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Dr. Richard Ingram, Committee Chair

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A CASE STUDY IN PROGRAM EVALUATION: EVALUATION OF A HYPERTENSION SELF MANAGEMENT PROGRAM

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Health Management and Policy Capstone

ABSTRACT

The CDC's program evaluation process framework is a six-step approach that guides public health practitioners in the evaluation of public health programs. The framework includes engaging stakeholders, describing the program, focusing the evaluation design, gathering credible evidence, justifying conclusions, and ensuring use and sharing of lessons learned. Each step is important in developing a comprehensive and effective program evaluation. This evaluation discusses the application of the six steps of the CDC's program evaluation process framework and how it was utilized in evaluating a hypertension self-management program at a local health department.

Keywords: Program evaluation, evaluation framework, hypertension self-management program, stakeholder engagement, evaluation design.

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A Case Study In Program Evaluation: Evaluation of a Hypertension Self Management Program

Introduction

The three core functions of public health, assessment, policy development, and assurance, collectively work to promote positive health outcomes, bridge the gaps in population health, and facilitate continuous improvement in the strength of our approach in public health. Evaluation falls under the assurance function, and is an essential facet of public health. Evaluation allows for the systematic assessment of a public health policy or program. It facilitates continuous process improvement that allows us to maximize the impact of our efforts. By collecting and analyzing data, we can identify what works and what doesn't, and make informed decisions about how to allocate resources and improve programs. Ultimately, evaluation plays a vital role in achieving our public health goals and improving health outcomes.

The Lexington-Fayette County Health Department has introduced a CDC funded, hypertension self management program to address and combat the increasing prevalence of hypertension in US adults [1]. I have been tasked with conducting an evaluation of the program, utilizing the CDC's 6-step program evaluation process framework [2] to inform my assessment. I have elaborated on the details of my evaluation below.

Engaging Stakeholders

To ensure that all perspectives are heard and that industry professionals can provide their expertise, I have gathered the following stakeholders and community partners to discuss the program objectives and implications. Stakeholder engagement is necessary in ensuring a holistic assessment of all important program elements. The involved stakeholders included those involved in program operations, those served or impacted by the program, and primary users of evaluation results [2]. I included representation from the health equity realm to provide insight regarding populations disproportionately affected by hypertension in Kentucky. These stakeholders serve across a plethora of fields and each have unique, valuable insight that they bring to the table. Multiple stakeholder summits will be held with the following stakeholders in attendance. The following tables list involved stakeholders, as well as their roles within the evaluation.

Table 1. *Overview of Stakeholders*

Program Operation Involvement	● LFCHD Staff ● Centers for Disease Control and Prevention Representative ● Healthcare professionals involved in program delivery (physicians, nurses, and pharmacists) ● UK Healthcare ● Representatives from local healthcare providers with program referral system ○ Local clinics ○ Hospitals ○ Community Health Centers
Served or Impacted by	● Program enrollees

Program	• Family members and caregivers of patients
Users of Evaluation Results	• Insurance companies/MCOs • Medicare/Medicaid • Pharmaceutical companies • The Kentucky Heart Foundation • University of Kentucky College of Public Health • Kentucky Heart Disease and Stroke Prevention Task Force • The Kentucky Department for Public Health • The Kentucky Office of Health Equity • The University of Kentucky's Gill Heart and Vascular Institute

Note that listed stakeholders may belong in more than one category.

Table 2. *Overview of Stakeholder Roles*

Enhance Credibility of the Program	• The Kentucky Heart Foundation • Kentucky Heart Disease and Stroke Prevention Task Force • The Kentucky Department for Public Health • The Kentucky Office of Health Equity • University of Kentucky College of Public Health • The University of Kentucky's Gill Heart and Vascular Institute

Implement the Program Changes	• LFCHD Staff
	• Physicians, nurses, and pharmacists
	• Representatives from local healthcare providers with program referral system
	  ○ UK Healthcare
	  ○ Lexington Clinic
	  ○ Bluegrass Community Health Center

Advocate for Changes	• Program enrollees • Family members and caregivers of patients
Fund, Authorize, or Expand the Program	• Centers for Disease Control and Prevention • Insurance companies/MCOs • Medicare/Medicaid • Pharmaceutical companies

Note that listed stakeholders may belong in more than one category.

