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A Case Study in Program Evaluation: Evaluation of a MRSA Education Program

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ABSTRACT

Program evaluations provide a deeper understanding of program components to promote effective program implementation. This evaluation follows the CDC's 6-step Framework for Program Evaluation in Public Health to evaluate a MRSA education program. This evaluation has been prepared to be presented to the Lexington- Fayette County Health Department.

Keywords: Program evaluation, MRSA education program, evaluation framework

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A Case Study in Program Evaluation: Evaluation of a MRSA Education Program

Introduction

Assurance is one of the three core functions of public health. The assurance function plays an integral role in public health and in promoting population health. Program evaluation is a comprehensive approach to monitor and improve public health programming and interventions[1]. It involves collecting data, engaging stakeholders, identifying areas for improvement, and allocating resources to address barriers or gaps[1]. Program evaluation is an ongoing process that should be integrated into program management to gain deeper understanding of program components. Ultimately, program evaluation is an effective strategy for improving programs and achieving population health.

Following an alert regarding a potential increase of methicillin-resistant staphylococcus aureus (MRSA), Fayette County Public Schools (FCPS) and Lexington- Fayette County Health Department (LFCHD) are working to evaluate an educational program to promote timely reporting in the event of an infectious disease outbreak[2]. This evaluation plan utilizes the Centers for Disease Control and Prevention's 6-step Framework for Program Evaluation in Public Health.

Step 1: Engaging Stakeholders

Stakeholders play a crucial role in program evaluation. Stakeholders can include a variety of members from various entities, organizations, or industries. Without stakeholders, valuable information will be missed and limit the utility of the evaluation plan. The table below includes stakeholders that should be involved in the evaluation process. Stakeholders have been organized into three categories based on involvement, use, and use of evaluation results.

Table 1. Overview of Involved Stakeholders

Involved in Program Operations	- Clinic medical director - Regional epidemiologist - School nursing supervisor - School nurse - Local health department staff
Program Users	Football players

	- Coaches - Trainers - Athletic director - Nurses - Principal - Superintendent
Primary Users of Evaluation Results	- School athletic teams - Demetrius Liggins (FCPS Superintendent) - Rob Sayer (FCPS Head Athletics Director) - Local and regional health departments

Involved in Program Operations

Stakeholders involved in program operations include individuals and organizations responsible for implementing and administering program components. The clinic medical director, regional epidemiologist, and local health department staff have been included in this category because they are individuals who inform the online training modules', posters', and information sessions' content. The school nursing supervisor and nursing staff are responsible for conducting informational sessions with program users[2].

Program Users

Program users are individuals who participate in program activities. The stakeholders identified as program users above are included in this category because they are the audience of the program inputs and activities. The football coach, players, trainers, the athletic director, the principal, and the superintendent attended an informational session conducted by the school nurse. It is assumed that parents and guardians of football players attended the informational session as well. Additionally, coaches, nurses, and athletic trainers participated in the online training modules.

Primary Users of Evaluation Results

Primary users of evaluation results include individuals and organizations that use the evaluation results to inform and plan future action. The results of this evaluation of a MRSA

education program are intended to ensure timely reporting and action in the event of an infectious disease outbreak. Therefore, individuals who hold leadership roles, athletic teams, and health departments can use the results of the evaluation to inform future strategies to ensure timely reporting in the event of an infectious disease outbreak.

Each stakeholder identified above may have different values that should be considered. Evaluation of a MRSA education program conducted by LFCHD requires stakeholder engagement. Roles for the stakeholders identified above, are included in the table below.

Table 2. Overview of Stakeholder Roles

Enhance Credibility	- LFCHD - Clinic medical director - Regional epidemiologist - School nursing supervisor - School nurse
Implement the Program Changes	- School nurse - School nursing supervisor
Advocate for Changes	- Athletic trainers - School nurse - School nursing supervisor - FCPS Head athletics director - FCPS Superintendent - Student athletes, parents, and guardians
Fund, Authorize, or Expand the Program	- FCPS Superintendent - Local health department

Action Items and Primary Objectives for Stakeholder Engagement:

- Conduct Focus Groups

- o Objective: Focus groups will be conducted with users of the MRSA education program. The focus groups will allow for program users to share their open-ended perspectives of the program.

