



HHS Public Access

Author manuscript

J Womens Health (Larchmt). Author manuscript; available in PMC 2015 June 25.

Published in final edited form as:

J Womens Health (Larchmt). 2013 October ; 22(10): 797–802. doi:10.1089/jwh.2013.4505.

A National Action Plan for Promoting Preconception Health and Health Care in the United States (2012–2014)

R. Louise Floyd, DSN, MSN, RN¹, Kay A. Johnson, MPH, EdM², Jasmine R. Owens, MPH, CHES^{1,3}, Sarah Verbiest, DrPH, MPH, MSW⁴, Cynthia A. Moore, MD, PhD¹, and Coleen Boyle, PhD, MS¹

¹National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention, Atlanta, Georgia

²Department of Pediatrics, Dartmouth Medical School, Hanover, New Hampshire

³Oak Ridge Institute for Science and Education, Oak Ridge, Tennessee

⁴Center for Maternal and Infant Health, University of North Carolina – Chapel Hill, Chapel Hill, North Carolina

Abstract

Preconception health and health care (PCHHC) has gained increasing popularity as a key prevention strategy for improving outcomes for women and infants, both domestically and internationally. The *Action Plan for the National Initiative on Preconception Health and Health Care: A Report of the PCHHC Steering Committee (2012–2014)* provides a model that states, communities, public, and private organizations can use to help guide strategic planning for promoting preconception care projects. Since 2005, a national public–private PCHHC initiative has worked to create and implement recommendations on this topic. Leadership and funding from the Centers for Disease Control and Prevention combined with the commitment of maternal and child health leaders across the country brought together key partners from the public and private sector to provide expertise and technical assistance to develop an updated national action plan for the PCHHC Initiative. Key activities for this process included the identification of goals, objectives, strategies, actions, and anticipated timelines for the five work-groups that were established as part of the original PCHHC Initiative. These are further described in the action plan. To assist other groups doing similar work, this article discusses the approach members of the PCHHC Initiative took to convene local, state, and national leaders to enhance the implementation of preconception care nationally through accomplishments, lessons learned, and projections for future directions.

Address correspondence to: R. Louise Floyd, DSN, MSN, RN, Associate Director for Program and Planning, Division of Birth Defects and Developmental Disabilities, National Center on Birth Defects and Developmental Disabilities, 1825 Century Blvd. MS-E86, Atlanta, GA 30345, rlf3@bellsouth.net.

Disclosure Statement

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention. No competing financial interest exists.

Introduction

Preconception care has been increasingly recognized as a critical component that should be included, along with prenatal and postnatal care, in a comprehensive women's health package to improve adverse maternal and infant health outcomes.¹ The infant mortality rate in the United States (6.6/1000 live births in 2008)² is higher than in most other developed countries. In 2005, the U.S. ranked 30th compared to European countries.³ The three leading causes of infant death in the U.S. account for 45% of all infant deaths and include congenital malformations (20%), disorders relating to short gestation and low birthweight (17%), and sudden infant death syndrome (8%).⁴ Despite the benefits of receiving preconception care and managing preconception health, many women in the U.S. still do not receive this care or engage in healthy behaviors prior to conception.⁵ Preconception care has been defined as a set of interventions that aim to identify and modify biomedical, behavioral, and social risks to a woman's health or pregnancy outcome through prevention and management.⁶

Healthy People 2020 set forth objectives for improving maternal and infant health outcomes including reduction of the infant mortality rate to 6.0/1000 live births and increasing the proportion of women who receive preconception care and practice positive preconception behaviors.⁷

In 2006, the Centers for Disease Control and Prevention (CDC), national subject matter experts on preconception care, and representatives from many local, state, and national organizations launched the Preconception Health and Health Care (PCHHC) Initiative to expand prevention efforts for preconception health and healthcare. The initiative built upon the recommendations of CDC's Select Panel on Preconception Care and formed a structure to advance the implementation of those recommendations.⁶ The PCHHC Initiative was developed from public-private collaboration and has recently been engaged in strategic planning and implementation of an updated action plan titled, *Action Plan for the National Initiative on Preconception Health and Health Care: A Report of the PCHHC Steering Committee (2012–2014)*.

