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Making the Case: The Importance of Using 10 Key Preconception Indicators in Understanding the Health of Women of Reproductive Age

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Abstract

In 2006, the Preconception Care (PCC) Work Group and the Select Panel on PCC published 10 recommendations promoting preconception health (PCH) and healthcare for women of reproductive age. In the years following the recommendations, much research focused on specific PCH behaviors, clinical provision of care, and care financing, but no comprehensive, well-defined set of indicators was identified. In 2011, seven states developed a set of 45 PCH indicators; however, to date, no one publication has assessed the usefulness of all 45 indicators in addressing PCH. This report makes the case for reducing the original 45 indicators to a condensed set of 10 for national and state reporting by describing the use of the 45 indicators to date, describing development of evaluation criteria for narrowing the number of indicators, and identifying gaps in indicator development for provision of PCC. Using the condensed set, states can set priorities, revise and develop programs and policies, implement system changes, and better allocate resources to support interventions to improve the health of women of reproductive age during the preconception and interconception periods.

Keywords

preconception health; preconception health indicators; interconception health; preconception and interconception health indicators

Introduction

Over a decade ago, the Centers for Disease Control and Prevention (CDC) collaborated with the Preconception Care (PCC) Work Group and the Select Panel on PCC, an independent

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Disclaimer

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body of national subject matter experts, to develop and publish recommendations for improving preconception health (PCH) and PCC in the United States (U.S.).¹ One recommendation, for public health agencies to “maximize public health surveillance and related research mechanisms to monitor preconception health,” was developed with the purpose of modifying evidence-based interventions used to define PCH services (Recommendation 10).¹ As a result of that recommendation, in 2007, the Select Panel, and an expanded group of stakeholders, later titled the *Select Panel on PCH and Healthcare* (PCHHC) Initiative, convened a voluntary group of maternal and child health (MCH) program leaders and epidemiologists working in seven states (California, Delaware, Florida, Michigan, North Carolina, Texas, and Utah) to develop 45 core state PCH indicators.²

In 2014, the PCHHC Initiative reconvened, reviewed progress, and identified future needs in PCH. Although the 45 core PCH indicators were proposed based on valid and reliable sources,³ no research had reported estimates for all 45 developed indicators.⁴⁻⁶ In addition, due to heterogeneity of state policies and needs, and the multiple surveillance systems used to calculate PCH indicators,⁷ condensing the large number of indicators to an integrated and comprehensive set was recommended. The PCHHC Initiative noted the need for more focused measurement of PCH and PCC and suggested that a short list of population-level indicators be identified from the 45 core indicators.⁸ In response, the PCHHC Initiative’s Surveillance and Research work group proposed a condensed set of PCH indicators in two readily available surveillance systems for use in all states.⁹ The work group determined knowing where, how, and why some specific preconception indicators have been successfully adopted and translated into public health practice, as well as barriers to implementation for others, was critically important in developing a condensed set of indicators for use in state program planning, policy development, and health systems assessment. This article makes the case that collectively the selected indicators provide foundational data for changing programs and policy in public health, and should inform changes in health systems providing preconception clinical care.

Making the case for PCH indicators that impact public health programs and policies

During the decade following the release of the 2006 recommendations, PCH-related research increased. Multiple journals published supplements that updated and summarized the growing evidence for development of preconception programs and policies.¹⁰⁻¹² Supplement articles focused on integrating PCH into existing public health programs, including Title X Family Planning programs and Healthy Start programs. Others focused on implementing new PCH programs at the community or state levels. In addition, supplements addressed PCH promotion and messaging, targeting women of reproductive age, while additional studies targeted PCH behavior among women. However, following the 2011 publication of the 45 PCH indicators, limited research focused on PCH indicators specifically.

Among the few research studies using the PCH indicators, Texas reported PCH indicators measuring the characteristics and certain behaviors of women of reproductive age with a recent live birth,¹³ while Mississippi compared the PCH of women residing in Delta and non-Delta counties using certain PCH indicators.¹⁴ An assessment of PCH indicators

comparing women's health behaviors among Appalachian and non-Appalachian counties highlighted the impact of the economy on PCH.⁶ Additional PCH indicator research focused on certain PCH conditions, including mental distress,⁵ risky behaviors, and chronic conditions.¹⁵ Still other research assessed the impact of maternal PCH behaviors on infant outcomes.¹⁶ Generally, these studies used selected PCH indicators based on targeted research questions with minimal linkage to actual PCH interventions, programs, or policies. Conversely, surveillance summaries attempted to describe all PCH indicators, but due to inconsistent availability of data from the different surveillance systems by year, could only provide a summary of most of the indicators.¹⁷ To date, no study utilized all existing 45 indicators, and no study examined the utility of the indicators for program or policy interventions.