Action Items and Primary Objectives for Stakeholder Engagement:

Action Item #1: Hold a stakeholder summit

Objective: To bring together representatives from each stakeholder group to facilitate thoughtful discussion on program elements, discuss potential changes, identify opportunities for collaboration and improvement and allow each perspective to be heard from payers to patients themselves. This networking event will offer opportunities for ongoing collaboration between industry professionals, such as work groups and committees. This will allow stakeholders to contribute to project implementation.

Action Item #2: Conduct focus groups and feedback mechanisms

Objective: Feedback mechanisms such as focus groups will be conducted with patients and family members of patients enrolled in the program to gain first hand perspective as to their experiences and perceptions of program strengths and weaknesses to identify areas for improvement.

Action Item #3: Hold routine meetings with LFCHD and program delivery staff

Objective: Program delivery staff also have a valuable first hand perspective of the gaps and strengths of the program. Frequent and ongoing communication will be maintained with program staff through routine meetings to discuss the progress, challenges, and potential unintended consequences of the program.

Action Item #4: Establish regular communication channels with payers and users of evaluation results

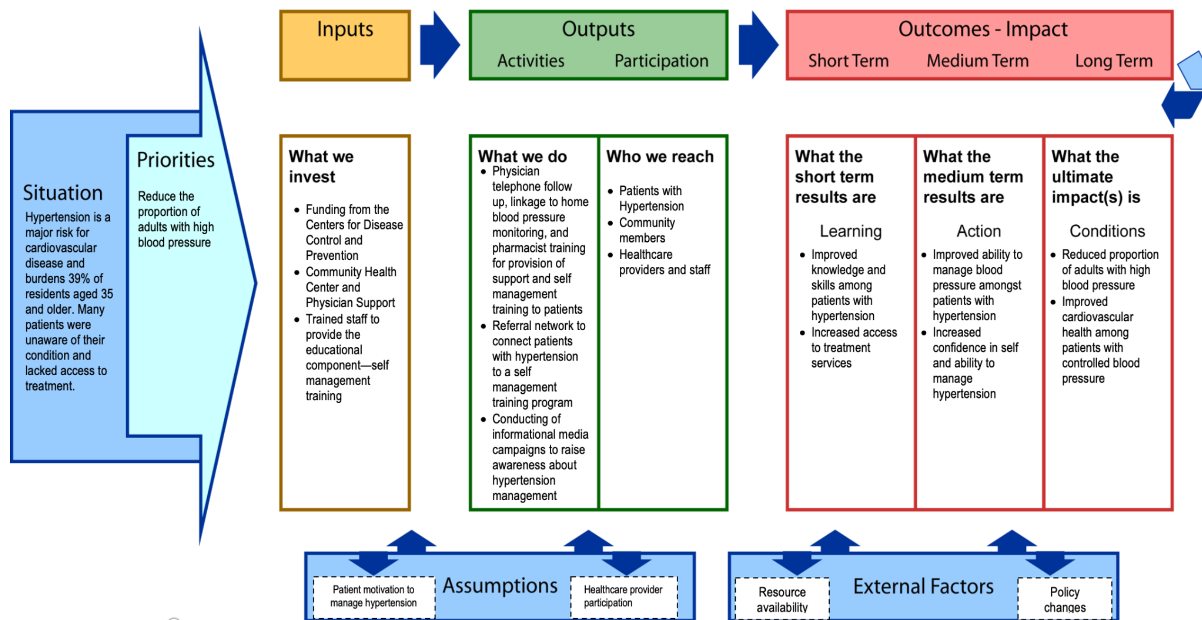
Objective: This allows for ongoing engagement of stakeholders by providing email newsletter updates or reports to share program outcomes and seek continued support. Surveys and opportunities for feedback will be included in these emails to continue to gain feedback and show that their input is valued and can be used to create a more robust and effective public health program.