- Distribute Surveys
  - o Objective: Distributing surveys will allow for program users to provide brief feedback about program components. This survey will also allow the stakeholders involved in program operations to identify areas of expertise among users, as well as areas where knowledge is lacking.

- Hold Workshops and Training Sessions
  - o Objective: Workshops and training sessions will be used to train local health department staff on the district wide education program on MRSA protocols. The workshops and training sessions will also allow for users involved in program operations to provide feedback on the program's content.

- Develop Stakeholder Advisory Group
  - o Objective: FCPS and LFCHD will develop a stakeholder advisory group to strengthen relationships and partnerships between stakeholders.

- FCPS and LFCHD Meetings
  - o Objective: Representatives from FCPS and LFCHD should meet often throughout the evaluation process to make evidence informed decisions regarding authorization, funding, and expansion of the program.

The time commitment for stakeholders will vary depending on their specific role. Stakeholders involved in program components will attend workshops and training sessions. Program users will be invited to the in-person information session and will be asked to participate in a brief survey at the end of the session. Program users will also be invited to participate in focus groups facilitated by local health department staff. It is encouraged for program users to complete the brief survey and participate in focus groups; however, participation is voluntary. Stakeholders involved in funding, authorization, and expansion of the program should collaborate regularly to ensure understanding of the program to plan future action. In general, stakeholders involved in program components should expect a greater time commitment than program users.

Step 2: Describing the Program

Program descriptions should clearly outline goals and program components of the program under evaluation[1]. Logic models are a tool to chronologically display program components[3]. The logic model below describes the MRSA education program's current state and objectives as well as inputs, activities, outputs, and outcomes.

Figure 1. Program Logic Model
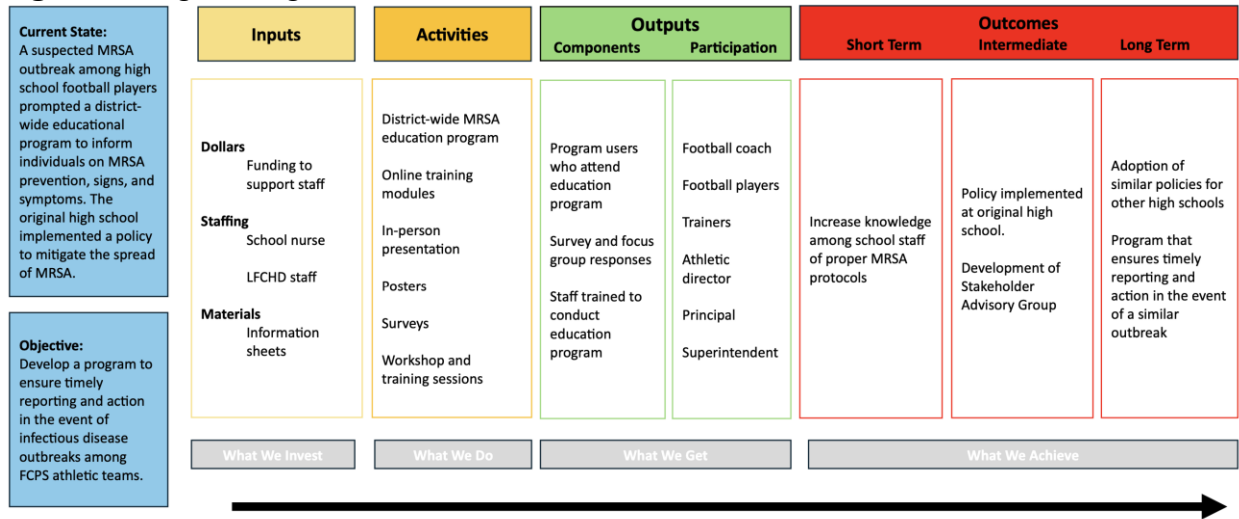
Step 3: Focusing the Evaluation Design

An evaluation focuses on the program and its ability to obtain intended goals. A comprehensive evaluation considers stakeholder's priorities while leveraging resources to promote efficiency[1]. Focusing the evaluation design considers the evaluation's purpose, users, uses, and feasibility.

