MHS," are detailed in Appendix 2.

#### **ELEMENT 1**

*The extent to which the review of each death are conducted by a multidisciplinary group of experts:*

Any death is a tragedy, and maternal deaths in particular have lifelong impact on families. Historically, each MILDEP – Army, Navy, and Air Force – has had processes in place to conduct case reviews in accordance with Department of Defense Manual (DoDM) 6025.13, "Medical Quality Assurance and Clinical Quality Management (CQM) in the MHS." DoDM 6025.13 outlines requirements and processes for peer review and review of The Joint Commission (TJC) sentinel events, DoD Reportable Events (DoD REs). These reviews are often done through a patient safety tool called a Comprehensive Systemic Analysis (CSA). CSA is designed to characterize the events, diagnoses, and outcomes involved to determine proximal causes of systems errors.

As part of the transition of responsibilities and capabilities from the MILDEPs to DHA, DHA is developing a new, overarching enterprise structure, consistent with published CDC guidance (Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM), 2021). MMMRCs expand the scope of maternal outcomes that should be reviewed for leading practices and lessons learned. For instance, there can be maternal events that do not meet the threshold for TJC (death, permanent harm, or severe temporary harm), but review and evaluation by an MMMRC could still identify processes and systems that were effective or may present opportunities for improvement (e.g., return to the operating room or hysterectomy).

#### **ELEMENT 2**

*The extent to which the Department seeks input from physicians, epidemiologists, patient advocates, and civilians with experience with reviews of maternal mortality records, and other experts:*

MMMRCs include a diverse multidisciplinary group that include clinicians, providers, and nurses, for obstetrics and gynecology, maternal-fetal medicine, midwifery, and other specialties, such as anesthesiology or neonatology, among others, depending on the specific nature of a case. The Department has actively sought experts, including from CDC to support review of maternal

mortality records to ensure proper understanding in the design and implementation of MMMRCs. To date, DHA has facilitated and participated in multiple webinars to conduct sample case studies utilizing CDC MMMRC and Maternal Mortality Review Information Application (MMRIA) processes. These webinars have allowed CDC and other experts to help assist and enable DHA to assess an event and proactively identify scenarios or circumstances where intervention, education, and/or preparation could optimize patient outcomes.

DHA continues to learn and be mentored through these collaborative efforts, leveraging expert knowledge and experience from leading professional organizations; however, these initial implementations are not without challenges. Transition of MTFs to the new electronic medical record, MHS GENESIS, has required additional systems learning. Ensuring multidisciplinary subject matter experts across the MHS have access to maternal records in both legacy (e.g., AHLTA [Armed Forces Health Longitudinal Technology Application] and Essentris) and MHS GENESIS systems creates additional challenges for conducting comprehensive reviews of all applicable clinical documentation. As all MTFs move to MHS GENESIS by FY 2024, the challenges should be reduced.

### **ELEMENT 3**

*Measures taken to ensure data collection is transparent, consistent, and comprehensive:*

As a global enterprise, the MHS has access to data for approximately 9.5 million beneficiaries and is continually evaluating data on patient safety, health care outcomes and quality, patient satisfaction, and access to care, among other topics. The MHS Data Repository (MDR) is the centralized data repository that captures, archives, and integrates MHS data worldwide. The MDR receives and validates data from the Department's worldwide network of more than 260 health care facilities and other data sources (MHS, n.d.).

Within DHA, the Analytics and Evaluation Division (AED) provides the enterprise and individual markets/regions and MTFs data and reports on access and health care outcomes, as well as provides on-demand data for reports and responses to requests for information. DHA AED has developed business rules and infrastructure for validating accurate, comprehensive data that informs and provides actionable metrics. Additionally, DHA AED has external contracts with data vendors who support external review and analysis of utilization, cost, and clinical care data. Together, these data sources provide, through the conduit of DHA AED, valid, accurate, and timely enterprise data. Ongoing efforts to provide external source verification of deaths, specifically maternal deaths, will provide more complete data. As new and legacy electronic medical record systems align, systems of records will be more consistent and valid and have improved capacity for data collection.