This article provides a brief overview of the PCHHC Initiative and describes the approach used to generate a national action plan to advance the implementation of preconception and interconception health and healthcare in various settings. This article also discusses accomplishments, lessons learned, and future directions of the initiative.

Description

The PCHHC National Initiative

In 2003, CDC conducted a literature review to identify new strategies for reducing maternal and infant morbidity and mortality. The review targeted an approach from the 1980s aimed at improving women's health through preconception care. The focus of this approach was using opportunities in the context of women's health visits to provide screening, assessment, and health promotion related to reproductive life planning and reproductive health.^{8–10} After identifying the evidence base for preconception care, the CDC Agency for Toxic Substances and Disease Registry Preconception Care Workgroup and the Select Panel on Preconception

Care released a report that highlighted the potential benefits of integrating PCHHC into the U.S. healthcare system to improve maternal and infant outcomes. The report was released in 2006 as a CDC Morbidity and Mortality Weekly Report (MMWR) titled *Recommendations to Improve Preconception Health and Health Care—United States* and defined preconception care, four goals (Table 1), and 10 recommendations (Table 2) to promote preconception care.⁶

The report sparked renewed interest in PCHHC and laid the foundation for future strategies to advance PCHHC at national, state, and local levels. Support for this approach was buoyed by recommendations by the Institute of Medicine,¹¹ U.S. Public Health Service Expert Panel on the Content of Prenatal Care,¹² a national Committee on Perinatal Health convened by the March of Dimes,¹³ the American Academy of Pediatrics' Guidelines for Perinatal Care, and the American College of Obstetricians and Gynecologists.¹⁴

Following the release of the MMWR recommendations,⁶ the development of the PCHHC Initiative included the formation of five workgroups—clinical, public health, consumer, policy and finance, and surveillance and research—as mechanisms for working with the PCHHC Steering Committee in identifying and implementing activities for the Initiative.^{5,15} Over a 5-year period, there were many accomplishments of the initiative, but more work was needed to assure that women of reproductive age received access to preconception and interconception care services.

Strategic planning for a national action plan

As the initiative matured, leaders discussed the need for an updated strategic vision and action plan. Following the third National Summit on Preconception Health and Health Care in June 2011, the Steering Committee of the PCHHC Initiative convened a strategic planning meeting in December 2011. The aim of the meeting was to discuss past strategic objectives, assess progress toward fulfillment of the 10 MMWR recommendations, identify future strategic priorities, and begin development of an updated action plan for the national PCHHC Initiative.

The strategic planning session included an in-depth discussion of the original four goals outlined in the 2006 MMWR. This resulted in a slightly revised version of the goals tailored for the current context (Table 1).⁶ The PCHHC Steering Committee and workgroup participants were provided a template for their individual strategic planning session, which served as the foundation of the action plan. The template included goals, recommendations, objectives, strategies, actions, and timelines for the participants to consider in the initial planning for their workgroup action plans. The plans were compiled, edited, and redistributed for additional refinement and review by each workgroup. Some of the strategies that arose during strategic planning included improving consumer awareness of preconception health and providing health providers with training and access to evidence-based clinical tools for preconception care integration. In addition, the group identified the need to increase access to preconception care as an essential factor for reducing disparities in adverse pregnancy outcomes among high-risk sub-populations.

After several months of activity and negotiations, an action plan was developed in late 2012 for promoting PCHHC. The plan provides a roadmap for improving the quality, availability, accessibility, and acceptability of PCHHC for women and men of reproductive age. As with the national recommendations, the plan includes strategies focused on individual, clinical, and public policy action. In addition, it will help the initiative stay focused on the priorities that were developed during the strategic planning process. Ongoing monitoring of the activities proposed will provide information regarding gaps that need to be addressed as the initiative moves forward. The plan is available on the CDC Preconception Health and Health Care website (www.cdc.gov/preconception/articles.html) as a resource for those who are interested in developing action plans for PCHHC in their state, region, or county. The activities outlined address unique, yet crosscutting issues for these five workgroups. The concerted efforts that make up this action plan are examples of the recent accomplishments of the PCHHC Initiative and built upon the accomplishments of the last 6 years since its establishment.

