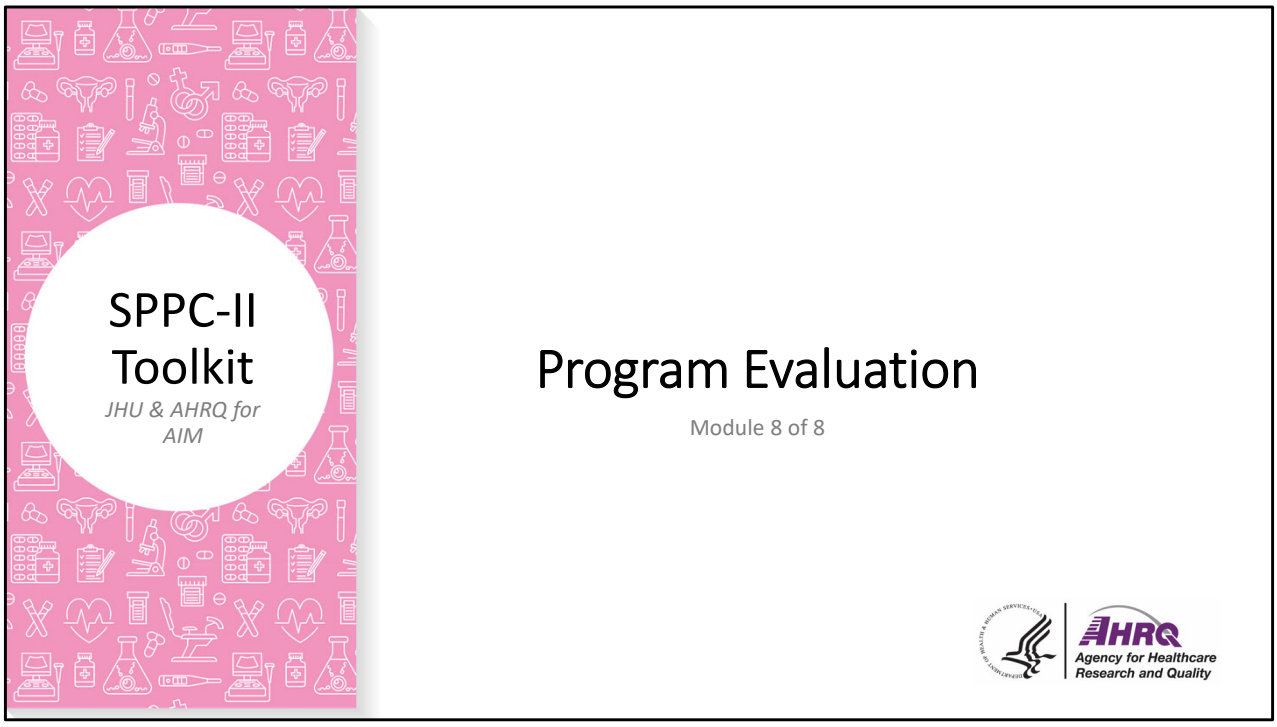


SCRIPT

Welcome to Module 8 of the SPPC-II Teamwork Toolkit. In this module we will discuss aspects related to the evaluation of the program.

Overview

- ❑ Background information for the SPPC-II/Demonstration Project
- ❑ Key program evaluation concepts
- ❑ SPPC-II/Demonstration Project evaluation approach

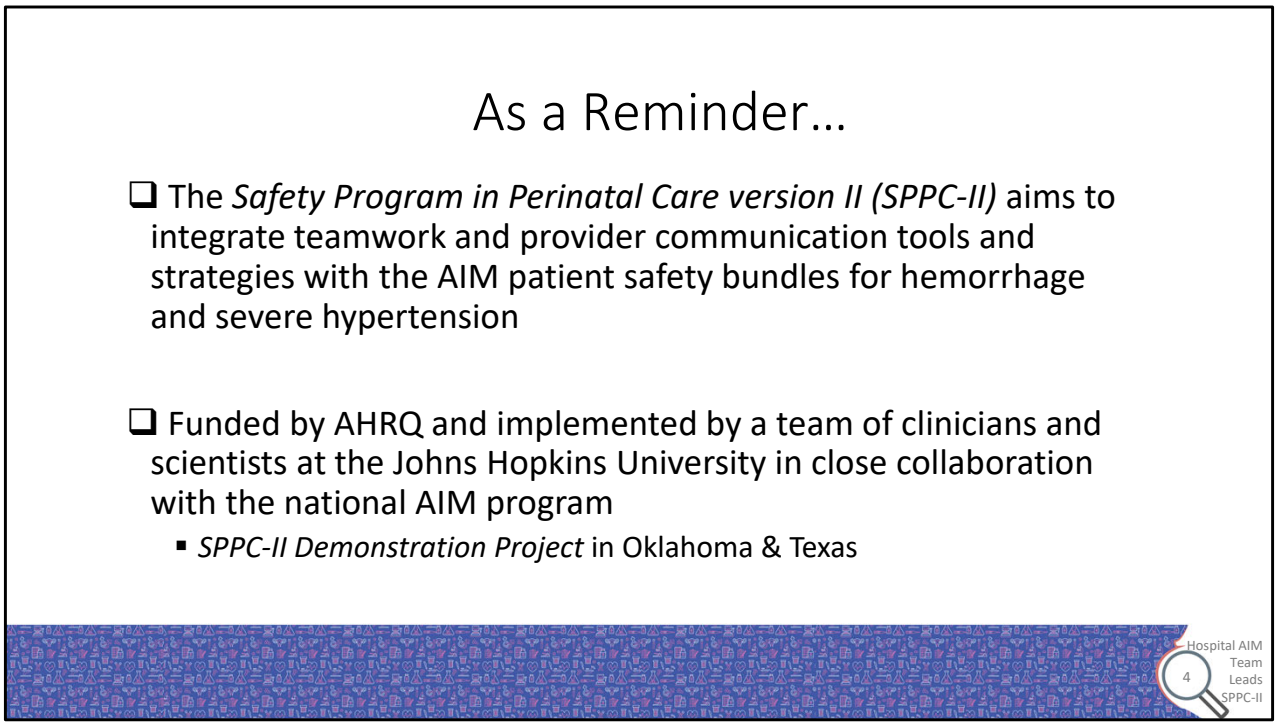
SCRIPT

We will start by looking at some national maternal health outcome data that demonstrate the need for the SPPC-II Program, then briefly review key program evaluation concepts, and then last we will discuss the proposed evaluation approach for the SPPC–II Demonstration Project.