The time commitment for stakeholders will vary depending on their role and involvement in the program. Lexington-Fayette Health Department staff and health care professionals involved in program delivery will attend regular meetings and trainings. Enrolled patients and their family members may only need to participate in occasional surveys, interviews, or focus groups. To be respectful of the time constraints of the less involved payers and users of program results, while ensuring they are adequately engaged, primary communication post-stakeholder summit will allow them to be as involved as their time allows them to be. They may be involved in a work group or choose just to receive program updates, progress reports, and feedback opportunities via email. We want to recognize and respect stakeholders' time constraints while ensuring that they are adequately engaged and that their perspectives are heard.

Describing the Program

Logic models provide a clear and structured visual representation to help plan, conceptualize, and evaluate programs. A logic table is displayed below to summarize program inputs, activities, outputs, external factors, assumptions, and outcomes. [3]

Figure 1. *Program Logic Model*



Logic model templates. South Carolina Department of Education. (n.d.) from https://ed.sc.gov/finance/grants/scde-grants-program/program-planning-tools-templates-and-samples/logic-model-templates/

Focusing the Evaluation Design

The purpose of the evaluation is to assess whether the program actually had the effect that it intended to on the target population. In the context of this program, the intention of the program was to reduce hypertension prevalence by 25% at the end of 5 years [1]. Because the program is still within the first year of implementation, it is only necessary to assess how it has measured up to its short term outcomes. This will focus on both process and outcome evaluation. The process will be assessed to measure what aspects of the process worked, what didn't work, and to what extent. If the program meets its intended goal even with flaws in the process, we still want to streamline program delivery methods to ensure that we are maximizing our results. Outcome evaluations will assess the program along the lines of its ability to increase confidence in ability to manage blood pressure amongst patients with hypertension.

The user of the evaluation will be the community health director of the current participating community health center, as well as surrounding community health centers [1]. The use of the evaluation is to determine whether the program was implemented as planned and whether it has increased patients ability to control their blood pressure. If provided with the appropriate resources and materials from the original implementation plan, process and outcome can both be reasonably assessed. We can assess the details and strategies of the initial implementation process plan and cross reference with current program staff to determine whether it was implemented how it was initially planned. If there were any barriers or bottlenecks in the process, we would look at how the implementation process was modified as a result. Outcome can be assessed with feedback mechanisms, such as the use of a likert-scale style survey designed to assess perceptions and beliefs of the patient before and after the program. Ideally, a survey assessing knowledge, attitudes, and behaviors would be given to patients prior to the intervention. However, we can still assess outcomes by asking them to reflect on their knowledge and beliefs prior to

enrollment. From there, data will be collected to assess whether there was a significant increase in patient's confidence in managing their hypertension after being enrolled in the intervention. The following questions are examples that can be used in a process and outcome evaluation.

Process Evaluation

- Which components of the program were implemented as planned?
- Which components of the program were unable to be implemented as planned and how was the strategy modified?
- Was the program able to be implemented in full with the allocated CDC funding?
- Was the program implemented in full according to the planned timeline?
- Were the recruitment methods successful in recruiting eligible individuals in a timely manner?
- What aspects of the program seemed to be most effective in building patient's confidence in managing their hypertension? Were there any aspects that you feel were ineffective?

Outcome Evaluation
**These questions should be directed towards a patient enrolled in the program*

- On a scale of 1 to 10, can you rank your confidence in your ability to manage your hypertension prior to enrolling in the program? And after?
- If you can recall, what might have been a typical blood pressure reading for you prior to enrolling in the program? And after?
- On a scale of 1 to 10, can you rank your knowledge of blood pressure management prior to enrolling in the program? And after?
- Do you feel more confident in your ability to manage your blood pressure?

Gathering Credible Evidence

The following evaluation questions were explored further for potential indicators that can be used in assessing outcomes, as well as potential data sources and methods that can be referenced to monitor the associated indicators.