Clinical Workgroup

The Clinical Workgroup plans to enhance the knowledge and capacity of healthcare providers, including development, dissemination, and evaluation of evidence-based clinical screening tools for preconception care. In addition, the strategies that were proposed for improving clinical services included developing a preconception toolkit for clinicians, studying the impact of preconception care on health outcomes, and enhancing clinical guidelines and tools for preconception screening.

Consumer Workgroup

The Consumer Workgroup launched phase 1 of the *Show Your Love* social marketing campaign in early 2013, the result of collaboration between national, state, and federal partners of this workgroup. Partners have been encouraged to use the campaign launch as a platform for raising awareness of preconception health within the context of their own organization's goals, community, and target populations. Partners and others who are interested in this work are able to access campaign materials by downloading them from CDC's preconception care website (www.cdc.gov/preconception/showyourlove/index.html). In order to understand the impact and perceived effectiveness of the campaign, process evaluation among implementation partners has also been planned.

Public health workgroup

The workgroup aims to improve the capacity of public health agencies in the United States and to reduce chronic disease through preconception care for women during their reproductive years. One of their key strategies for improving the capacity of public health agencies in the United States involves infusing and integrating components of preconception health into existing public health and related programs. An increase in the proportion of women who receive evidence-based interventions matched to risks and chronic conditions identified in their preconception assessment could reduce their reproductive risks and improve pregnancy outcomes. This work has been achieved through strategic partnerships at the federal, state, and local levels and has involved the launch of a Preconception Health and

Health Care Resource Center that will advance the quality of information available on public health programs (www.cdc.gov/preconception/freematerials.html).

Policy and finance workgroup

The workgroup aims to advance health coverage and other policy and healthcare finance mechanisms that accelerate implementation of preconception care in well-woman visits and interconception care for women with prior adverse pregnancy outcomes. Several of the key strategies outlined will include creating publications to raise awareness of new required coverage for preventive services for women, supporting the development and implementation of Medicaid interconception care policies, and assessing health insurers' interests in developing model strategies to integrate preconception and interconception care into existing health systems. Partnerships with leading organizations in women's health and maternal and child health will encourage policy development and implementation.

Surveillance and research workgroup

In its developmental stage, the workgroup proposes a plan that will establish its framework, vision, goals, and objectives. As a result, the workgroup will define its roles within the national PCHHC Initiative. Future activities of the workgroup will include use of the Behavioral Risk Factor Surveillance System and CDC's Pregnancy Risk Assessment Monitoring System Online Data for Epidemiologic Research to measure PCHHC indicators within states. In addition, the group will assess progress in state-level implementation of these key indicators and measures for PCHHC status.

Growth and accomplishments of the PCHHC Initiative

The development of the PCHHC Initiative has resulted in several successes that have advanced efforts for PCHHC. Between 2006 and 2011, the initiative developed and carried out two strategic plans, convened three national summit meetings, supported five workgroups, and published reports and articles in support of the national recommendations to improve women's PCHHC, including three journal supplements on this topic.¹⁶⁻¹⁸ The first preconception care supplement was published in 2006, titled "Preconception Care: Science, Practice, Challenges, and Opportunities,"¹⁸ and appeared in the *Maternal and Child Health Journal*. Several topics were addressed, including provider knowledge and the integration of preconception care into primary practices, policy initiatives to increase access to care, and preconception risk factors and conditions that contribute to poor pregnancy outcomes.

In the same year, the Clinical Workgroup convened 59 experts to more fully address the clinical content of preconception care. The experts conducted a 2-year, in-depth review of more than 80 topics that made up the evidence base for health promotion activities and the components of preconception care in clinical practice. Using the approach used by the United States Preventive Services Task Force (USPSTF), this work provided information on the burden, accuracy of screening, effectiveness of treatment, and the impact of identifying and addressing health needs prior to pregnancy. In 2008, the results were published as a preconception care special supplement of the *American Journal of Obstetrics and*

Gynecology titled, “Preconception Health and Health Care: The Clinical Content of Preconception Care.”¹⁶

The Policy and Finance Workgroup developed a policy agenda in 2007 and published a special supplement of *Women’s Health Issues* titled, “Policy and Financing Issues for Preconception and Interconception Health.”¹⁷ The focus of the supplement was to provide strategies for improving coverage for all women, Medicaid interconception care waivers, and investments in public health programs. The work informed major health policy reforms that resulted in enhanced benefits coverage for women and coverage of well-woman visits, including preconception care. In 2012, seven states participated in a Medicaid peer-to-peer learning project with a resulting publication from the Commonwealth Fund.¹⁹

The Health Resources and Services Administration used resources to sponsor the Healthy Start Interconception Care Learning Community, which engaged more than 800 community leaders and experts in three cycles of collaborative learning. More than 15 learning collaboratives were convened in each cycle across six topics related to interconception care.