Purpose

The Lexington Fayette County Health Department has been tasked with evaluating a MRSA education program to inform the development of a program to ensure timely reporting and action in the event of another similar outbreak. Process (implementation) evaluations are used to assess whether the program was implemented as intended[3]. Process evaluations consider program components, who implements the program components, and the program's audience. Outcome evaluations measure effects of the program. Outcome evaluations consider short-

intermediate- and long- term outcomes[3]. This evaluation focuses on both process and outcome evaluation.

The process evaluation will assess whether program components and activities were implemented or not. Specifically, process evaluation will document where the education program took place, who conducted program activities, attendance, posters, and in person presentations. It is important to document program components to understand what inputs contribute or hinder the implementation of the program. Outcome evaluations will assess the program's ability to increase knowledge among school staff of proper protocols.

Users of the Evaluation

The users of the evaluation include individuals or organizations who will make use of the evaluation results[3]. Users of the evaluation include school athletic teams, athletic directors, school superintendents, and health departments. While school athletic teams will be the primary users affected by the evaluation results, it is crucial to gain support from athletic directors, school superintendents, and health departments. These stakeholders serve as leaders in their respective roles and can greatly influence whether the evaluation results are used to achieve the evaluation's goals.

Use of the Evaluation

The evaluation will give insight into whether program components and activities were carried out as intended, whether the target audience was reached, and the degree to which the program achieved its intended goals. Furthermore, the evaluation will inform resource allocation, areas for improvement, and potential to implement on a broader scale.

Feasibility

It is important to consider the feasibility of the program. When considering feasibility, the program's stage of development needs to be considered as well[3]. Currently, the district-wide education program and a policy at the original high school has been implemented. Based on the program's stage of development and the following process and outcome evaluation questions, evaluation of the program is feasible.

Example Questions:

- Process Evaluation

  o Were program components implemented as planned?

  o Was the intended audience reached?

- Outcome Evaluation

  o Was there an increase in knowledge regarding infection control?

  o Does this program ensure timely reporting and action in the event of an infectious disease outbreak?

Step 4: Gathering Credible Evidence

The following table identifies indicators and methods to evaluate the program. Question 1 and 2 are potential process evaluation questions to assess whether the program was implemented as intended. To gather credible evidence, stakeholders involved in program operations should document program components that took place, as well as record attendance for those who attend the training modules.

Question 3 and 4 are potential outcome evaluation questions to assess the program's effectiveness. Question 3 is aimed towards program users. Correct answers from the pre- and post- training module test will be used to determine whether knowledge was gained. Question 4 measures the long-term effects of the program. To gather credible evidence for question 4, the stakeholders responsible for authorizing and expanding the program should determine what timely reporting looks like in practice and set measurable goals.

Table 3. Overview of Evaluation Methods

|	**Evaluation Question**	**Indicators**	**Methods**
Question 1	Were program components implemented as planned?	Program Inputs	Historical record keeping
			Document implemented program components

Question 2	Was the intended audience reached?	Program outputs	Historical record keeping
			Record informational session attendance
			Track online module participation
Question 3	Was there an increase in knowledge regarding infection control?	Short term outcome	Pre- and post- test
			Record number of correct answers before and after online training module completion
Question 4	Does the program ensure timely reporting and action in the event of an infectious disease outbreak?	Long term outcome	Benchmarking
			Define successful timely reporting and action
			Set measurable goals

Step 5: Justifying Conclusions

A series of online training modules was implemented to increase knowledge of proper protocols among coaches, nurses, and trainers. The LFCHD director and FCPS leadership collected data on correct answers before and after completing training modules from coaches, nurses, and trainers. With the results, the director and leadership created the following bar chart to display the data.