Background Information for the SPPC-II/Demonstration Project

SCRIPT

Now that we have built some background in program evaluation, let's discuss some of the relevant background data that justify the need for our program and its evaluation.

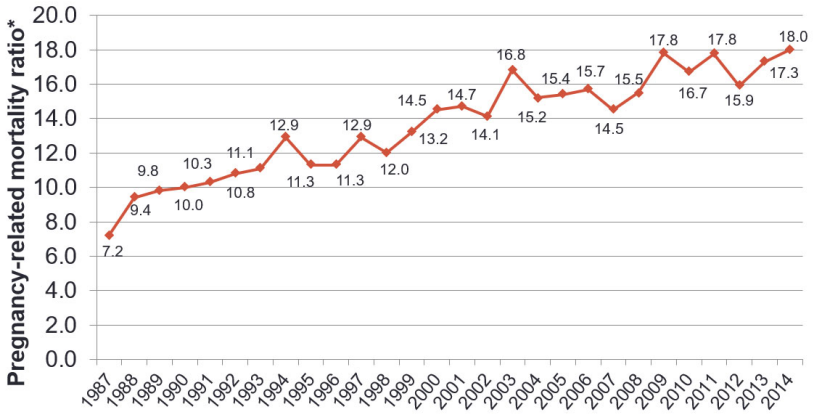


SCRIPT

First, as a reminder:

- The **Safety Program in Perinatal Care version II or SPPC**-II aims to integrate teamwork and provider communication aspects with the AIM patient safety bundles for hemorrhage and severe hypertension.
- The SPPC-II program is funded by AHRQ and implemented by Johns Hopkins University in close collaboration with the AIM program. The Demonstration Project will implement obstetric provider trainings using the SPPC-II toolkit in birthing hospitals throughout Oklahoma and Texas.

Pregnancy-Related Mortality: United States, 1987–2014



Note: Number of pregnancy-related deaths per 100,000 live births per year.

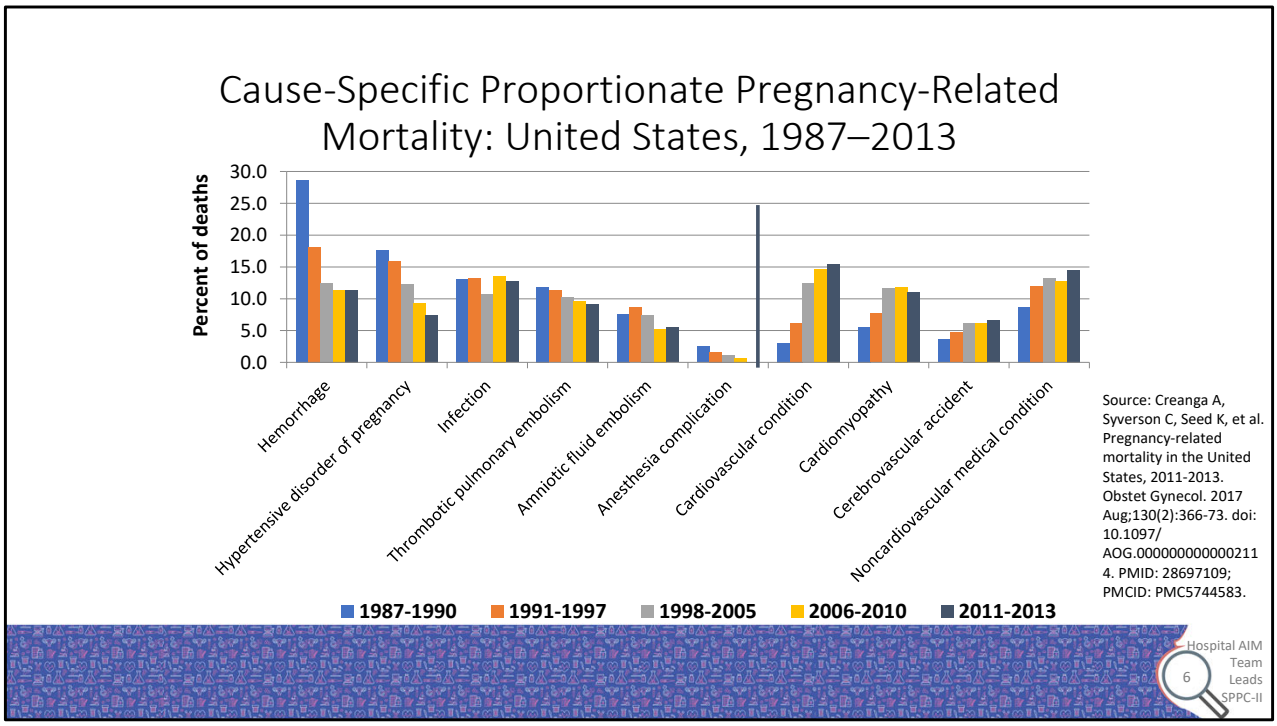
Source: https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pregnancy-mortality-surveillance-system.htm

SCRIPT

You may ask, why are AIM and SPPC programs needed?

The most recent pregnancy-related mortality data from the Centers for Disease Control and Prevention's pregnancy-related mortality surveillance are shown on this slide.

As you see, mortality has been increasing over time, and in 2014, there were 18 pregnancy-related deaths per 100,000 live births in the United States.



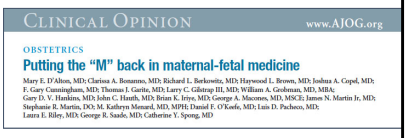
SCRIPT

The most common causes of maternal mortality in the United States are shown here for the period between 1987 and 2013.