More broadly, the importance of PCH indicator measurement was reinforced by the 2020 Healthy People Maternal, Infant, and Child Health (MICH) goal to improve the health and well-being of women, infants, children, and families. This national initiative included a set of objectives on PCH and health behaviors ranging from increasing intake of folic acid among women of reproductive age to increasing the proportion of women who received PCC services and practiced healthy PCH behaviors (MICH-14 through 17).¹⁸ Concurrently, the Secretary's Advisory Committee on Infant Mortality identified the need for health systems to provide preventive services, including interconception care for women with a prior poor birth outcome, patient confidentiality, and family planning and PCC without cost-sharing.¹⁹ The PCHHC also released the national action plan for promoting PCH and healthcare in the U.S., and focused on developing a research and surveillance agenda for PCH nationally with input from local and state stakeholders.²⁰ This national spotlight on PCH indicator measurement, and the targeted assessment of some PCH indicators rather than the majority, supported the PCHHC Initiative's Surveillance and Research work group decision to select a condensed, smaller group of PCH indicators for state program and policy use. The condensed set of PCH indicators, by design, corresponded with national objectives, and was intended to be used as a set of measures by which states could compare changes over time with national goals. With the condensed set of indicators, surveillance reports could provide national and state-based summaries for comparisons, and states could also better target interventions and focus reporting on a well-defined set of PCH benchmarks for program assessment and policy development.

Iterative development and dissemination of a condensed set of PCH indicators

To ensure state use of PCH indicators, the PCHHC Initiative's Surveillance and Research work group used a systematic process to evaluate, prioritize, and select 10 PCH indicators for state MCH program monitoring and evaluation (Table 1). The scope of evaluated indicators included the previously published 45 core PCH indicators,² as well as newly developed surveillance indicators. The evaluation criteria included assessment of prevalence; whether the indicators were addressed in professional recommendations, Healthy People 2020 objectives, or CDC Winnable Battles; measurement simplicity; and data completeness. In addition, MCH state stakeholder input was solicited and incorporated throughout the evaluation. The criteria used to evaluate and select the indicators were developed using a deliberative process that began with consideration of the same measures that were originally

used to identify the 45 core PCH and PCC indicators—general public health importance, state-specific policy and program importance, data availability, data quality, and simplicity/complexity of calculation (Table 2).² A full description of the evaluation methodology can be found elsewhere.⁹

It was important for the work group to obtain and incorporate stakeholder input into the evaluation process, since the work group itself had no state representatives, and state-level stakeholders were considered the end-users of the PCH indicators. To address this gap, the work group collaborated with the Association of MCH Programs (AMCHP) to collect qualitative information from state MCH directors and MCH epidemiologists. Using online assessments and two interactive webinars, stakeholders were queried regarding perceptions of the usefulness of the proposed indicators. Although this information was not included as a quantitative evaluation criterion, work group members considered these findings in deliberations and prioritization of the indicators. Stakeholders were further engaged in the evaluation process at an in-person meeting to discuss the final set of 10 indicators and respond to questions of validity and reliability of the proposed condensed set. Stakeholder feedback was critical, as it provided an external perspective requiring the work group to reconsider and restructure indicators as necessary. Following feedback, the work group published the first surveillance summary reporting all 10 indicators nationally, by state, and by select demographic characteristics.²¹ The indicators outlined in this commentary can be used by public health decision makers, researchers, and key stakeholders to create the valid benchmarks needed to measure the status of PCH among women of reproductive age, evaluate the effectiveness of current PCH programs, assess program development needs,^{2,17} and ultimately improve maternal and neonatal outcomes.

Future directions for measuring the impact of PCH and PCC on health systems

During the process of identifying the condensed set of PCH indicators, the work group found very few indicators focusing on the provision of PCC targeting health systems change. In fact, none of the indicators in the original set of 45 that addressed PCC was included in the final, condensed set of 10. The work group excluded PCC indicators from further evaluation as these indicators were determined to be focused on care, an important issue, but separate from PCH.

To make the case for how PCC is provided to women, future activities of the PCHHC Initiative's Surveillance and Research work group will include a parallel evaluation and prioritization process to identify a small set of population-based indicators for monitoring of PCC. The evaluation will build on the previous work of the PCHHC Initiative, and identify indicators for states to use in benchmarking and monitoring how care is provided. Similar to what is expected with the condensed PCH indicators, the PCC indicators will support state leadership decision-making in policy development and health systems change. The condensed set of PCC indicators is expected to be released in 2018.

Evidence of the importance of PCC is highlighted by numerous studies of care provision, although measurement of PCC is reported in individual studies rather than as surveillance indicators usable by most states. Based on review of the literature, the work group identified PCC research describing the importance of PCC provision,^{20,22} definition of PCC clinical

content,²³ insurance coverage of PCC services, including preventive services,^{24,25} and recommendations for PCC clinical wellness indicators measured at the first prenatal visit.²⁶

Furthermore, the work group found that the quality of PCC impacts health behavior interventions. A study by Bello et al. examined provision of preconception and contraceptive services over time, and determined only a small percentage of ambulatory visits for women of reproductive age included either preconception or contraceptive preventive health services.²⁷ Similarly, data on preventive health services suggested only one-third of postpartum women (*i.e.*, 2–9 months postdelivery) recalled discussing improved healthy behaviors before pregnancy with a provider, including taking folic acid with vitamins, obtaining a healthy weight, and understanding the effects of alcohol and tobacco on pregnancy.^{25,28} Receipt of other preventive services, including blood pressure checks, influenza vaccination, diabetes testing among women with high blood pressure, and provider discussions on tobacco use, or healthy diet choices, varied. Receiving PCC supports a continuum of healthcare for women beyond pregnancy and the postpartum period, particularly those younger women or those with public health insurance.²⁹ Although clinical organizations have supported provision of PCC since the initial publication of the PCHHC Initiative's recommendations,³⁰ more recent endorsements have prompted other professional and clinical organizations to continue recommending routine PCC addressing a multitude of risk factors.^{25,28,31}

