HEALTH MANAGEMENT ASSOCIATES

Evaluation Series: Part 2
Nuts and Bolts of Measurement and Evaluation Design

Million Hearts Webinar
Recorded August 2021

DC | HEALTH

PRESENTER

DC | HEALTH HMA

HEALTH MANAGEMENT ASSOCIATES

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EVALUATION LEARNING SERIES

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Measuring with Purpose and Alignment to Achieve Impact	Nuts and Bolts of Measurement and Evaluation Design
MHLC (July 21, 2021)	Recorded Webinar (August 2021)
Assessing Your Results and Overcoming Challenges	Leveraging the Evaluation: Making the Case and Promoting Sustainability
MHLC (September 15, 2021)	MHLC (October 20, 2021)

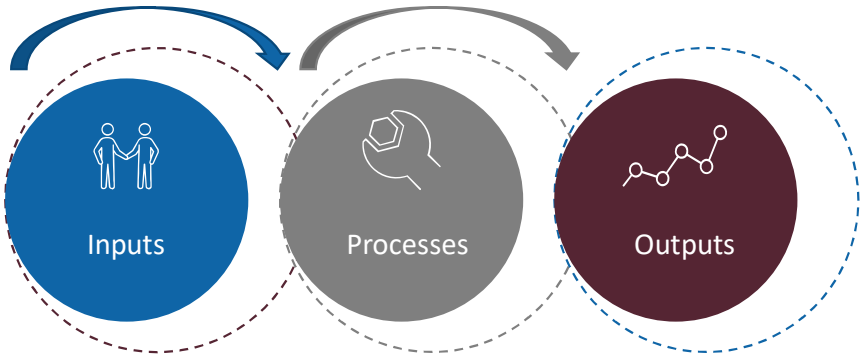
AGENDA

- **Understanding threats** to internal validity
- Evaluation designs to **address validity**
- Designing **measurement strategy** and selection/creation of measures
- Million Hearts Evaluation Plan review
- Next Steps: **putting learning to work**

WHERE WE'VE BEEN…AND WHERE WE'RE GOING

1. Build case, set goals

2. Optimal study design



3. Optimal evaluation design, and measurement

Resources	Activities	Outcomes
- People - Infrastructure - Materials - Information - Technology	- What is done - How it is done	- Health services delivered - Change in health behavior - Change in health status - Patient satisfaction - Change in cost - Return on investment

OUTCOME EVALUATION DESIGN

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INTERNAL VALIDITY

+ Degree to which we can be certain that the way we went about answering our question actually answered it

EXTERNAL VALIDITY

+ Degree to which we can be certain the results from this program and specific setting be generalized to other settings

LOW INTERNAL VALIDITY

I — Pre-experimental designs

II — Quasi-experimental designs

HIGH INTERNAL VALIDITY

III — Experimental designs

EVALUATION DESIGN

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LOW INTERNAL VALIDITY — I — II — III — **HIGH INTERNAL VALIDITY**

Pre-experimental Designs

Threats to internal validity arise in each

+ One-group post-program only
+ One-group pre- and post program
+ Post-program-only comparison group
+ Pre- and post-program with post-program only comparison group

Quasi-experimental designs

Often used to evaluate health programs

No intervention/control randomization (e.g., logistics, ethics/legal, no viable group, contamination)

+ Pre- and post program non-equivalent comparison group design

Experimental designs

Randomized study design (intervention and control)

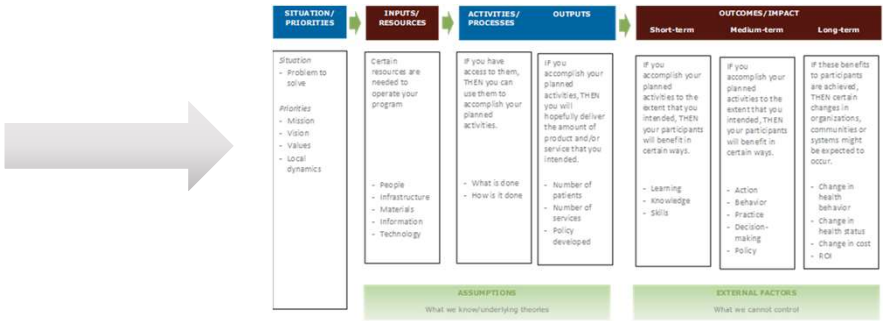
+ Pre-/post-program with control group
+ Post-program only with control group
+ Pre-/post-program with control and post only control group
+ Solomon four group design