### **ELEMENT 4**

*Measures taken to ensure confidentiality protections and de-identification of any information specific to maternal morbidity case or severe maternal morbidity case:*

DHA recognizes that discussion by any MMMRC must adhere to principles of confidentiality, anonymity, and objectivity. More so, reviews conducted by MMMRCs must be separate and distinct from peer reviews, mortality and morbidity boards, or risk management reviews (which

typically address credentialing and formal discipline issues), with an expert review focus on more broadly improving systems and processes. DoDM 6025.13 and DHA-Procedures Manual (DHA-PM) 6025.13, “CQM in the MHS,” define CQM procedures in the MHS and provide an organized structure for an integrated program framework to objectively define, measure, assure, and improve the quality of care received by MHS beneficiaries (DHA, 2019). Furthermore, DHA-PM 6025.13 explicitly requires that CQM reports do not include personal health information (PHI), personally identifiable information (PII), or Health Insurance Portability and Accountability Act (HIPAA) information (e.g., names or other identifying information on healthcare providers are not be included). DHA will also use 10 U.S.C. § 1102 in accordance with the statute. Providers and clinical staff across the MHS engage in annual training on PHI, PII, and HIPAA requirements to ensure competency.

## **ELEMENT 5**

*Efforts to facilitate data and records sharing with State maternal mortality review Committees:*

All MMMRCs require access to additional information (e.g., complete medical records, death certificates, social demographics, etc.) on SMM and mortality events that allow a deeper examination of the processes and factors leading to the death. DHA is currently working to refine processes as the enterprise both transitions to MHS GENESIS and as DHA’s authority, direction, and control (ADC) of MTFs continues to expand. As these processes are established and validated, DHA will begin to explore requirements with external city, State, and host nation MMMRCs. DHA continues to work with external partners, including the CDC for processes and data validation.

Linkages and validation of internal MHS data with external resources, especially for vital records (i.e., death records) remain a work in progress. Currently, validation of active duty member deaths are done through the Services, while other beneficiary deaths require additional resources for review. DHA continues to define and delineate the best set of data from CDC, external vendors, and State collaborations.

Beyond State-based collaborations, MHS has also engaged in a number of efforts to more broadly facilitate data- and record-sharing with beneficiaries and the public at large on maternal health. As noted earlier in the report, MTFs with inpatient obstetrics publically report quality performance metrics through The Leapfrog Group. This transparency provides patients with the information they need to better participate in shared decision-making, including where and by whom they receive their medical care. This data also provides additional tools for system-wide standardization, benchmarking, and improvement. In CY 2023 and beyond, the intent is that all eligible DHA MTFs will fully participate in The Leapfrog Hospital Survey, Hospital Safety Grade, and Ambulatory Surgery Center Survey, offering another step forward in transparency and validation of quality maternity care for all TRICARE beneficiaries. More information about The Leapfrog Group and current MTF maternity care performance, is detailed in Appendix 5.

## **ELEMENT 6**

*The Department's process for accessing National Death Index (NDI) data and State death certificate data at the CDC:*

As DHA ADC expands, DHA will continue to foster information-sharing and collaboration within and across the MHS, among Federal and State health entities, across civilian communities, and among international entities, when appropriate. In support of this effort, and in ongoing collaboration with external partners, including the CDC, DHA continues to work towards a formalized structure for data collection, analysis, and information-sharing processes. Ongoing efforts are focused on exploration of external resources with composite repositories, rather than engaging with every individual State and host nation for access to variable sources of data.

Currently, the Defense Suicide Prevention Office uses the CDC NDI to validate death information and cause of death for reporting to Congress and other stakeholders. Similarly, the Defense Manpower Data Center uses death data from the Social Security Administration (SSA) to verify benefit eligibility and payment. For use across DHA, enterprise-wide access to these systems is not available and requires each individual agency to have active, approved projects for requested services, and each project is associated with cost, depending on a variety of factors (e.g., number of subjects, type of data, number of years for which data is required, administrative fees, etc.).