Over time, the contribution of traditional causes of maternal mortality represented by hemorrhage, hypertensive disorders of pregnancy, infection has been declining, while that of chronic medical conditions, especially cardiovascular conditions, separated here by the orange line, has been rising. However, it has been shown that preventable deaths are those contributed by conditions like hemorrhage and severe hypertension, and this why the AIM program has developed patient safety bundles for these specific conditions.

Growing Interest in Severe Maternal Morbidity (SMM)

- ❑ Calls by professional organizations to review SMM
  - to better understand adverse maternal events
  - to implement clinical audits and improve quality of care
  - to increase awareness/knowledge of SMM recognition and management
- ❑ Development and validation of SMM measures
- ❑ Increase in SMM rates over the last decade due to
  - delays in childbearing and more women entering pregnancy with burden of chronic conditions
  - medical advances that allow for successful high-risk pregnancies
  - changes in clinical practice


CLINICAL OPINION www.AJOG.org

OBSTETRICS

Putting the "M" back in maternal-fetal medicine

Mary E. D'Alton, MD; Clarissa A. Bonanno, MD; Richard L. Berkowitz, MD; Haywood L. Brown, MD; Joshua A. Copel, MD; F. Gary Cunningham, MD; Thomas J. Garite, MD; Larry C. Gilstrap III, MD; William A. Grobman, MD, MBA; Gary D. V. Hankins, MD; John C. Hauth, MD; Brian K. Iriye, MD; George A. Macones, MD, MSCE; James N. Martin Jr, MD; Stephanie R. Martin, DO; M. Kathryn Menard, MD, MPH; Daniel F. O'Keefe, MD; Luis D. Pacheco, MD; Laura E. Riley, MD; George R. Saade, MD; Catherine Y. Spong, MD

SCRIPT

There is growing interest in measuring and addressing severe maternal morbidity—or SMM–the key impact measure for AIM and most quality improvement initiatives in the US.

Interest in SMM has been driven by:

- Calls by professional organizations to review SMM
  - to better understand adverse maternal events
  - to implement clinical audits and improve quality of care
  - to increase awareness/knowledge of SMM recognition and management
- The development and validation of SMM measures so that we know what we are interested in and how to follow it
- The increase in SMM rates over the last decade due to
  - delays in childbearing and more women entering pregnancy with burden of chronic conditions
  - medical advances that allow sick(er) women to become pregnant and carry a pregnancy to term
  - changes in clinical practice

How Do We Account for SMM?

- CDC measure
  - original list of 25 SMM indicators based on ICD-9 codes was published in 2012
  - updated list of 21 indicators (as of 2023) and corresponding ICD-10 codes used to identify delivery hospitalizations with SMM available on CDC website

For more information on SMM, go to https://www.cdc.gov/reproductivehealth/maternalinfanthealth/severematernalmorbidity.html

SCRIPT

Now, how do we account for severe maternal morbidity in the United States?

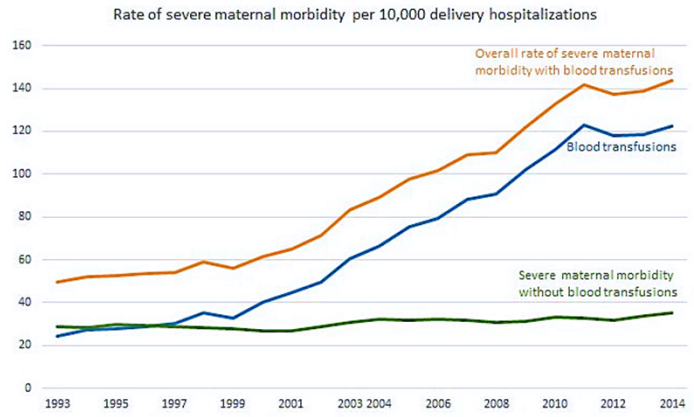
Most commonly used is the measure developed by CDC using ICD codes

- an original list of 25 SMM indicators based on ICD-9 codes was published in 2012, and
- an updated list of 21 indicators (as of 2023) and corresponding ICD-10 codes used to identify delivery hospitalizations with SMM available on CDC website

The CDC measure is further described on the CDC website. A link is also present on the AIM website for easy reference.

Links:
https://www.cdc.gov/reproductivehealth/maternalinfanthealth/smm/severe-morbidity-ICD.htm
https://www.cdc.gov/reproductivehealth/maternalinfanthealth/severematernalmorbidity.html
https://saferbirth.org/wp-content/uploads/AIMData_SMMGuide_5CR_042922.pdf

Trends in Severe Maternal Morbidity During Delivery Hospitalizations: United States,1993-2014



- ❑ Severe morbidity during delivery hospitalizations more than doubled during 1993-2014, with increase driven by blood transfusions
- ❑ If excluding blood transfusions, rate of SMM increased by about 20% during 1993-2014

Source: https://www.cdc.gov/reproductivehealth/maternalinfanthealth/severematernalmorbidity.html