New products highlighting knowledge, information gaps, and implementation continue to be provided to the public by the PCHHC Initiative through collaborative work between the CDC and the PCHHC Workgroups. As a result, new resources that are described earlier are available for health providers and the general public. Beginning in 2012, the PCHHC Resource Center was launched and contains a host of materials including brochures, fact sheets, and abstracts. In 2013, the launch of the *Show Your Love* campaign has made available resources such as PSAs, posters, and brochures that can be downloaded. Additionally, portions of a clinical toolkit are planned for release in 2013 and 2014. An environmental scan of preconception and interconception clinical screening tools and interventions has been completed and is available on a section of CDC’s Preconception Health and Health Care Website for health professionals (www.cdc.gov/preconception/hcp/index.html). Policy briefs have also been developed to inform the field, particularly related to health reforms. In terms of research, data, and surveillance, the National Institute of Child Health and Human Development convened a meeting of researchers that informed the research agenda for preconception health and healthcare. In addition, a group of states working with CDC developed model indicators for preconception health, which includes measures from several existing surveillance systems.²⁰ Similar research has been published in the most recent journal supplement on preconception health and health care in the January/February issue of the *American Journal of Health Promotion*.²¹ These accomplishments have served as resources to enhance health providers’ knowledge and implementation of preconception care in their daily practices. Equally important, they may increase knowledge and awareness of preconception health and related behaviors for women of childbearing age.

Conclusions

The PCHHC Initiative has been successful in contributing to a renewed interest in preconception care in the United States. One indicator of this is the number of states that currently have preconception and interconception care projects underway. These state

preconception and interconception care programs cover a range of efforts including establishing the Preconception Health Council of California, other public–private partnerships integrating preconception care into state Healthy Start Programs, and private foundation support for the PCHHC Initiative activities across the workgroups to share their expertise in implementation of PCHHC. The reintegration of preconception care into the *Healthy People 2020* objectives for maternal and child health is also indicative of the renewed interests in preconception care.

Future directions

The *Action Plan for the National Initiative on Preconception Health and Health Care (PCHHC)*, developed by the public–private partnership, has mapped out a challenging set of objectives, strategies, and actions to further the PCHHC Initiative. New models of delivering preconception care are in development domestically (e.g., The Gabby Preconception Care System) and globally,^{22–24} which may hold promise for use in the United States. The Gabby Preconception Care System utilizes an online interactive animated character (Gabby) to provide a preconception risk assessment and counseling for women of childbearing age. Women with risk factors are provided counseling based on risk information developed from previous CDC materials. Results of a pilot study of the system were promising in its ability to create positive behavior change. In a recent systematic review of preconception risks and interventions, Dr. Zulfiqar Bhutta and colleagues took note of the shift in focus from delivering single interventions to delivering packaged treatment strategies with high coverage in high-risk populations.²³ Despite a high level of recognized need for preconception care, few studies are reporting on implementation of holistic preconception care and counseling. Implementing federal requirements for coverage of women’s clinical preventive services, including preconception care in well-woman visits, in order to assure positive impact on women’s health will also be a challenge for health plans, states, and clinicians. Further, addressing health disparities in preconception health and birth outcomes requires a bigger approach that considers the impact of racial inequities, socioeconomic status, and access to resources to support healthy lifestyles. There is much work to be done as almost half of all births in the United States are unintended and nearly a fifth of pregnant women who give birth do not receive prenatal care before the end of the first trimester.²⁵ Evaluating and monitoring the progress of the PCHHC Initiative is an ongoing need. These and other challenges are currently being addressed by the *Action Plan for the National Initiative on Preconception Health and Health Care (PCHHC)* and can serve as a model for strategic planning and implementation of preconception health and health care projects to come.