(Varying threats to external validity)

ENSURING INTERNAL VALIDITY

Threats to internal validity occur when the following are not present:

- Theoretical, conceptual or practical basis for an expected relationship
- Program precedes the outcome in time



- **Other explanations ruled out**
- **Outcome measures are reliable and valid**

- Statistically significant association between the program and outcome

OTHER EXPLANATIONS RULED OUT:

- **History:** external events which occur between the first and second measurement
- **Maturation:** events occurring within subjects as a systematic function of time
- **Testing:** providing a pre-test may impact the outcomes of a second test
- **Sensitization:** a pre-test makes subjects pay more attention to the intervention
- **Instrumentation:** changes in the measuring instrument/scorers may change results
- **Selection:** differences in subjects in the intervention and comparison groups
- **Attrition:** differential dropout of subjects in the comparison and intervention groups
- **Statistical regression to the mean:** extreme scores naturally regress toward the mean

EVALUATION DESIGN

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LOW INTERNAL VALIDITY

HIGH INTERNAL VALIDITY

I — II — III

Pre-experimental Designs

+ High threats to internal validity (selection bias, history, maturation)
+ Threats to external validity as a result of threats to internal validity

Quasi-experimental designs

+ **Pre- and post program non-equivalent comparison group design**

Experimental designs

+ Control group controls for many threats to internal validity
+ Still some testing/treatment threats to external validity in some designs
+ Not always desirable to have a control
+ Four group design has strong validity, but expensive, complicated, and **rarely done in health care evaluation**

CASE STUDY: ABC FQHC

The problem: ABC FQHC is significantly above the District average in ER utilization for ambulatory-care sensitive conditions. ER use is particularly high among its population of patients with diabetes, hypertension, and hyperlipidemia. In analyzing their data, they discover that most ER visits occur in the evening hours.

The project: As a result, ABC FQHC will implement an education campaign for its high utilizers.

Goal: Increase knowledge of how to access care team after hours.

Measurement: Survey of knowledge of after-hours access.

EVALUATION DESIGN

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LOW INTERNAL VALIDITY — I — II — III — **HIGH INTERNAL VALIDITY**

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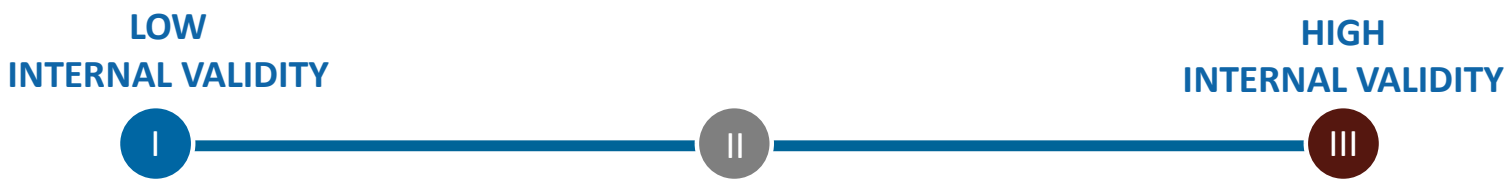
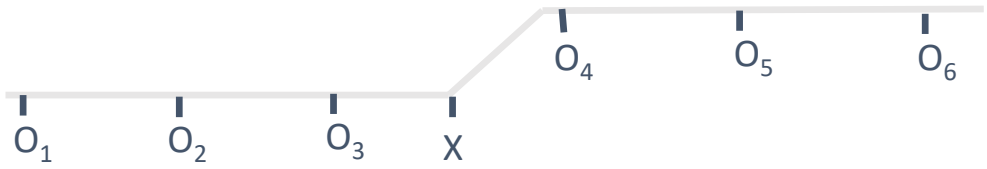
EVALUATION DESIGN



Quasi-experimental Designs

+ Time Series Design (single or multiple)

Administer testing at standard intervals to gauge change as result of intervention.



+ Pre- and post program non-equivalent comparison group design

Administer survey to study participants to assess their knowledge of clinic access 1 month prior to and 1 month after educational campaign; use a similar comparison group (not control) to assess their knowledge of clinic access 1 month prior to and 1 month after educational campaign.