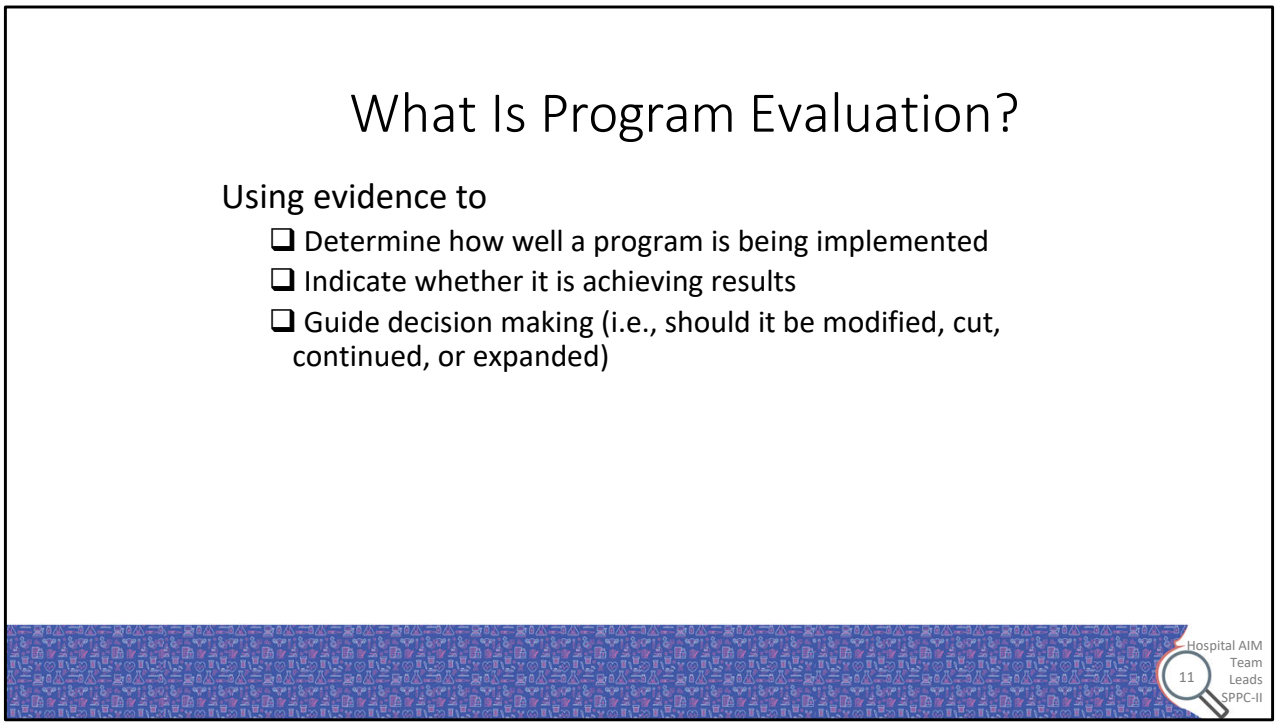
SCRIPT

Here, we see the most recent national trends in SMM from the CDC.

- Severe morbidity during delivery hospitalizations more than doubled during 1993-2014, with the increase being driven mostly by blood transfusions.
- If we exclude blood transfusions, the rate of SMM increased by about 20 percent during the same time period 1993-2014

Overall, this shows the important contribution of obstetric hemorrhage to SMM in the United States.

Key Program Evaluation Concepts

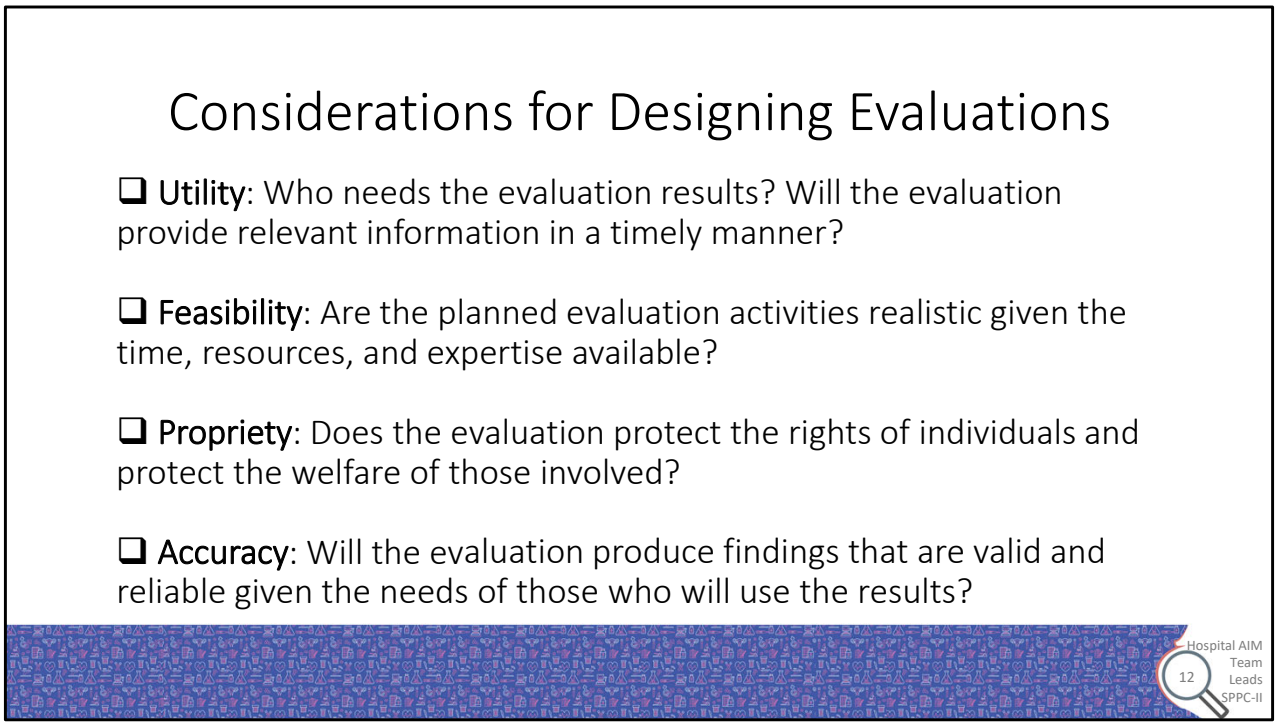


SCRIPT
So, to start, what is program evaluation**?**

(*PAUSE TO ALLOW PARTICIPANTS TO RAISE THEIR HANDS AND ANSWER THIS QUESTIONS. AFTER TWO OR THREE PEOPLE RESPOND, GUIDE THEM BACK TO THE PRESENTATION AND SHARE THE FOLLOWING INFORMATION.*)

Program evaluation is the process of using evidence to:

- Determine how well a program is being implemented
- Indicate whether it is achieving results
- Help guide decision-making about programs – for example, should it be modified, cut, continued, or expanded.