Table 3. *Process and Outcome Evaluation Questions*

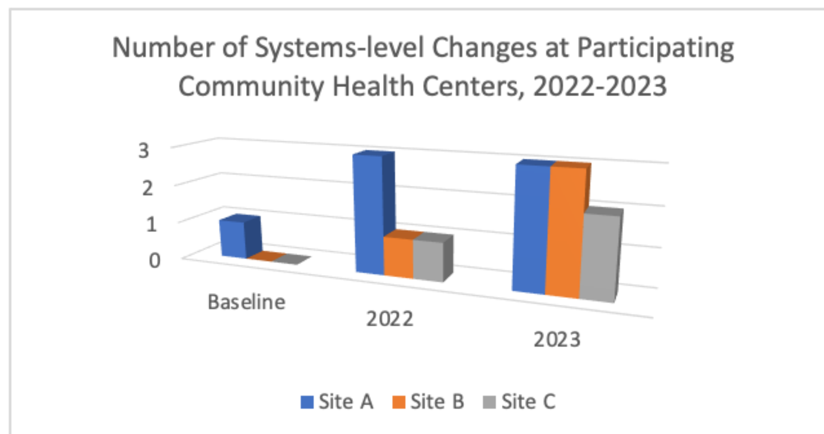
	Evaluation Question	Indicators	Data Sources/Methods
Question 1	Was the program implemented in full according to the planned timeline?	• Implementation start date • Time from referral to training program enrollment • Number of collaborative partnerships established • Documentation of planned 2 weekly hours of training each week	• Comparison of initial implementation timeline • Qualitative 1-on-1 staff interviews • Documentation of program activities and dates such as: ○ Participant enrollment records

		● Number of informational media campaigns conducted	○ Self management training log
Question 2	Do you feel more confident in your ability to manage your blood pressure?	● Current confidence level ranked higher than confidence level prior to program enrollment ● Average blood pressure reading is lower than average blood pressure reading at the start of the program.	● Qualitative 1-on-1 patient interviews ● Use of likert-scale survey assessing patient attitudes and beliefs regarding hypertension management ● Log of blood pressure records/data

Justifying Conclusions

★ *Recommendation #1: Site C is recommended to implement 1 more policy or systems level change.*

Figure 2. *Number of Systems Level Changes*



[4] UK College of Public Health. (2023). Number of systems level changes at participating community health centers, 2022-2023.

To avoid the possibility of variance in interpretation of findings and consider utility when making a program recommendation, findings were pulled from a graph providing results from real data collected over 2022 and 2023 [3]. In the program description, it was recommended that community health centers establish policies to increase patient adherence with treatment, including medication and lifestyle changes [1]. The graph displays the number of policy changes implemented at each of the three sites in accordance with this recommendation outlined in the program design. In 2022, Site A was the only community health center with 3 systems level changes implemented in accordance with the program description [3]. In 2023 both Site A and B had implemented 3 systems level changes, with Site C trailing behind at 2 changes implemented [3]. The interim evaluation results revealed that Site A experienced the highest level of

participation in the self-management training sessions among their patients [1]. Site A has also implemented and established all 3 systems level changes earlier than the other 2 community health centers. In order to maximize program results, it is recommended that Site C implement all 3 systems changes in accordance with the recommendations made in the program description. Implementing each systems change has the opportunity to expand the scope and effectiveness of the hypertension self management program at Site C and bridge the gap in participation observed between Community Health Center A and Community Health Center C.

Propriety was taken into account as these policy level changes were encouraged and endorsed by the stakeholders that initially came together to develop the program design and implementation. These stakeholders include recipients of the program, family members of the program recipients, industry experts, as well as program funders. Based on what we are seeing from observations of Site B, it is expected that it might take up to 2 years after these changes are implemented to see measurable results, though these changes are feasible as Sites A and B have implemented these changes and observed positive results.

This recommendation is based on real data recorded throughout the duration of the program. This boosts accuracy as we have real numbers drawn from the data to support each policy level change. We plan on conducting further analysis to explore program results at site A exclusively stimulated by the establishment of policy level changes based on qualitative interviews with program recipients. We plan to conduct the same analysis at Site B. This additional analysis will be conducted to confirm that conclusions are explicitly justified. This will further validate the findings and support the recommendation that Site C implement all 3 policy changes to be on par with Site A and Site B. Maximizing these policy changes to improve patient treatment adherence at each site provides a better opportunity for the program to create measurable change within the population and utilize a more comprehensive approach.