## **ELEMENT 7**

*Information on the Department's meaningful participation in quality improvement programs, including the Alliance for Innovation on Maternal Health program, a perinatal quality collaborative, or similar maternal health quality improvement initiatives:*

As the MHS continues its journey in becoming a High Reliability Organization,<sup>3</sup> DHA remains committed to adopting and adapting processes from the healthcare industry and other institutions to incorporate leading practices. DHA began adopting and adapting The Alliance for Innovation on Maternal Health (AIM) proven safety and quality implementation strategies in 2018 for postpartum hemorrhage. By adopting and adapting existing work by AIM, the DHA leverages established processes to reduce preventable maternal mortality and severe morbidity across the enterprise. Meaningful collaboration continues with CDC and other entities, with the goal to share leading practices and information. DHA is also an active participant in the Office of the Vice President's Maternal Health Integrated Practice Council, which assists in collaborating with other Federal partners to improve maternal health. Creating opportunities to share trends in data, discuss leading practices, identify and share quality improvement initiatives, and develop and share outcomes is a top priority.

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<sup>3</sup> Increasing high reliability across the MHS means building on the existing work and best practices of the Military Service MILDEPs and the DHA. This approach works across clinical and non-clinical settings to drive better outcomes for patients, staff, and the enterprise. For more information, visit <https://health.mil/Military-Health-Topics/Access-Cost-Quality-and-Safety/Quality-And-Safety-of-Healthcare/Ready-Reliable-Care>.



## **CONCLUSION**

The MHS continues to innovate and strategically adjust practices to ensure the highest quality of care for all beneficiaries, including mothers and infants, using data-driven methods, along with partnerships with Federal, state, and international entities. While rates of maternal mortality in the MHS DC system are lower than those of the overall U.S., prevention of conditions that can impact maternal health remain a focus of the MHS. The MHS continues to innovate, evaluate, and collaborate with partners and leading collaborative and professional organizations to refine and evaluate quality of care to improve health, wellness, and readiness of MHS beneficiaries and their families.

## **APPENDIX 1: Methodology**

Data provided in this report were made available through NPIC, a contracted vendor providing data and analytics support to DHA, dedicated to the improvement of perinatal health through comparative data analysis, program evaluation, health services research, and professional continuing education. NPIC is a member-based organization, with member hospitals contributing data on over 16 million inpatient perinatal discharges since 1985 and over 685,000 perinatal discharges annually to the Perinatal Center Database, one of the largest multi-state perinatal discharge databases available for research and benchmarking analytics.

The maternal mortality analysis includes inpatient discharges from DC for active duty or dependent TRICARE beneficiaries (i.e., active duty member or spouse/dependent) with diagnoses falling into Major Diagnostic Category 14, Pregnancy, Childbirth, and the Puerperium during the time periods noted within. Deaths were compared to the Defense Enrollment Eligibility Reporting System and a review of health care events after date of death for internal validation.

At this time, DHA is not able to validate deaths through State-based vital records or other national systems of record (e.g., NDI, SSA Death Master File, Electronic Verification of Vital Events Fact of Death, etc.). Business rule development for external source validation of deaths is ongoing. Access to death records may provide supplemental validation of death in addition to clinical information that can be used by the enterprise for review of death events.

## APPENDIX 2: Implementation Progress on June 10, 2019 Report Recommendations

Providing standardized, highly reliable, and safe care for mothers and infants remains a top priority across the MHS. As reported in the Department's June 10, 2019, report to Congress, "Maternal and Infant Mortality Rates in the MHS," the MHS had, and continues to have, lower rates of maternal mortality when compared to the overall U.S. and NPIC member facilities. Updates on specific recommendations made within that report are as follows below, broken out across DC and PSC.

Progress on recommendations made in 2019 as reported in the report, "Maternal and Infant Mortality Rates in the MHS," relevant to DC are as follows:

1) **Enterprise-wide adoption of standardized education initiatives for infant care to include anticipatory guidance.** The MHS continues to build upon and promote various standardized education platforms for infant care and parenting for beneficiaries throughout the MHS, with all materials available to beneficiaries in both DC and PSC. Select examples of these education platforms include:

- *Military OneSource.*<sup>4</sup> Military OneSource is a DoD program designed to help Active Duty, National Guard, and Reserve members and their families cope with the rigors of military life. The program offers numerous resources including counseling, advice, and other free assistance to qualifying military members and families on a confidential basis.
- *Ubicare Pregnancy, Parenting, and Breastfeeding Education Solution.*<sup>5</sup> Ubicare provides pregnancy, parenting, and breastfeeding digital education to military beneficiaries and staff at all MTFs that deliver babies worldwide. Through Ubicare, military expectant and new parent beneficiaries receive evidence based support specific to their stage of pregnancy or their child's age (through age three), as well as breastfeeding guidance, tips, and resources directly from their MTF.
- *TRICARE Online.*<sup>6</sup> TRICARE Online offers resources for beneficiaries and families to understand TRICARE health plan options, benefits, and education, and these resources are available whether the care is delivered in DC or PSC. Managed Care Support Contractors (MCSCs) may also provide additional resources to augment or expand available resources. Key topics from this site include Maternity Care and Qualifying Life Events, such as the birth or adoption of a child.
- *MCSC Programs.*<sup>7</sup> Both TRICARE MCSCs, Humana Military and Health Net Federal Services, have internal proprietary programs and education that are offered to beneficiaries within their respective regions.
- *DHA Education and Training.*<sup>8</sup> Within DHA, the Education and Training Directorate is developing a single, centralized educational repository for standardized, evidence-based materials for beneficiaries. For patients, content such as the "Purple Book" also provides patient education to beneficiaries, no matter where they are located for all critical aspects

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<sup>4</sup> <http://www.militaryonesource.mil/>.

<sup>5</sup> [www.ubicare.com](http://www.ubicare.com).

<sup>6</sup> [www.tricareonline.com](http://www.tricareonline.com).

<sup>7</sup> [www.humanamilitary.com](http://www.humanamilitary.com) and [www.hnfs.com](http://www.hnfs.com).

<sup>8</sup> [www.health.mil/About-MHS/OASDHA/Defense-Health-Agency/Education-and-Training](http://www.health.mil/About-MHS/OASDHA/Defense-Health-Agency/Education-and-Training).

of prenatal care at the appropriate time. Lastly, provider-facing content, such as Department of Veterans Affairs/DoD Pregnancy Clinical Practice Guideline for the Management of Pregnancy, provides standardized provider-based education and content.

Since 2019, efforts have also been made to standardize prenatal and postpartum discharge education through the use of standardized educational tools in a variety of learner formats (e.g., print, web-based, mobile applications, etc.). In CY 2022, efforts are underway to provide a single, standard, postpartum discharge education booklet to all eligible beneficiaries, utilizing a commercial off-the-shelf product. This will ensure resources across the MHS are standardized in content and include the latest evidence-based updates.

- 2) **Enterprise-wide availability of resources for parents and families concerned about health and illness.** In addition to the resources listed above, resources for parents and families concerned about their health and illness have continued to expand. One example is the TRICARE Nurse Advice Line (NAL), a call center available 24 hours a day, 7 days a week to all TRICARE eligible beneficiaries. Since its inception across the United States in 2014, and global expansion in 2018, the NAL provides a consistent source of clinical advice to all TRICARE beneficiaries. The NAL can answer urgent care questions, give health care advice, help beneficiaries find a doctor, or schedule a next-day appointment at MTFs and clinics.

Urgent care, at the MTF or in the community, is another resource for non-emergency illness or injury. Communication between beneficiaries and providers at the MTF are available through the TRICARE Online Patient Portal Secure Messaging. The portal allows for the ability for beneficiaries to securely communicate with their health care teams, and can be used for minor medical issues, chronic disease management, test results, appointment requests, medication renewals, and other health care needs at the patient's convenience. The portal has also been an additional tool to provide telemedicine access to providers throughout the COVID-19 pandemic.

- 3) **Enterprise-wide implementation of guidelines and screening / treatment schedules, developed and endorsed by nationally-recognized professional organizations, in newborn and pediatric documentation systems to inform evidence-based clinical practice.** The MHS actively monitors guidelines and screening or treatment schedules, developed and endorsed by nationally-recognized professional organizations. TRICARE-covered services are based on recommendations from the Department of Health and Human Services, to include recommendations from the United States Preventive Services Task Force and the Health Resources and Services Administration.

Well-child care includes routine newborn care, health supervision examinations, routine immunizations, periodic health screening, and developmental assessments in accordance with professional medical organizations. More broadly, maternal and infant care includes the use of evidence based guidelines from a number of professional medical organizations. Guidelines are evaluated, adapted, and adopted throughout the DC system to decrease unwarranted clinical variation, and to improve patient outcomes. Adoption of these



guidelines is undertaken through a variety of different processes, including policies, such as DHA-Procedural Instructions.

