



Evaluation of Health Programs: A Postgraduate Overview Course

Module 6 Syllabus: Evaluating Results

December 2018



Evaluation of Health Programs: A Postgraduate Overview Course

Module 6 Syllabus: Evaluating Results

December 2018

MEASURE Evaluation

University of North Carolina at Chapel Hill
123 West Franklin Street Building C, Suite 330
Chapel Hill, North Carolina, USA 27516
Phone: +1 919-445-9350
measure@unc.edu
www.measureevaluation.org

This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of MEASURE Evaluation cooperative agreement AID-OAA-L-14-00004. MEASURE Evaluation is implemented by the Carolina Population Center, University of North Carolina at Chapel Hill in partnership with ICF International; John Snow, Inc.; Management Sciences for Health; Palladium; and Tulane University. Views expressed are not necessarily those of USAID or the United States government. MS-18-149G



Suggested citation: GEMNet-Health. (2018). Evaluation of Health Programs: A Postgraduate Overview Course – Module 6 Syllabus: Evaluating Results. Chapel Hill, NC, USA: MEASURE Evaluation, University of North Carolina.

Cover image adapted from: Odilon Redon. Flower Clouds, 1903. Licensed under a Creative Commons Zero (CC0) license by The Art Institute of Chicago.

MODULE 6 SYLLABUS

Module duration: 10 Hours

Background

As part of an effort to strengthen postgraduate education on evaluation of health programs, the Global Evaluation and Monitoring Network for Health¹ (GEMNet-Health) and MEASURE Evaluation have embarked on developing competency-based curriculum materials for a master's degree level, overview course on evaluation.

In 2016, GEMNet-Health developed core competencies for a 60-hour master's level overview course on evaluation. Subsequently, considering the need for additional materials to support the core competencies, GEMNet-Health began developing a set of modular curriculum materials that correspond to these core competencies

Each module is designed to function both as a part of the larger course but also as a stand-alone module that can be incorporated into other courses, workshops, or other trainings. Each module includes a syllabus with competencies, topics and learning objectives specific to that module, session plans, PowerPoint presentations, case studies, and additional resources.

Competencies Covered

- Select appropriate quantitative and qualitative method(s) for evaluating program results
- Recognize common challenges in evaluating results such as confounding, bias, selection, and statistical power
- Interpret and discuss results
- Critically review evaluation results
- Discuss practical constraints in interpreting evaluation results

It is important to note that the competencies listed under each module are unlikely to be fully addressed by one module. Each module may only cover some aspects of a given competency, and the set of modules taken together would be needed to cover the competencies fully.

Competencies 1, 2, and 3 (*select appropriate quantitative and qualitative method(s) for evaluating program results; recognize common challenges in evaluating results such as confounding, bias, selection, and statistical power; and interpret and discuss results*) are only covered by this module—module 6. Competency 5 (*discuss practical constraints in evaluation research: List the key considerations in planning an evaluation and describe strategies for navigating these challenges*) is also covered by sessions 1, 4, 5, 7, and 8. Competency 4 (*critically review evaluation results*) is covered by sessions 4, 5, and 7. Therefore, not all content related to these competencies is included in this session alone and additional content would be required for mastery.

¹ GEMNet-Health is a global network of public health institutions whose purpose is to foster organizational growth, collaboration, and mutual support for monitoring and evaluation (M&E) of health programs globally through linkages among members. For more information, visit <https://www.measureevaluation.org/resources/networks/gemnet-health>.