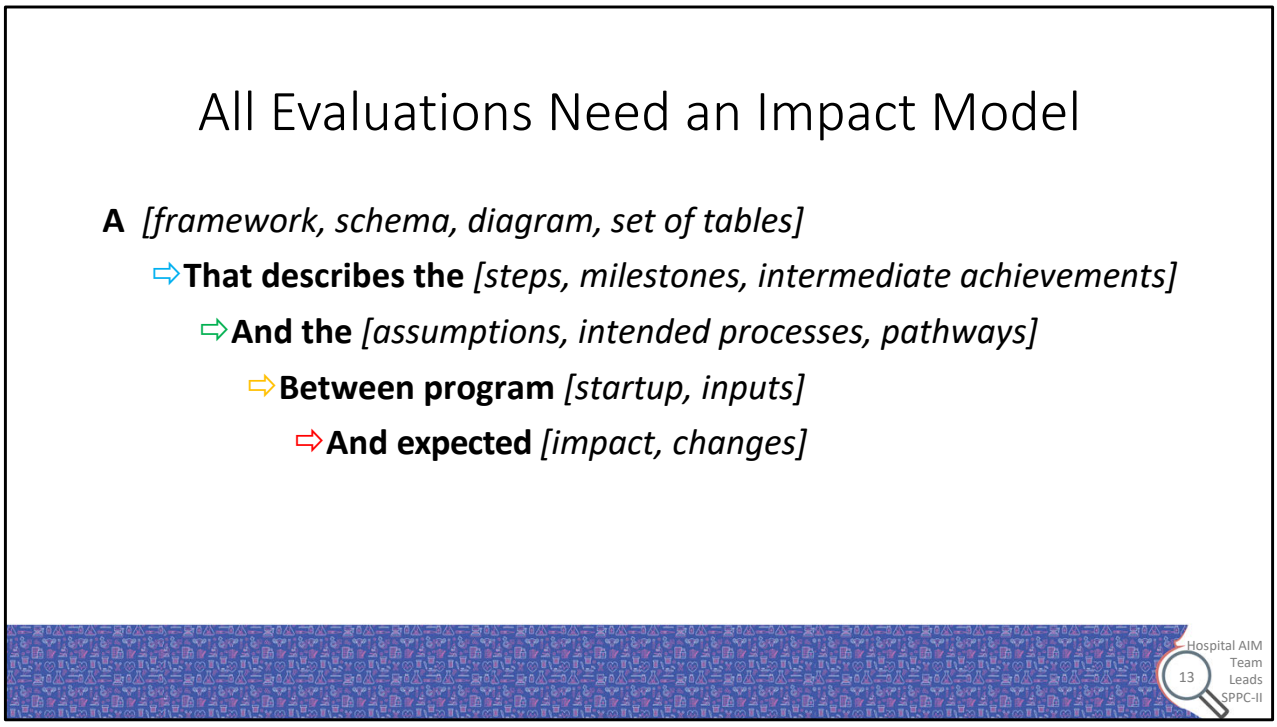


SCRIPT

Now, what are some key considerations for designing evaluations?

You should keep in mind the following:

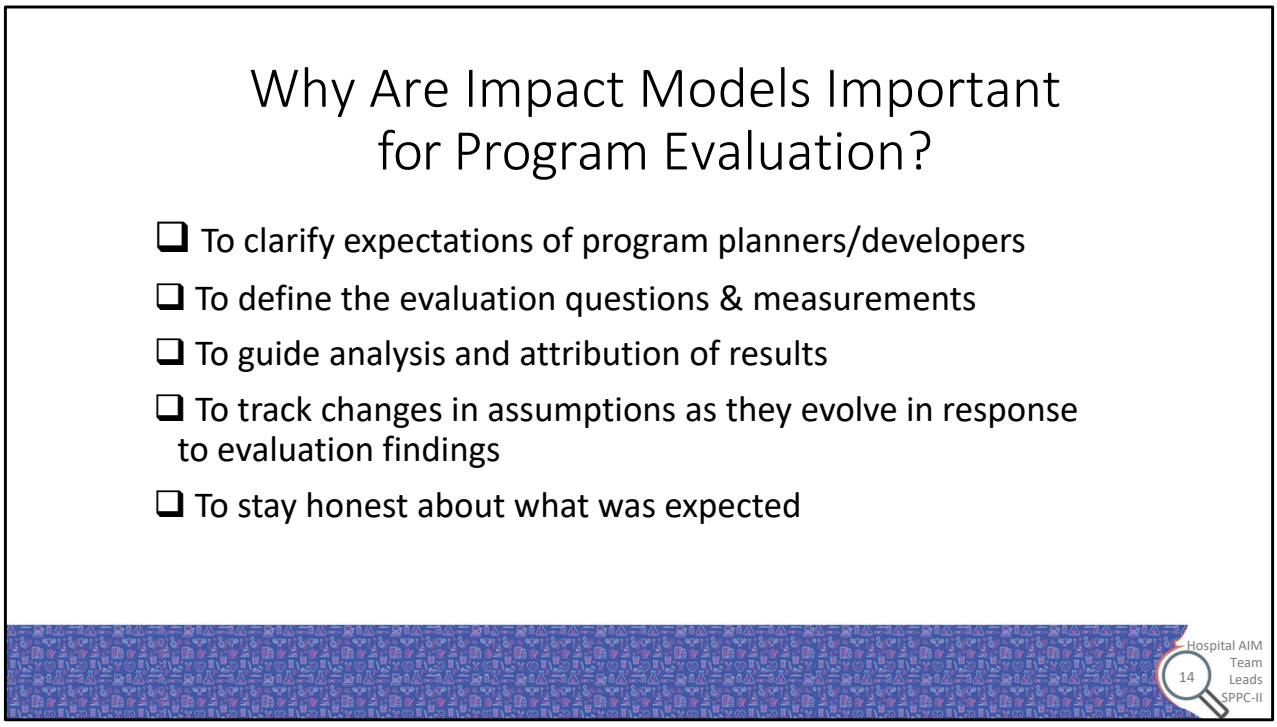
- Utility: Who needs the evaluation results? Will the evaluation provide relevant information in a timely manner?
- Feasibility: Are the planned evaluation activities realistic given the time, resources, and expertise available?
- Propriety: Does the evaluation protect the rights of individuals and protect the welfare of those involved?
- Accuracy: Will the evaluation produce findings that are valid and reliable given the needs of those who will use the results?



SCRIPT
As discussed when we identified the steps to designing an evaluation, all evaluations need an impact model to guide their development.