Since 2019, DHA has supported enterprise-wide implementation of evidence-based clinical practice in many ways, including:

- Promoting ongoing adoption and adaption of the AIM Health's Women's Safe Health Care for Every Woman Patient Safety bundles. DHA implemented and standardized the postpartum hemorrhage bundles requiring standard equipment, medications, processes, access to emergency blood for transfusion, risk assessments, and outcome monitoring, with final MHS rollout expected to be completed in CY 2022. Upcoming foci includes implementation of the AIM patient safety bundles on hypertension in pregnancy and venous thromboembolism.
  - In CY 2021, MHS developed several new clinical registries focused on implementation of standardized evidence-based best practice for beneficiaries with complex diagnoses. Two registries recently began to define and review screening standards for infants diagnosed with Trisomy 21, or Down syndrome. These registries aim to provide a single reference source for providers to review clinical information, provide standard of care screening or evaluations, and give patients a forum for case management and review.
- 4) **Standardization of perinatal quality data reports, to include maternal and neonatal data.** Since 2008, the MHS has collected, analyzed, and reported maternal and neonatal data for both DC and PSC. Every quarter, NPIC provides DC data reported by MTF, Service, Market (new in CY 2021), and the MHS overall. Each metric is compared to an NPIC database average, reflecting benchmark performance for all NPIC member hospitals. Many of these measures are included in the annual report "Evaluation of the TRICARE Program: Fiscal Year 202X Report to Congress on TRICARE." The MHS further supplements this information with data from both TJC perinatal core measure set and The Leapfrog Group. In CY 2021, all DC MTFs began participating in quality of care reviews through The Leapfrog Group (The Leapfrog Group, n.d.), which includes six maternity care measures. Future standardization of practice, enduring alignment of data systems, and the ongoing rollout of MHS GENESIS, will continue to provide a standardized platform for inpatient and outpatient documentation that is expected to allow for improved data collection and validity. MHS also stratifies measures to evaluate access to, coordination of, and outcomes of care.
- 5) **Enterprise-wide implementation of standardized Severe Maternal Morbidity and Mortality Reviews to identify opportunities for systems-level improvements.** As described in detail throughout this report, DHA has worked in collaboration with external partners, to review and refine the processes for enterprise implementation and utilization of the CDC's MMRIA. DHA is in the process of developing guidance to increase systems learning about SMM and mortality, decrease adverse outcomes, and increase patient safety for all Active Duty members and beneficiaries.
- 6) **Enterprise-wide implementation of Levels of Maternal Care to standardize hospital capabilities and align with national CDC-led efforts.** Since 2019, DHA has also been

working to develop a comprehensive assessment focused on maternal and neonatal capabilities across all MTFs, to include assessment of MTF-based functionality (i.e., structure), personnel (e.g., providers, nurses, and ancillary staff), resources, and logistics. The assessment is based on existing standards established in the field. DHA has designed a data call and assessment for all MTFs with inpatient obstetrics and newborn care to review their capacity and capabilities in line with best practices. Findings will facilitate standardization and ensure capacity with staffing assignments using data and outcomes, including those from the NPIC, DHA Patient Safety, known staffing at MTFs, and MTF-specific certifications. Findings will also provide DHA with information needed to assess current capabilities to direct and support care of mothers and infants at appropriate levels. This work will inform efforts to deliver a way to standardize, implement, and improve regionalized systems of care, and further improve patient outcomes.

Within PSC, or community-based care, progress on recommendations made in 2019 is as follows:

- 1) **Determination of perinatal quality and outcome metrics that MCSCs will report to the DHA in order to provide comparable data between PSC and DC related to perinatal/pregnancy outcomes.** Every year more than 60,000 TRICARE beneficiaries deliver in more than 2,100 civilian hospitals across the United States. Since 2016, NPIC has provided a semi-annual report that displays comparative maternal and neonatal data for the civilian hospitals with the largest volume of DHA deliveries annually (150 or more deliveries). The outcome metrics displayed include PSC maternal and neonatal outcomes overall, by East/West TRICARE Regional Office (TRO), and comparison data from DC facilities and the NPIC Perinatal Center Database. This PSC Comparative Perinatal Service Line Report also allows DHA leadership to: see the range of civilian hospitals with the largest volume of PSC deliveries; monitor volume and utilization by civilian hospitals and cross reference with other data available to DHA; view quality and outcome metrics by TRO and by specific hospitals within the TRO; and, over time, determine whether DHA contracted hospitals are performing up to military standards of care. In addition, the TRICARE MCSCs were required to implement, among other things, value-based incentive programs, one of which was the TRICARE P-BMP described in detail below. DHA continues to evaluate perinatal quality and outcome metrics that MCSCs should report to the DHA in order to provide comparable data between PSC and DC related to perinatal and pregnancy outcomes.
- 2) **Identification of additional value-based pilot studies or initiatives to incentivize use of high-value maternity services and top performing providers; subsequent enterprise-wide implementation of those effective initiatives.** As reported to the Government Accountability Office (GAO) (GAO-20-695R), “Implementation of Value-Based Initiatives in TRICARE,” (Government Accountability Office, 2020) initial findings from the first year (April 1, 2018 to April 1, 2019) of the P-BMP pilot reveal that approximately 12 percent (444) of 3,640 participating hospitals were eligible to receive incentive payments for their participation in The Leapfrog Group annual survey and achievement in excellence across four core maternity care metrics (episiotomies, Cesarean section rates, early elective deliveries, and maternity care processes). Under the P-BMP pilot, hospitals that meet or exceed the quality benchmarks for three or four of these processes will be recognized as “Value” or “High-Value” hospitals and will earn incentive payments of one percent or two percent,

respectively (based on paid TRICARE claims).<sup>9</sup> Additionally, “Value” or “High Value” hospitals that also meet or exceed the benchmark for high-risk deliveries will earn an additional one percent incentive payment. This “Value” and “High-Value” hospital information is shared with TRICARE beneficiaries through the beneficiary directory. The design of the P-BMP pilot is based on overall hospital outcomes rather than individual beneficiary outcomes. More information is expected to be available later in CY 2022, after the P-BMP pilot is completed. While DHA is evaluating the P-BMP pilot, work is also being done to identify maternity home-visit programs and to determine what services could be provided to TRICARE beneficiaries in their homes during and after pregnancy to improve maternal and infant outcomes, and any changes needed. Any changes to the TRICARE Program regarding this benefit would be published in the Federal Register.

- 3) **Expansion and alignment of available resources; e.g., prenatal and postnatal messaging and education initiatives, from the DC system to pregnant beneficiaries enrolled to a PSC provider or who are using TRICARE Select.** As noted above, TRICARE Online offers resources for beneficiaries and families to understand TRICARE health plan options, benefits, and education. These resources are available whether the care is delivered in DC or PSC, and MCSCs may also have additional resources to augment or expand available resources.

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<sup>9</sup> Hospitals that fully meet targets for three of the four quality metrics are considered “value” and receive a payment bonus equal to 1 percent of allowed charges and a special designation in the provider directory. Hospitals that fully meet targets for all four quality metrics are considered “high value” and receive a payment bonus equal to 2 percent of allowed charges and a special designation in the provider directory. “Value” and “high value” hospitals that also meet additional target for high-risk deliveries receive another incentive payment, equal to 1 percent of allowed charges, and an additional special designation in the provider directory. For more information, please review the GAO report (Implementation of Value-Based Initiatives in TRICARE, 2020).

### APPENDIX 3: SMM Indicators

The original list of 25 SMM indicators based on the International Classification of Diseases, 9th Revision (ICD-9) was published in 2012 by Callaghan et al (Severe Maternal Morbidity Among Delivery and Postpartum Hospitalization in the United States, 2012). In October 2015, the United States transitioned to the 10th Revision of ICD (ICD-10) to code diagnoses and procedures. CDC, along with clinical and public health partners, took the opportunity to review the new version of ICD coding to update the SMM indicators, taking into account results from validation studies. The updated list of 21 indicators is outlined in Table 1, below.