When randomization is impossible or infeasible. **Most likely aiming for this.**

ENSURING INTERNAL VALIDITY

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- Program precedes the outcome in time
- Other explanations ruled out
- **Outcome measures are reliable and valid**
- Statistically significant association between the program and outcome

OUTCOME MEASURES ARE RELIABLE AND VALID:

- Measuring what we should be measuring
- Using a measure that captures what we want
- Avoiding measurements with error
- Using same measures at different time points

MEASURE CATEGORIES

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STRUCTURE

Are the right elements in place to be able to provide quality service?

PROCESS

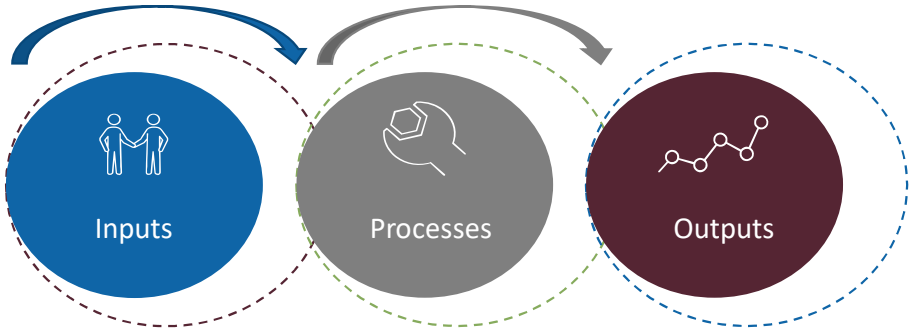
Are the right things done to the right people at the right time?

OUTCOME

Is the result as good as it should have been, given current knowledge?

(Avedis Donabedian, MD)