Acknowledgments

This article was supported by the national Preconception Health and Health Care Initiative, the Centers for Disease Control and Prevention, and a research appointment by the Oak Ridge Institute for Science and Education. We thank those who provided comments and reviewed earlier versions of this manuscript.

References

1. Wise PH. Transforming preconceptional, prenatal, and interconceptional care into a comprehensive commitment to women’s health. *Womens Health Issues*. 2008; 18:S13–18. [PubMed: 18951817]

2. Macdorman MF, Mathews TJ. Recent trends in infant mortality in the United States. NCHS data brief. 2008;1–8. [PubMed: 19389323]
3. MacDorman MF, Mathews TJ. Behind international rankings of infant mortality: How the United States compares with Europe. NCHS data brief. 2009;1–8.
4. Mathews, TJ.; MacDorman, MF. Infant mortality statistics from the 2007 period linked birth/infant data set. Hyattsville, MD: National Center for Health Statistics; 2011.
5. Atrash H, Jack BW, Johnson K. Preconception care: A 2008 update. *Curr Opin Obstet Gynecol.* 2008; 20:581–589. [PubMed: 18989135]
6. Johnson K, Posner SF, Biermann J, et al. Recommendations to improve preconception health and health care—United States. A report of the CDC/ATSDR Preconception Care Work Group and the Select Panel on Preconception Care. *MMWR.* 2006; 55:1–23. [PubMed: 16617292]
7. United States Department of Health and Human Services. Healthy People 2020. Washington, DC: Office of Disease Prevention and Health Promotion; Available at: www.healthypeople.gov
8. Cefalo, RC.; Moos, MK. Preconception health promotion: A practical guide. Rockville, MD: Aspen Publications; 1988.
9. Moos MK, Cefalo RC. Preconceptional health promotion: A focus for obstetric care. *Am J Perinatol.* 1987; 4:63–67. [PubMed: 3790218]
10. Moos MK. Preconceptional health promotion: A health-education opportunity for all women. *Womens Health.* 1989; 15:55–68.
11. Committee to Study the Prevention of Low Birthweight. Preventing low birthweight. Washington, DC: The National Academies Press; 1985.
12. U.S. Department of Health and Human Services. Caring for our future: A report of the public health service expert panel on the content of prenatal care. Washington, DC: U.S. Department of Health and Human Services, Public Health Service; 1989.
13. Committee on Perinatal Health; American Academy of Pediatrics; American College of Obstetrics and Gynecology; March of Dimes. Toward improving the outcome of pregnancy: The 90s and beyond. White Plains, NY: March of Dimes Birth Defects Foundations; 1993.
14. American Academy of Pediatrics; American College of Obstetricians and Gynecologists. Guidelines for perinatal care. 5. Elk Grove Village: IL: 2002. p. 73-76.
15. Johnson K, Atrash H, Johnson A. Policy and finance for preconception care opportunities for today and the future. *Womens Health Issues.* 2008; 18:S2–9. [PubMed: 19059547]
16. Jack BW, Atrash HK, Coonrod DV, et al. The clinical content of preconception care: an overview and preparation of this supplement. *Am J Obstet Gynecol.* 2008; 199(6B):S266–279. [PubMed: 19081421]
17. Johnson K, Atrash H, Johnson A. Policy and finance for preconception care opportunities for today and the future. *Womens Health Issues.* 2008; 18(6 Suppl):S2–9. [PubMed: 19059547]
18. Atrash HK, Johnson K, Adams M, Cordero JF, Howse J. Preconception care for improving perinatal outcomes: the time to act. *Matern Child Health J.* 2006; 10(5 Suppl):S3–11. [PubMed: 16773452]
19. Johnson K. Addressing women’s health needs and improving birth outcomes: Results from a peer-to-peer state Medicaid learning project. *Issue Brief (Common Fund).* 2012; 21:1–19.
20. Broussard DL, Sappenfield WB, Fussman C, Kroelinger CD, Grigorescu V. Core state preconception health indicators: A voluntary, multi-state selection process. *Matern Child Health J.* 2011; 15:158–168. [PubMed: 20225127]
21. Mitchell EW, Verbiest S. Effective strategies for promoting preconception health—from research to practice. *Am J Health Promot.* 2013; 27:S1–3. [PubMed: 23286657]
22. Christiansen CS, Gibbs S, Chandra-Mouli V. Preventing early pregnancy and pregnancy-related mortality and morbidity in adolescents in developing countries: The place of interventions in the prepregnancy period. *J Pregnancy.* 2013; 2013:257546. [PubMed: 23431449]
23. Bhutta, ZA.; Dean, SV.; Imam, AM.; Lassi, ZS. A systematic review of preconception risks and interventions. Karachi, Pakistan: The Aga Khan University; 2011.