**Table 1: SMM Indicators**

SMM Indicators	
1. Acute myocardial infarction	11. Puerperal cerebrovascular disorders
2. Aneurysm	12. Pulmonary edema/Acute heart failure
3. Acute renal failure	13. Severe anesthesia complications
4. Adult respiratory distress syndrome	14. Sepsis
5. Amniotic fluid embolism	15. Shock
6. Cardiac arrest/ventricular fibrillation	16. Sickle cell disease with crisis
7. Conversion of cardiac rhythm	17. Air and thrombotic embolism
8. Disseminated intravascular coagulation	18. Blood products transfusion
9. Eclampsia	19. Hysterectomy
10. Heart failure/arrest during surgery or procedure	20. Temporary tracheostomy
	21. Ventilation



## APPENDIX 4: Types of Cases

Table 2 outlines a list of conditions that represent SMM (ACOG, 2016).

**Table 2: DHA MMMRC Cases to be Considered for Review**

### **1. Hemorrhage**

- a. Obstetric hemorrhage with  $\geq 4$  units of red blood cells transfused
- b. Obstetric hemorrhage with 2 units of red blood cells and 2 units of fresh frozen plasma transfused (without other procedures or complications) if not judged to be overexuberant transfusion
- c. Obstetric hemorrhage with  $< 4$  units of blood products transfused and evidence of pulmonary congestion that requires  $> 1$  dose of furosemide
- d. Obstetric hemorrhage with return to the operating room for any major procedure (excludes dilation)
- e. Any emergency/unplanned hysterectomy, regardless of number of units transfused
- f. Obstetric hemorrhage with uterine balloon or uterine compression suture and 2-3 units of blood products transfused
- g. Obstetric hemorrhage admitted to the Intensive Care Unit for invasive monitoring or treatment (either medication or procedure; not just observed overnight)

### **2. Hypertension/Neurologic**

- a. Eclamptic seizure(s) or epileptic seizures that were “status”
- b. Continuous infusion (intravenous drip) of an antihypertensive medication
- c. Non-responsiveness or loss of vision, permanent or temporary (but not momentary), documented in the physician’s progress note
- d. Stroke, coma, intracranial hemorrhage
- e. Preeclampsia with difficult-to-control severe hypertension ( $>160$  systolic blood pressure or  $> 110$  diastolic blood pressure) that requires multiple intravenous doses, persistent for  $\geq 48$  hours after delivery, or both
- f. Liver or subscapular hematoma or severe liver injury admitted to the intensive care unit (bilirubin  $> 6$  or liver enzymes  $> 600$ )
- g. Multiple coagulation abnormalities or severe hemolysis, elevated liver enzymes, and low platelet count (HELLP) syndrome

### **3. Renal**

- a. Diagnosis of acute tubular necrosis or treatment with renal dialysis
- b. Oliguria treated with multiple doses of furosemide
- c. Creatinine  $\geq 2.0$  in a woman without preexisting renal disease OR a doubling of baseline creatinine in a woman with preexisting renal disease

### **4. Sepsis**

- a. Infection with hypotension with multiple liters of intravenous fluid or pressors used (septic shock)
- b. Infection with pulmonary complications such as pulmonary edema or acute respiratory distress syndrome

### **5. Pulmonary**

- a. Diagnosis of acute respiratory distress syndrome, pulmonary edema, or postoperative pneumonia

- b. Use of a ventilator (with either intubation or noninvasive technique)
  - c. Deep vein thrombosis or pulmonary embolism
- 6. Cardiac**
- a. Preexisting cardiac disease (congenital or acquired) with intensive care unit admission for treatment
  - b. Peripartum cardiomyopathy
  - c. Arrhythmia requiring > 1 dose of intravenous medication but not intensive care unit admission
  - d. Arrhythmia that requires intensive care unit admission with further treatments
- 7. Intensive Care Unit/Invasive Monitoring**
- a. Any intensive care unit admission that includes treatment or diagnostic or therapeutic procedure
  - b. Central line or pulmonary catheter used to monitor a complication
- 8. Surgical, Bladder and Bowel Complications**
- a. Bowel or bladder injury during surgery beyond minor serosal tear
  - b. Small-bowel obstruction, with or without surgery during pregnancy or postpartum period
  - c. Prolonged ileus for  $\geq 4$  days
- 9. Anesthesia Complications**
- a. Total spinal anesthesia
  - b. Aspiration pneumonia
  - c. Epidural Hematoma