MEASURE CATEGORIES



Resources

- People
- Infrastructure
- Materials
- Information
- Technology

Activities

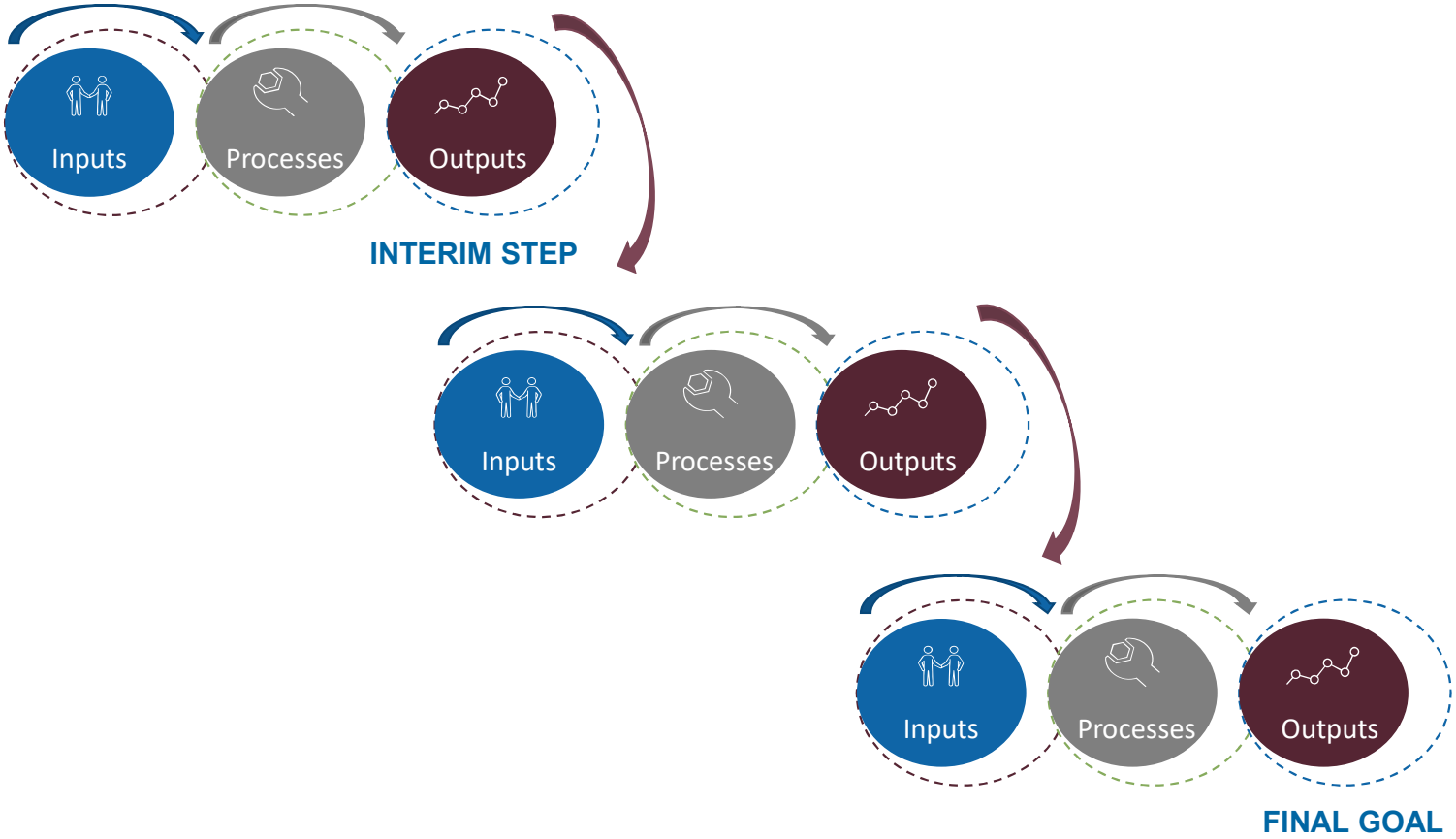
- What is done
- How it is done

Outcomes

- Health services delivered
- Change in health behavior
- Change in health status
- Patient satisfaction
- Change in cost
- Return on investment

STRUCTURE — **PROCESS** — **OUTCOME**

WHERE WE WANT TO MEASURE: INTERIM V. FINAL



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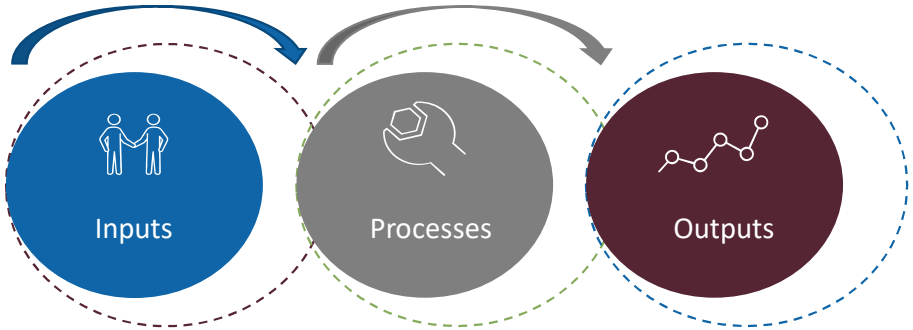
CASE STUDY: ABC FQHC

The problem: ABC FQHC has a large population of uncontrolled diabetics, with HbA1c rates in the 90th percentile for DC. These high rates impact the clinic's ability to achieve incentive payments from certain payers.

The project: ABC FQHC will contract with a CBO to provide a targeted, evidence-based diabetes self-management program to patients with HbA1c > 8%.

Goal: Reduce HbA1c poor control in the patient population.

MEASURE CATEGORIES



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STRUCTURE — **PROCESS** — **OUTCOME**

ABC FQHC EXAMPLE MEASURE CONCEPTS

STRUCTURE	PROCESS	OUTCOME
- Contracts in place - Staff hired/assigned - Information flows established	- Patients referred (services initiated; completed) - Patients engaged in care - HbA1c testing	- Hospital admissions (all cause, condition-specific) - Hospital readmissions - ED visits - Outpatient visits - Patient experience - HbA1c poor control - ROI

QUESTIONS TO ANSWER:

- Where are the data?
- Does it align with other reporting?
- Who can obtain it?
- Where are the gaps?