24. World Health Organization. Preconception care to reduce maternal and childhood mortality and morbidity: Meeting report and packages of interventions. 2013. Available at: http://apps.who.int/iris/bitstream/10665/78067/1/9789241505000_eng.pdf
25. Korenbrot CC, Steinberg A, Bender C, Newberry S. Preconception care: A systematic review. *Matern Child Health J.* 2002; 6:75–88. [PubMed: 12092984]

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1

Preconception Health and Healthcare Initiative Goals from 2006 and 2012

MMWR Goals 2006 ⁶	Updated MMWR Goals 2012 [*]
Goal 1: Improve the knowledge and attitudes and behaviors of men and women related to preconception health.	Goal 1: To improve the knowledge, attitudes, and behaviors of men and women related to preconception health.
Goal 2: Assure that all women of childbearing age in the United States receive preconception care service (i.e., evidence-based risk screening, health promotion, and interventions) that will enable them to enter pregnancy in optimal health.	Goal 2: To create health equity and eliminate disparities in adverse maternal, fetal, and infant outcomes.
Goal 3: Reduce risks indicated by a previous adverse pregnancy outcome through interventions during the interconception period, which can prevent or minimize health problems for a mother and her future children.	Goal 3: To assure that all U.S. women of childbearing age receive preconception care services—screening, health promotion, and interventions—that will enable them to achieve high levels of wellness, minimize risks, and enter any pregnancy they may have in optimal health.
Goal 4: Reduce the disparities in adverse pregnancy outcomes.	Goal 4: To reduce risks among women who have had a prior adverse maternal, fetal, or infant outcome through interventions in the postpartum/interconception period.

* These goals have been modified for the action plan from the original set of goals outlined in the 2006 Morbidity and Mortality Weekly Report (MMWR), Recommendations to Improve Preconception Health and Health Care—United States.⁶

The 2006 goals were revisited during a strategic planning meeting and were updated to reflect current priorities. The updated goals were published in 2012 online in the *Action Plan for the National Initiative on Preconception Health and Health Care* at www.cdc.gov/preconception/articles.html.

Table 2**Centers for Disease Control/Agency for Toxic Substances and Disease Registry Select Panel
Recommendations**

Recommendation 1. Individual responsibility across the life span: Each woman, man, and couple should be encouraged to have a reproductive life plan.

Recommendation 2. Consumer awareness: Increase public awareness of the importance of preconception health behaviors and preconception care services by using information and tools appropriate across various ages; literacy, including health literacy; and cultural/linguistic contexts.

Recommendation 3. Preventive visits: As a part of primary care visits, provide risk assessment and educational and health promotion counseling to all women of childbearing age to reduce reproductive risks and improve pregnancy outcomes.

Recommendation 4. Interventions for identified risks: Increase the proportion of women who receive interventions as follow-up to preconception risk screening, focusing on high priority interventions (i.e., those with evidence of effectiveness and greatest potential impact).

Recommendation 5. Interconception care: Use the interconception period to provide additional intensive interventions to women who have had a previous pregnancy that ended in an adverse outcome (i.e., infant death, fetal loss, birth defects, low birth weight, or preterm birth).

Recommendation 6. Prepregnancy checkup: Offer, as a component of maternity care, one prepregnancy visit for couples and persons planning pregnancy.

Recommendation 7. Health coverage for women with low-incomes: Increase public and private health insurance coverage for women with low incomes to improve access to preventive women's health and preconception and interconception care.

Recommendation 8. Public health programs and strategies: Integrate components of preconception health into existing local public health and related programs, including emphasis on interconception interventions for women with previous adverse outcomes.

Recommendation 9. Research: Increase the evidence base and promote the use of the evidence to improve preconception health.

Recommendation 10. Monitoring improvements: Maximize public health surveillance and related research mechanisms to monitor preconception health.

Source: From the 2006 MMRW.⁶