## APPENDIX 5: The Leapfrog Group Maternity Care

The Leapfrog Group, is a national, nonprofit organization founded in 2000 in response to the 1999 Institute of Medicine report “To Err is Human.” The Leapfrog Group, through a contract with the Department of Defense, collects and publicly reports information about the safety and quality of care. Transparency, both internally to our organization and externally to the public is a foundational element of our Safety Culture. External transparency provides our patients with the information they need to better participate in shared decision-making, including where and by whom they receive their medical care. The Leapfrog Group Survey participation augments MHS transparency, for both DC and PSC, and provides additional tools for system-wide standardization, benchmarking, and improvement.

After a successful pilot participation in 2019 with one MTF, in 2021 the DHA Director, provided guidance for all inpatient MTFs worldwide to submit data on behalf of MHS for participation in The Leapfrog Hospital Survey.

**The Leapfrog Hospital Survey: Maternity Care Background.** The Survey consists of ten sections that are designed to assess hospital safety, quality, and efficiency based on national performance measures that are of specific interest to health care consumers and purchasers. One of these sections is Section 4: Maternity Care. This section includes questions about elective delivery, cesarean birth, episiotomy, newborn bilirubin screening, and deep venous thrombosis (DVT) prophylaxis for women undergoing cesarean delivery. Maternity Care also includes questions about high-risk deliveries, including volume and outcomes.

**MTF Performance in Maternity Care.** Maternity Care is one of the MHS’ highest performing sections. Table 3 below showcases the collective scores for all participating MTFs by each publicly reported measure within the Maternity Care section.

**Table 3: 2021 Results for The Leapfrog Hospital Survey**

2021 The Leapfrog Hospital Survey Performance Categories	Early Elective Deliveries	Cesarean Sections	Episiotomies	Newborn Bilirubin Screening	DVT Prophylaxis	High-Risk Deliveries
Average MHS Score	3.97	3.58	3.94	3.71	3.61	3.00
Achieved the Standard (4)	82% n= 28	70% n= 24	85% n= 29	82% n= 28	80% n= 27	6% n= 2
Considerable Achievement (3)	3% n= 1	9% n= 3	6% n= 2	0	0	12% n= 4
Some Achievement (2)	0	6% n= 2	0	0	0	6% n= 2
Limited Achievement (1)	0	6% n= 2	0	9% n= 3	12% n= 4	0
Declined to Respond	0	0	0	0	0	0
Does Not Apply	9% n= 3	9% n= 3	9% n= 3	9% n= 3	9% n= 3	76% n= 26
Unable to Calculate	6% n= 2	0	0	0	0	0

## APPENDIX 6: Acronyms

ACOG	American College of Obstetricians and Gynecologists
ADC	authority, direction, and control
AED	Analytics and Evaluation Division
AHLTA	Armed Forces Health Longitudinal Technology Application
AIM	Alliance for Innovation on Maternal Health
CDC	Centers for Disease Control and Prevention
CSA	Comprehensive Systematic Analysis
CQM	Clinical Quality Management
CY	Calendar Year
DC	Direct Care
DHA	Defense Health Agency
DHA-PM	Defense Health Agency Procedures Manual
DoD	Department of Defense
DoD RE	DoD Reportable Events
DoDM	Department of Defense Manual
DVT	deep venous thrombosis
FY	Fiscal Year
GAO	Government Accountability Office
HIPAA	Health Insurance Portability and Accountability Act
ICD	International Classification of Diseases
MCSC	Managed Care Support Contract/Contractors
MDR	MHS Data Repository
MHS	Military Health System
MILDEP	Military Department
MMRIA (Maria)	Maternal Mortality Review Information Application
MMMRC	Maternal Morbidity and Mortality Review Committee
MTF	military medical treatment facility
NDI	National Death Index
NDAA	National Defense Authorization Act
NPIC	National Perinatal Information Center
PHI	personal health information
PII	personally identifiable information
P-BMP	Performance-Based Maternity Payments
PRMR	pregnancy-related mortality ratio
PSC	Private Sector Care
SMM	severe maternal morbidity
TJC	The Joint Commission
TRO	TRICARE Regional Office



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