★ *Recommendation #2 Each site is recommended to expand support services by contracting with 3 additional pharmacists who will provide ongoing education and support to promote hypertension management*

When analyzing the results of the program thus far, impressive statistics were seen regarding the seeking of pharmacist support in blood pressure management. It was reported that there was a 20% increase in patients receiving regular support from a pharmacist [1]. Pharmacists also happen to be the primary staff members administering the support and counseling for program recipients. Data suggests that many program recipients are utilizing and benefitting from this support and counseling component of the program. Thus, it is recommended that each site administering the hypertension self management program contract with 3 additional pharmacists to expand support services for the program. In order to continue promoting hypertension management, our approach is more effective when education and increased treatment access are coupled with the necessary counseling services to support patients in adherence to these services.

In terms of utility, it is important to consider the different interpretations of the findings. The interim evaluation reported a 20% increase in patients receiving regular support from a pharmacist [1]. However, not all sites adopted a comprehensive self-management model. Therefore, it is important to

consider that the increase in patients utilization of support services from a pharmacist may have been associated primarily with Sites A and B who adopted a comprehensive self-management model. Thus, the success of this recommendation in Site C may be hindered by the lack of adoption of a comprehensive self-management model. The recommendation that site C implement one more systems level change will enhance the success of the recommendation or expansion of support services.

Contracting with 3 additional pharmacists to provide ongoing support may have practical feasibility challenges relating to the availability of funding, and the capacity of the participating community health centers to absorb the additional support services. Funding restrictions and use of the current budget are not explicitly outlined, though
there are strategies that can be implemented to provide a low cost alternative with current staff and resources to produce similar intended effects. This includes collecting information through focus groups made up of program recipients regarding the most helpful counseling services or support focus areas offered. Information from these focus groups may highlight particularly helpful services which can be streamlined amongst current healthcare staff. Thus, program staff such as nurses, may be trained to provide support for only the most needed focus areas so as to not overwhelm nursing staff while still expanding current support services.

The provision of counseling services in the program's initial design plan was informed by input from a team of stakeholders, and the recommendation to expand these services is in keeping with the ethical and moral standards of propriety, as it respects the perspectives and needs of the stakeholders involved. The recommendation to expand support services by contracting with additional pharmacists is accurate and data informed as it was recommended based on data collected during the interim evaluation findings, which showed a 20% increase in patients receiving regular support from a pharmacist [1]. The use of real program data and findings boosts accuracy and
validates the need for this recommendation in order to continue supporting patient adherence to, and utilization of program services.

Ensuring Use and Sharing Lessons Learned

In order to ensure that the findings of the evaluation are effectively used and necessary information is communicated to appropriate stakeholders, the following methods will be used to communicate evaluation findings:

- Reports will be put together to serve as a clear, concise summary of all pertinent information and evaluation findings. Reports will be tailored to the specific stakeholders to highlight information most relevant to them and will utilize infographics, charts, and graphs to visualize data and make it more accessible to each stakeholder. Three types of reports will be put together to reflect the three primary types or roles of involved stakeholders. Reports will be put together for stakeholders involved in direct program operation and change implementation, advocacy organizations and those served or impacted by the program, as well as users or funders of evaluation results. These individualized reports will be emailed to each stakeholder.
- Routine newsletters may also be accessible to stakeholders via email. In order to reduce burden on stakeholders, all essential information will be communicated through the official report of evaluation findings. Though stakeholders wanting to be more involved will have the option to opt

in to routine e-newsletters with most recent evaluation updates and progress updates on the change implementation process.

- A virtual stakeholder summit will be organized after an evaluation is conducted to present key evaluation findings and discuss recommendations. This gives stakeholders an opportunity to collaborate with program staff to explore strategies to combat the potential weaknesses or gaps that a program evaluation may highlight.
- A program evaluation task force will be established at the stakeholder summit to engage all stakeholders who are able to be more involved in the ongoing evaluation and implementation processes. This task force will be comprised of those conducting evaluations, program staff, and external stakeholders. This task force will work long after the stakeholder summit to continue to strengthen program initiatives.
- To make this information more accessible to the community and general public, a web page will be created for the program that will be accessible to anyone through a simple google search. On this web page, infographics, quarterly reports, and newsletters can be shared to communicate the most recent evaluation findings, program updates, and change implementation progress. This may also help boost participation and referrals to the program by making this information publicly available.