Figure 2. Mean Percent Correct Answers
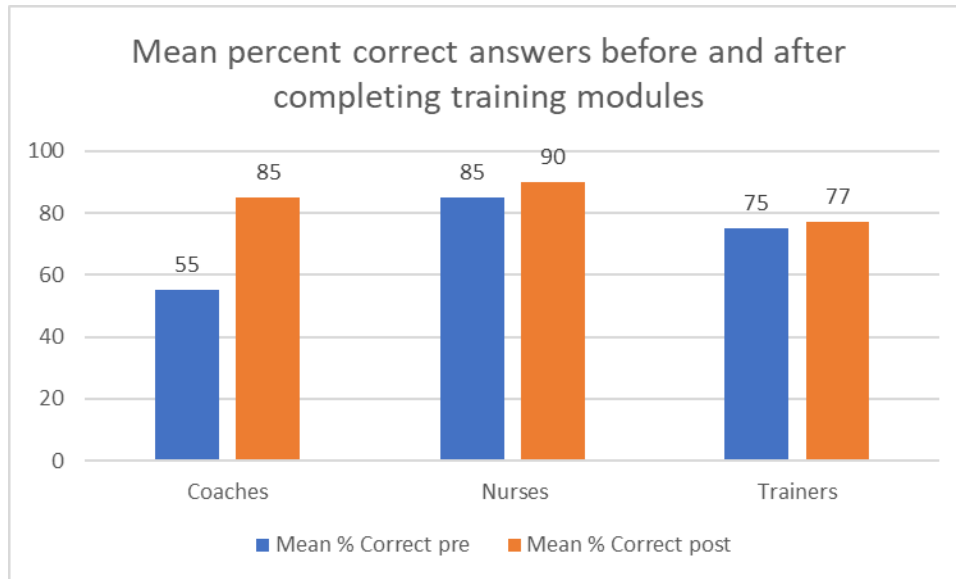
University of Kentucky College of Public Health (2024). Mean percent correct answers before and after completing training modules

Key Findings:

- All groups averaged more correct answers after completing online training modules
- Prior to completing the training modules, coaches averaged the lowest percent of correct answers.
- Trainers averaged the greatest percent of correct answers prior to completing the online trainings but averaged the least after completing the online training modules.
- Coaches showed the greatest increase in average of correct answers after completing the online training modules.

Based on key findings, the following recommendations have been made.

Recommendation 1: Adaptive Training Approach with Feedback Mechanisms

While all groups averaged more correct answers following the completion of the online training modules, all groups did not improve equally. This variation suggests, differences in the effectiveness of the online modules for different groups. An adaptive training approach with feedback mechanisms would allow users to receive a more targeted training experience that caters to their specific needs. This recommendation would also address the small increase in correct answers post completion of the online training modules for trainers.

Utility

The data show all groups averaged more correct answers following completion of the online training modules, however, it is important to consider different interpretations. Alternative interpretations could conclude that nurses do not need to complete the online training modules because they originally conducted the informational session with the football coaches, players, trainers, the athletic director, the principal, and the superintendent. Despite this interpretation, the data provide evidence that all groups averaged more correct answer post completion of the online training modules, suggesting nurses still benefit from completing the online training modules.

Feasibility

Implementing an adaptive training approach with feedback mechanisms would require further development of the online training modules. Specifically, it is advisable for the developers of the training modules to partner with IT specialist to incorporate feedback mechanisms and prompts to individualize the learning experience for the user.

Propriety

Based on the conclusion that not all groups benefit to the same degree from the online training modules, this recommendation has been made to promote equity. This conclusion is reflective of the average percent of correct answers for each group. The recommendation aims to develop tailored training modules and allow for feedback to better serve the individual completing the online training module.

Accuracy

The data support the conclusion that all groups averaged more correct answers post completion of online training modules than prior to completion. However, further investigation on background knowledge and differences in engagement could help to explain differences between groups and further inform future recommendations.