FOCUS ON EXISTING DATA

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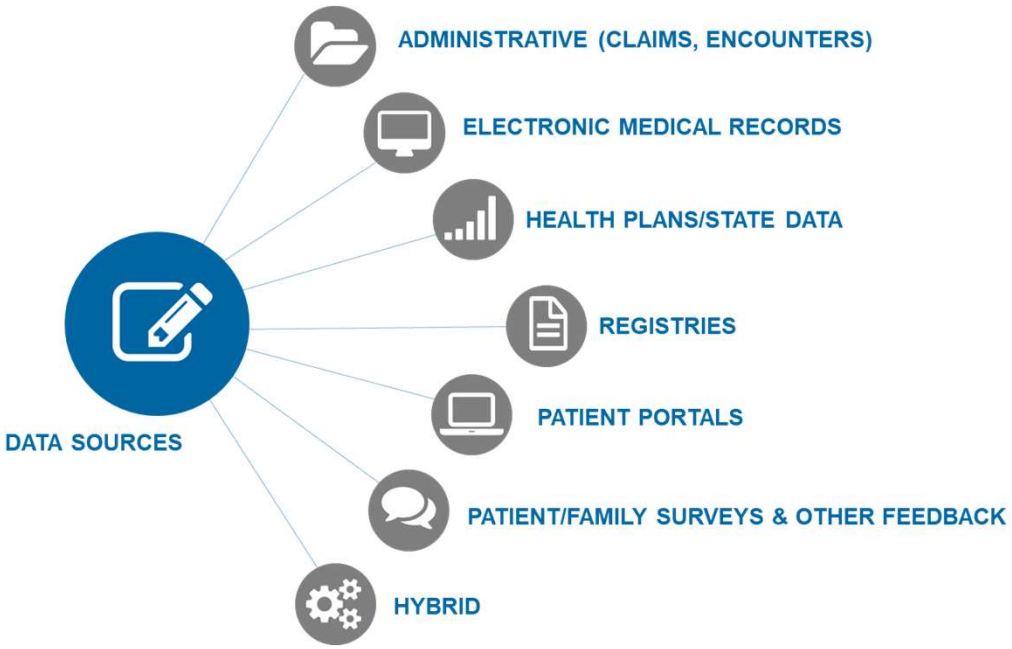
USE EXISTING DATA SOURCES/ COLLECTION METHODS:



USE STANDARDIZED MEASURES FROM EXISTING SOURCES:

- **HEDIS** reported to DC/health plan
- **UDS** reported to HRSA
- **CMS** – ie, Medicare readmissions; HCAPS
- **CRISP** data/metrics

DEFINING MEASUREMENT:

- **Target population** (i.e., age, diagnoses)
- **Measurement period/frequency of collection** (interim periods, project year v. fiscal year)
- **Numerator** (those who are "compliant" minus those exempt)
- **Denominator** (all those eligible to be included—patients, months, etc)
- **The rate** (e.g., percent)

- **Target** (benchmark, % or percentage point improvement)

PUTTING IT ALL TOGETHER: REVIEW/EDIT AS NEEDED (by September 1)

DC HEALTH
GOVERNMENT OF THE DISTRICT OF COLUMBIA

Government of the District of Columbia
Department of Health
Community Health Administration

Grantee Evaluation Plan

GOVERNMENT OF THE DISTRICT OF COLUMBIA
MURIEL BOWSER, MAYOR

Goal 1: *Expand the availability of health care transition (HCT) training to school-based health centers (SBHCs) and to community-based mental health providers using evidence-informed HCT interventions and tested quality improvement (QI) methodologies.*

Objective 1: *By the end of month 12, partner with School-Based Health Centers and move from customizing and piloting the Six Core Elements of HCT to full implementation in routine preventive and primary care.*

Activity from Work Plan	Evaluation Question	Indicators	Process or Outcome Measure?	Data Collection Method	Frequency of Collection	Annual Target
EXAMPLE Activity A: Parent Navigation or participation in a training	How many families have we served this year?	Numerator: # of families Denominator	Process Measure	EMR	Quarterly	100 families
		Numerator: Denominator:				

NEXT STEPS: PUTTING LEARNING TO WORK

- **Bring it back to your team:**
  - Designing the evaluation and measurement
  - Try the tools: Measure worksheet, Evaluation Plan
- **Discuss with us/your fellow grantees**
  - Office hour: August 23, 12-1pm
  - Individual technical assistance: available on request
  - Review these (and other) tools, best practices
- **Up Next: Evaluation Part 3**
  - September 15, 2021 (MHLC)
  - Assessing your results and overcoming challenges