Impact models begin with:

- A framework, schema, diagram or set of tables, which
- Describe the steps, milestones, or intermediate achievements of the evaluation
- And the assumptions, intended processes and pathways
- Between the program start-up and inputs
- And the expected impact or changes – in our case, impact or changes in maternal health status



SCRIPT

Impact models are important for program evaluation for multiple reasons.

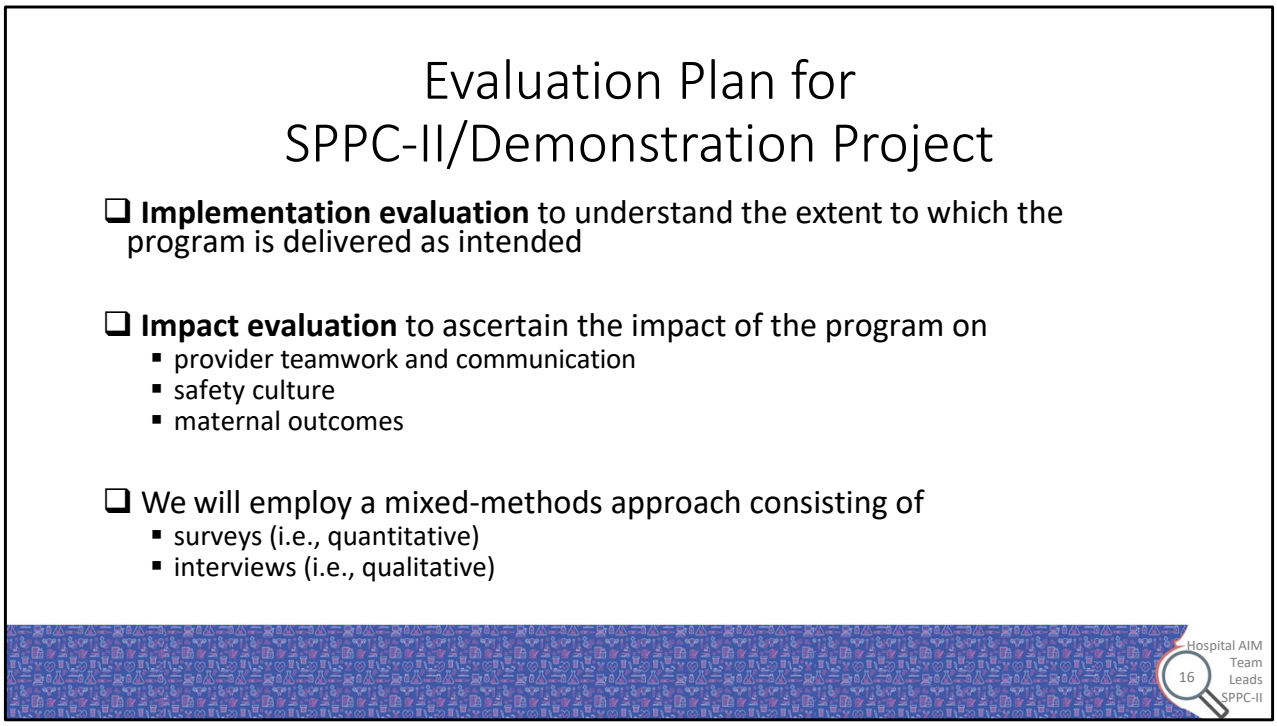
They can help:

- To clarify expectations of program planners/developers
- To define the evaluation questions and measurements
- To guide analysis and attribution of results
- To track changes in assumptions as they evolve in response to evaluation findings
- To stay honest about what was expected

SPPC-II/Demonstration Project Evaluation Approach

SCRIPT

Now, moving into the final section of this presentation, let's shift our focus to the proposed SPPC-II Program Evaluation approach.