To inform effective communication and follow up processes with stakeholders, a plan has been outlined below for each involved stakeholder. The plan outlines what will be communicated, when it will be communicated, and how often it will be communicated with each stakeholder.

Table 4. *Stakeholder Communication Plan*

Stakeholder	**What**	**When**	**How often**
LFCHD Staff	● Process and outcome evaluation findings ● Potential program changes ● Change implementation plan ● Changes in required training/guidelines	Prior to, during, and after evaluation is conducted	Daily/Weekly basis
Centers for Disease Control and Prevention	● Process and outcome evaluation findings ● Change implementation plan	Prior to, during, and after evaluation is conducted	Weekly basis
Physicians, nurses, and pharmacists	● Process and outcome evaluation findings ● Potential program changes ● Profession specific process updates ● Changes in provision of care delivery	Prior to, during, and after evaluation is conducted	Daily/Weekly basis

	• Changes in required training/guidelines		
UK Healthcare	• Process and outcome evaluation findings • Potential program changes • Clinic specific process updates • Changes in provision of care delivery • Changes in required training/guidelines	Prior to, during, and after evaluation is conducted	Daily/Weekly basis
Lexington Clinic	• Process and outcome evaluation findings • Potential program changes • Clinic specific process updates • Changes in provision of care delivery • Changes in required training/guidelines	Prior to, during, and after evaluation is conducted	Daily/Weekly basis
Bluegrass Community Health Center	• Process and outcome evaluation findings • Potential program changes • Clinic specific process updates • Changes in provision of care delivery • Changes in required training/guidelines	Prior to, during, and after evaluation is conducted	Daily/Weekly basis
Program enrollees	• Process and outcome evaluation findings • Potential program changes	Prior to, during, and after evaluation is conducted	Weekly basis
Family members and caregivers of patients	• Process and outcome evaluation findings • Potential program changes	Prior to, during, and after evaluation is conducted	Weekly basis
Insurance companies/MCOs	• General evaluation findings • Changes related to healthcare services offered • Pertinent financial reimbursement policies and procedures	Prior to evaluation and follow up after evaluation is conducted	Monthly basis

Medicare/Medicaid	• General evaluation findings • Changes related to healthcare services offered • Changes related to program inclusion criteria and eligibility relating to age, disability, or median household income • Pertinent financial reimbursement policies and procedures	Prior to evaluation and follow up after evaluation is conducted	Monthly basis
Pharmaceutical companies	• General evaluation findings • Changes related to services offered • Medication related updates • Pertinent financial reimbursement policies and procedures	Prior to evaluation and follow up after evaluation is conducted	Monthly basis
The Kentucky Heart Foundation	• Outcome evaluation findings • Emphasis of program strengths and weaknesses and hypertension data • Overview of methods • Outline of potential program changes	Prior to evaluation and follow up after evaluation is conducted	Monthly basis
Kentucky Heart Disease and Stroke Prevention Task Force	• Outcome evaluation findings • Emphasis of program strengths and weaknesses and hypertension data • Overview of methods • Outline of potential program changes	Prior to evaluation and follow up after evaluation is conducted	Monthly basis
The Kentucky Department for Public Health	• Process and Outcome evaluation findings • Emphasis of program strengths and weaknesses and hypertension data • Outline of potential program changes • Change implementation	Prior to, during, and after evaluation is conducted	Bi-weekly basis

	plan		
The Kentucky Office of Health Equity	• Outcome and process evaluation findings • Updates to demographic breakdown of program recipients • Updates to demographic breakdown of program staff • Detailed overview of methods • Potential program changes	Prior to evaluation and follow up after evaluation is conducted	Monthly basis
University of Kentucky College of Public Health	• Outcome evaluation findings • Emphasis of program strengths and weaknesses and hypertension data • Outline of potential program changes	Prior to evaluation and follow up after evaluation is conducted	Monthly basis
The University of Kentucky's Gill Heart and Vascular Institute	• Outcome evaluation findings • Emphasis of program strengths and weaknesses and hypertension data • Outline of potential program changes	Prior to evaluation and follow up after evaluation is conducted	Monthly basis

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