Recommendation 2: Needs Assessment and Tailored Training for Trainers

Trainers averaged the smallest increase after completing the online training modules. While they averaged a higher percent of correct answers the small increase suggests trainers have

existing knowledge of protocols. The needs assessment would use trainers' existing knowledge to develop tailored training modules for trainers. The tailored training would build off their existing knowledge and provide supplementary information

Utility

Trainers averaged the smallest increase in correct answers before and after completing the online training modules compared to coaches and nurses. Assumptions could be made that trainers have increased knowledge compared to nurses and coaches regarding infectious disease protocols and therefore not need to complete the online training modules. Despite this assumption, conducting a needs assessment and tailored training specifically for trainers would allow for continuous learning.

Feasibility

Conducting a needs assessment and develop tailored training modules for trainers would require additional resources. To minimize additional resources needed it would be advantageous for this recommendation to be trainer-led. Trainers could collaborate to identify areas where knowledge is lacking. From there, further collaboration with module developers and IT could aid in the development of a series of online training modules tailored to trainers.

Propriety

This recommendation has been made to benefit and better align with trainers' needs. Out of respect for trainers it is recommended for this to be trainer driven so that their needs are guiding the development of a tailored training series.

Accuracy

The data show a 2% increase in correct answer before and after completing the online training modules which justifies the conclusion that trainers averaged the smallest increase compared to nurses and coaches. Further examination of trainer-led initiatives and related literature could guide further recommendations.

Step 6: Ensuring Use and Sharing Lessons Learned

The evaluation process does not conclude with evaluation results[3]. Ultimately, program evaluations' purpose is to use evaluation findings to inform and improve programs[3]. It is important to strategically plan methods to communicate evaluation findings. Below is a list of potential methods to communicate the MRSA education program evaluation's findings.

Methods for Communicating the Evaluation Findings:

- Reports and Infographics

    Reports and infographics will be used to display evaluation results and data. The reports and infographics will highlight key messages and results. Reports and infographics will be available online and accessible to the public. The reports will be lengthier to summarize program findings while the infographics will be brief and use plain language.

- Trainers, Nurses, and Coaches Summit Meeting

    A summit meeting specifically for trainers, nurses, and coaches will be held following the evaluation to present evaluation findings and provide clear action for trainers, nurses, and coaches. The summit meeting will allow for trainers, nurses, and coaches to network and discuss how evaluation findings and recommendations apply in practice.

- LFCHD and FCPS Panel

    A panel with FCPS staff, co-conducted by the superintendent and LFCHD staff will serve as an in-person meeting for students, parents, and guardians to learn about the evaluation, evaluation findings, and further action. At the panel, stakeholders will be invited to ask questions and provide feedback. This panel will serve as an open forum for attendees to better understand the evaluation's findings and how they could be affected. This panel will be live streamed and recorded.

- Stakeholder Advisory Group Meeting

    The stakeholder advisory group serves as a trustworthy link between LFCHD and FCPS to strengthen relationships and partnerships between stakeholders. Together, the stakeholder advisory group will gather to discuss evaluation findings to determine their role for future initiatives.

Once methods for communicating evaluation findings are identified it is important to develop a plan specific to each stakeholder that highlights what, when, and how often to communicate. Listed below is a general plan to engage stakeholders.

Stakeholder Engagement Plan:

- LFCHD and FCPS Superintendent
  - The Lexington- Fayette County Health Department will be responsible for developing and updating the reports and infographics. The reports and infographics should be updated throughout the evaluation process.
  - The FCPS Superintendent will be responsible for sharing the updated reports and infographics. The reports and infographics should be posted online via the FCPS website for anyone to view.
  - Together, the FCPS Superintendent and LFCHD will host a panel meeting for football players, parents and guardians, and other stakeholders who are interested in attending or viewing. This panel will be hosted in-person once following the completion of the initial evaluation but will be available for viewing on the FCPS website.
- Football Players, Parents, and Guardians
  - Football players and their parents and guardians will be able to view the reports and infographics via the FCPS website anytime.
  - Football players and their parents and guardians will be invited to the live panel hosted by the LFCHD and the FCPS superintendent. The panel recording will be available on the FCPS website and available to view anytime following the in-person event.
- Athletic Trainers, Coaches, School Nurse Supervisor, and Nurses
  - Athletic trainers, coaches, the school nurse supervisor, and nurses will be able to view the reports and infographics via the FCPS website anytime.
  - Athletic trainers, coaches, the school nurse supervisor, and nurses will be invited to the live panel hosted by the LFCHD and the FCPS superintendent. The panel recording will be available of the FCPS website and available to view anytime following the in-person event.

- o Athletic trainers, coaches, the school nurse supervisor, and nurses will be invited to the in-person summit which will be held once annually following the evaluation.
- Stakeholder Advisory Group
  - o The stakeholder advisory group will be able to view the reports and infographics via the FCPS website anytime.
  - o The Stakeholder Advisory Group will be responsible for meeting a minimum of once a month following the initial evaluation. Meetings will be held via Zoom and meeting notes will be documented.
- Regional Health Departments
  - o Other health departments in surrounding counties and states will be able to view the reports and infographics on the FCPS website anytime

Table 4. Stakeholder Engagement Plan Specific to Each Stakeholder

Stakeholder	What	When	How Often
LFCHD	Reports and Infographics	Pre-, during, and post- evaluation	Weekly pre- and during evaluation Monthly post evaluation
	Panel	Post Evaluation	Once following evaluation completion
FCPS Superintendent	Reports and Infographics	Pre-, during, and post- evaluation	Weekly
	Panel	Post evaluation	Once following evaluation completion
Football Players	Reports and Infographics	Pre-, during, post- evaluation	Anytime

	Panel	Post Evaluation	Once following evaluation completion
Parents and Guardians	Reports and Infographics	Pre-, during, and post-evaluation	Anytime
	Panel	Post Evaluation	Once following evaluation completion
Athletic Trainers	Reports and Infographics	Pre-, during, and post- evaluation	Anytime
	Panel	Post Evaluation	Once following evaluation completion
	Summit	Post Evaluation	Annually
School Nurse Supervisor and Nurses	Reports and Infographics	Pre-, during, and post- evaluation	Anytime
	Panel	Post Evaluation	Once following evaluation completion
	Summit	Post Evaluation	Annually
Coaches	Reports and Infographics	Pre-, during, and post- evaluation	Anytime
	Panel	Post Evaluation	Once following evaluation completion
	Summit	Post Evaluation	Annually
Stakeholder Advisory Group	Meeting	After evaluation is complete	Monthly

	Reports and Infographics	Pre-, during, and post- evaluation	Anytime
Regional Health Departments	Reports and Infographics	Pre-, during, and post- evaluation	Anytime

Conclusion

      This evaluation plan for a MRSA education program provides a foundation for future action in sports-related infectious disease mitigation and prevention. Using the CDC's 6-step framework, the plan outlined an evaluation of a MRSA education program to ensure timely reporting and action in the event of an infectious disease outbreak. While this evaluation plan focuses on a football team, its utility could be expanded to other high contact sports such as wrestling or boxing. Based on the bar chart displaying mean percent correct answers pre- and post- completion of the online training modules, it would be insightful to include a baseline metric that defines a threshold value for correct answers. Including a baseline metric could guide recommendations that are more reflective of online training module data.

      Additionally, the recommendations outlined in Step 5 are resource heavy and could limit the sustainability and potential for expansion. Therefore, recommendations that minimize resources would help to promote sustainability and expansion. Such recommendations could include trainer-, nurse-, and coach- led initiatives. Moreover, at the policy level, this evaluation can guide the development of regulatory practices mandating infectious disease mitigation training modules for all school employees whether at the local, state, or federal level, to address potential resistance and ensure compliance.

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