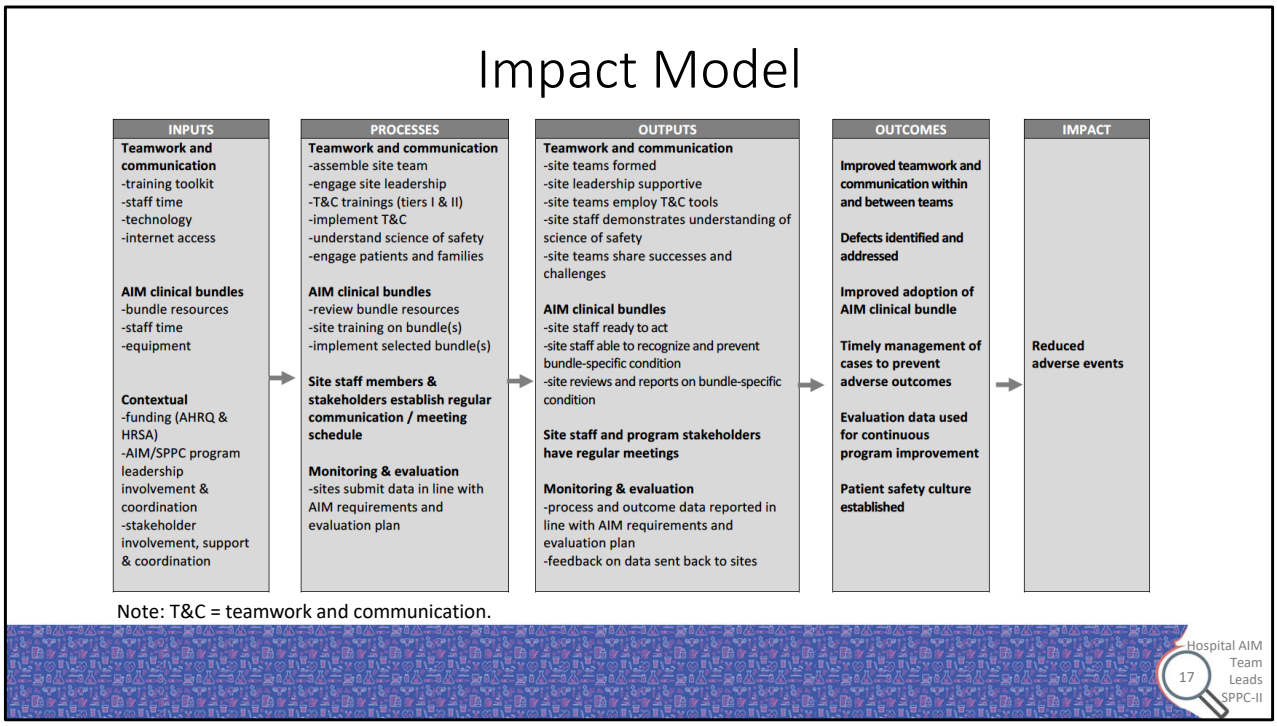


SCRIPT

The evaluation plan for SPPC II Demonstration Project includes—

1. an implementation evaluation to understand the extent to which the program is delivered as intended, and
2. an impact evaluation to ascertain the impact of the program on provider teamwork and communication, unit safety culture, and maternal outcomes.

To do this, we will employ a mixed-methods (quantitative and qualitative) approach consisting of surveys as well as qualitative interviews and focus group discussions.



SCRIPT

Here, we have the impact model for the SPPC II evaluation showing all inputs, processes, outputs, outcomes, and impact.

You can see in the far left column, the **inputs** include the:

- SPPC II training toolkit, staff time, and use of technology
- the AIM clinical bundle with its resources, staff time, and equipment, and
- contextual factors, such as project funding, leadership and stakeholder involvement

Moving to the next column showing **processes,** we find corresponding activities such as:

- the process of assembling a site team, engaging site leadership, conducting the teamwork and communication trainings
- in relation to the AIM clinical bundles, we have activities such as reviewing the bundle resources and implementing selected bundles
- establishing a regular meeting schedule and sites' submitting data for monitoring and evaluation

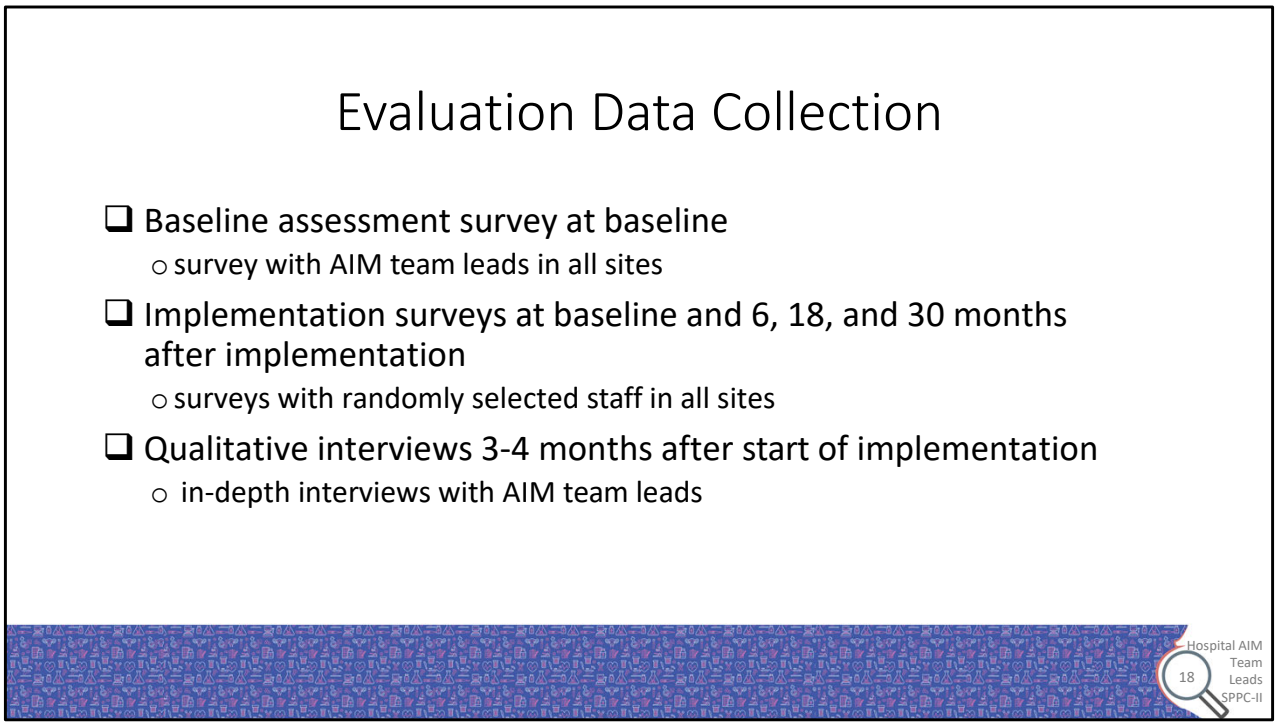
The middle column of **outputs** shows us that, for example,

- site teams should be formed, site leadership should be supportive, site staff should be using the teamwork and communication tools and strategies they were trained to use
- staff should be ready to act and recognize bundle-specific conditions
- regularly scheduled meetings should be conducted by staff and program stakeholders, and
- feedback should be provided on data sent by sites

Next, in the **outcomes** column, expected positive outcomes are shown – for example:

- improved provider teamwork and communications
- more defects being identified and addressed, and
- patient safety culture becoming better established and improving over time

Collectively, these will lead lead to **reductions in adverse events** – as shown in the impact column.



SCRIPT

Data collection processes for the SPPC-II program evaluation will include:

- Baseline assessment surveys at baseline with AIM team leaders in all sites
- Implementation surveys at baseline, 6 months, 18 months and 30 months after implementation, which will be completed by randomly selected staff from in all sites
- Qualitative interviews with AIM team leads 3-4 months after the start of project implementation to assess whether the project needs to be modified in any way.

Current Data Reporting to AIM

- ❑ Each AIM state or hospital system works on one or two bundles at a time, and focuses on corresponding structure, process, and outcome metrics
- ❑ Several outcome measures (e.g., SMM) are considered key and included in all bundles
  - no patient level data collected by AIM
  - only numerators/denominators for hospital and state rates are shared with AIM
- ❑ Maternal deaths are rare events, and thus maternal mortality is not reported at the hospital level

SCRIPT

We will use the information collected regularly by the AIM program for the evaluation.