To address the PCC continuum and better define appropriate PCC services, Frayne et al., members of the PCHHC Initiative's Clinical work group, have identified preconception wellness metrics to assess PCC quality with a focus on screening, counseling, health behavior intervention, and treatment.^{24,26} The wellness measures establish benchmarks, and can be used by providers to both assess patient health and also to aggregate and compare health behaviors and outcomes among patients. However, the measures consist of a multitude of data sources, and the clinical work group recommends aggregating wellness measures to understand the PCH of each individual patient. To better understand how PCC influences the healthcare system, a condensed set of PCC indicators using surveillance data would provide consistently collected data for states to use in implementing health systems change. In partnership with the PCHHC Initiative's Clinical work group that comprised private sector clinicians, the Surveillance and Research work group has come to consensus on the need to develop a condensed set of PCC indicators focusing specifically on PCC. For identification and evaluation of potential indicators, the work groups will collaborate to ensure critical subject matter expert review and additional provider perspectives in the prioritization process.

Conclusion

The authors believe the systematic process outlined here allowed for the identification of those PCH indicators that provide the most crucial information about the health status and behaviors of women of reproductive age. With the release of the condensed set of 10 PCH indicators, the work group anticipates PCH research and interventions in states will be more focused on specific, modifiable PCH behaviors, building evidence for best practices and program effectiveness. A narrowed focus will also support states in developing local and

statewide reports, policy briefs, and fact sheets targeting messaging for policymakers and health consumers. Monitoring of these 10 PCH behaviors and conditions allows for additional foundational work linking healthcare delivery systems change with healthier birth outcomes, a current gap in the literature.

In the years following publication of the 45 core PCH indicators, no single report or publication successfully examined all indicators due to the varied surveillance systems recommended for calculating each indicator. The PCHHC Initiative determined that a condensed set of 10 PCH indicators would be more useful for states, and would allow for comprehensive benchmark reporting of PCH behaviors and practices of women of reproductive age. Although the gap in PCH was identified through the evaluation process, the 10 PCH indicators provide the foundation for program and policy development and implementation of best practices, informing provision of services to all women during their reproductive years.

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Table 1

Condensed Set of 10 Preconception Health Indicators Identified by the Preconception Health and Healthcare Initiative's Surveillance and Research Work Group

Condensed indicators	Data source
Current smoking—percentage of women who currently smoke every day or some days	Behavioral risk Factor Surveillance System (BRFSS)
Depression—percentage of women ever told by a healthcare professional that they have a depressive disorder	BRFSS
Diabetes—percentage of women ever told by a healthcare professional that they had diabetes (excluding only during pregnancy and borderline/prediabetes)	BRFSS
Folic acid intake—percentage of women having a live birth who took a multivitamin, or a folic acid supplement every day of the month before pregnancy	Pregnancy risk Assessment Monitoring System (PRAMS)
Heavy alcohol consumption—percentage of women having a live birth who had 8 or more drinks in an average week during the 3 months before pregnancy	PRAMS
Hypertension—percentage of women ever told by a health professional that they had hypertension (excluding only during pregnancy and borderline/prehypertension)	BRFSS
Normal weight—percentage of women who are normal weight (BMI 18.5–24.9 kg/m ²)	BRFSS
Physical activity—percentage of women who participate in enough moderate and/or vigorous physical activity in a usual week to meet the recommended levels of physical activity	BRFSS
Postpartum use of a most or moderately effective method of contraception—percentage of women having a live birth who reported that they or their husbands were currently using a more effective contraceptive method to keep from getting pregnant (<i>i.e.</i> , sterilization, implant, intrauterine device, hormonal method [injectable, pill, patch, ring])	PRAMS
Unwanted pregnancy—percentage of women having a live birth who reported that just before their most recent pregnancy, they did not want to be pregnant then or at any time in the future	PRAMS

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Table 2

Comparison of Criteria Used to Identify 45 Core Preconception Health Indicators and Condensed Set of 10 Preconception Health Indicators

Criteria used to select 45 indicators	Criteria used to select 10 indicators
General public health importance	Prevalence Related to professional recommendations (<i>e.g.</i> , U.S. Preventive Task Force, American College of Obstetricians and Gynecologists, American Academy of Family Physicians, Institute of Medicine, and CDC Community Guide)
State-specific policy/program importance	Related to HP 2020 objective Related to CDC Winnable Battle
Data availability	N/A—addressed through developed exclusion criteria
Simplicity/complexity of calculating	Simplicity in calculating
Data quality	Data completeness
N/A—not included in original evaluation	Usefulness

CDC, Centers for Disease Control and Prevention.

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