- Each State or hospital system participant works on one or two bundles at a time, and focuses on corresponding structure, process and outcome metrics as we will show on the next slide
- Several measures (such as SMM) are considered key and included in all bundles – of note, no patient level data are collected and only Numerators/Denominators for hospital and state rates are shared with AIM
- Maternal deaths are rare events, and thus maternal mortality is not reported at the hospital level – AIM depends on State health departments, maternal mortality review committees, and the National Center for Health Statistics to provide data on maternal deaths

AIM Data Measures Overview

Key Measure Examples	Data Source & Frequency of Data Collection
Structure measures • Existence of debriefs process • Performance of multidisciplinary case reviews	Hospital-generated data Reported at time of AIM enrollment
Process measures • Number of unit drills • % providers trained on AIM bundle topic	Hospital-generated data Reported quarterly
Outcome measure • SMM (overall and bundle-specific, i.e., women with hemorrhage or preeclampsia)	Hospital discharge data Reported quarterly

SCRIPT

This slides provide a couple of key examples of the data metrics collected by AIM.
Key structure measures include:

- existence of a debriefs process, and
- performance of multidisciplinary case reviews

These data are generated by the hospitals and reported only once at the time of enrollment in AIM.

Key process measures include:

- the number of unit drills, and
- The percent of providers trained on AIM bundle topic

These data are also available generated by hospitals and collected quarterly.

The SMM metric, overall and bundle-specific, for example SMM among women with hemorrhage or SMM women with pre-eclampsia is made available from the State hospital discharge data on a quarterly basis.

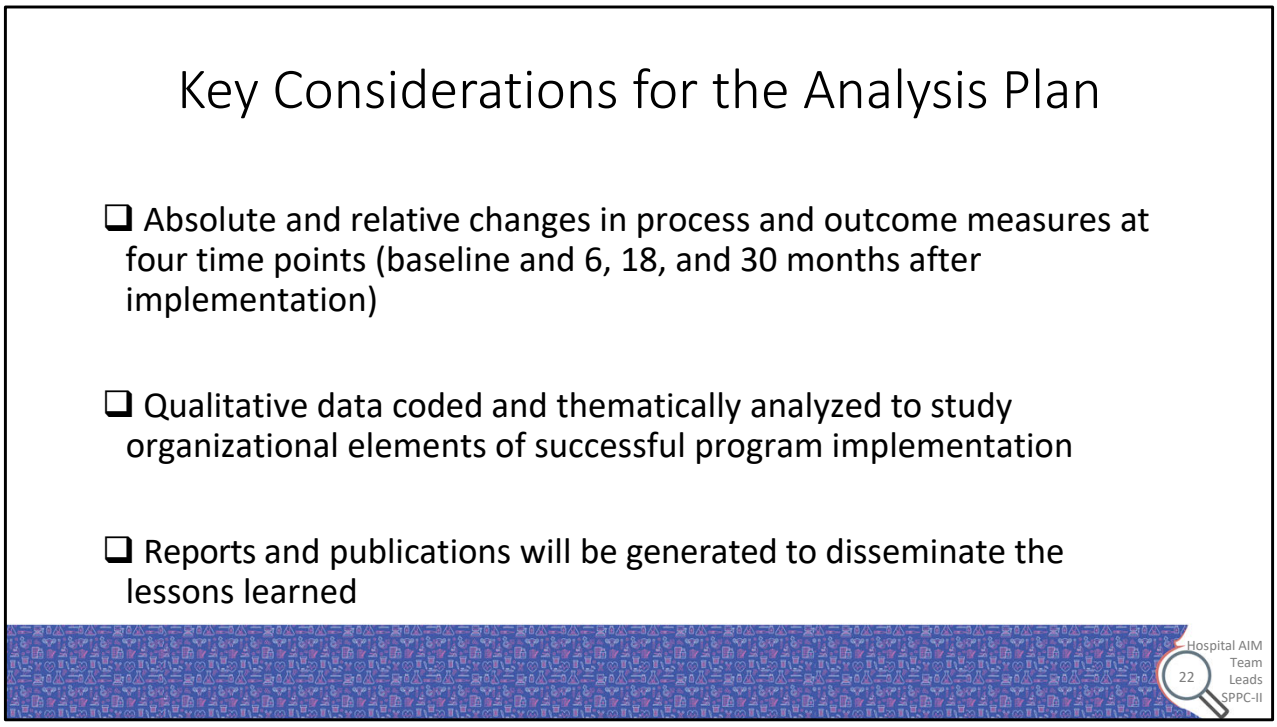
Teamwork and Communications Measures

- ❑ Some already required by AIM (see previous slide)
- ❑ Others collected through implementation surveys and covering three domains:
  - **LEARNING**: assess knowledge, attitudes, and behaviors
  - **TRANSFER:** assess application of learned competencies
  - **RESULTS:** assess organizational learning and safety culture

SCRIPT
Some of the teamwork and communication measures are required for reporting by AIM, such as the examples provided on the previous slide, and some will be collected through our implementation surveys.

We will aim to capture indicators in three specific domains, including:

- LEARNING domain to assess provider knowledge, attitudes, and behaviors
- TRANSFER domain to assess application of learned competencies
- RESULTS domain to assess organizational learning and safety culture



SCRIPT
And finally, we want to share some key consideration for the analysis plan.

- We will be looking at absolute and relative changes in process and outcome measures over time. These will be measured at four separate time points, specifically at baseline and 6, 18, and 30 months after implementation
- All qualitative data will be de-identified, coded, pooled, and thematically analyzed to study overall organizational elements of successful program implementation
- Reports and publications will be generated to disseminate the lessons learned

This concludes the presentation for the Evaluation Module. Thank you for your attention and participation!

Acknowledgments

- This project is funded and implemented by the Agency for Healthcare Research and Quality and the Johns Hopkins University Contract Number HHSP233201500020I in collaboration with the Health Resources and Services Administration and the Alliance for Innovation on Maternal Health.

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July 2023