Learning Objectives

At the end of this module, students will be able to:

- a) Identify data sources to analyze program performance and track program outcomes
- b) Illustrate the use of qualitative and quantitative data to assess program performance
- c) Track program results and compare actual performance versus goals

Module Sessions

- Session 1. Developing Monitoring and Evaluation Plans
- Session 2A. Tracking Results/Changes
- Session 2B. Appraising Results

SESSION 1. DEVELOPING MONITORING AND EVALUATION PLANS (3 HOURS)

Session Learning Objectives

- Describe the functions of a M&E plan
- Identify the main components of a M&E Plan
- Describe the process of developing an M&E plan

Topics Covered

- Introduction to M&E plans
 - Definition
 - Function
 - Standards
- Components of an M&E plan
 - Introduction
 - Program description
 - M&E framework
 - Indicators (brief reference to indicators here, and more detail in Session 2A)
 - Data sources, collection, and reporting systems
 - Plans for data use and dissemination
 - Capacity needs for implementation
 - Analysis of constraints and potential solutions
 - Plans for demonstrating program impact
 - Mechanism for plan updates
- Integrated practice developing an M&E plan

Teaching Methods

- Facilitator PowerPoint presentation (1.5 hours)
- Groupwork and discussion (1.5 hours)

Readings and Resources

- Huse, I., James C. McDavid, J.C., Hawthorn, R.L. (2006). Program Evaluation and Performance Measurement: An Introduction to Practice. London, England, United Kingdom: SAGE Publications Ltd.
- Poister, T.H. Performance Measurement, Monitoring Program Outcomes. In: Wholey, J.S., Hatry, H.P., Newcomer, K.E. (eds.). (2010). Handbook of Practical Program Evaluation. Third edition. Pp. 100-124. San Francisco, CA, USA: John Wiley & Sons, Inc.

- Stein, D., Valters, C. (2012). Understanding Theory of Change in International Development. London, England, United Kingdom: The Justice and Security Research Programme.
- Bertrand J., Magnani, R., & Rutenberg, N. (1996). Evaluating Family Planning Programs with Adaptations for reproductive Health. Chapel Hill, North Carolina, USA: The EVALUATION Project, MEASURE Evaluation.
- Bertrand, J., Solis, M. (2000). Evaluating HIV/AIDS Prevention Projects – A Manual for Nongovernmental Organizations. Chapel Hill, North Carolina, USA: MEASURE Evaluation.
- Rossi, P., Freeman, H., & Lipsey, M. (2004). Evaluation: A Systematic Approach. Seventh edition. Thousand Oaks, California, USA: Sage Publications, Inc.
- Frankel, N., Gage, A. (2007). M&E Fundamentals: A Self-Guided Minicourse. Retrieved from <https://www.measureevaluation.org/resources/publications/ms-07-20-en>
- UNAIDS. (2010). Strategic Guidance for Evaluating HIV Prevention Programmes. Retrieved from http://www.unaids.org/en/media/unaids/contentassets/documents/document/2010/12_7_MERG_Guidance_Evaluating%20HIV_PreventionProgrammes.pdf

Useful Websites

- MEASURE Evaluation: <https://www.measureevaluation.org/resources/publications> and <https://www.measureevaluation.org/resources/training>
- Measuring Success Toolkit: <https://www.k4health.org/toolkits/measuring-success>
This toolkit provides guidance on how to use data to plan a health program and to measure its success through M&E. It also offers links to important M&E-related resources.
- 3ie: <http://www.3ieimpact.org/>
- M&E at the World Bank: <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/EXTISPMA/0,,menuPK:384336~pagePK:149018~piPK:149093~theSitePK:384329,00.html>

Materials Needed

- PowerPoint Presentation
- Flipcharts, markers, etc., for group work
- Handouts for group work activities and instructions
- Handout “Assessing How Well the Evaluation Plan Works”
- Case studies

Table 6.1. Session 1 plan

Time	Title and description	Methods
15 minutes	Introduction to M&E plans: <ul style="list-style-type: none"> • Definition • Function • Standards • Components 	<ul style="list-style-type: none"> • PowerPoint presentation
1 hour	Components 1–4 of an M&E plan: <ul style="list-style-type: none"> • Introduction • Program description <ul style="list-style-type: none"> ▪ Activity 1. Developing SMART objectives (30 minutes) • M&E framework • Indicators 	<ul style="list-style-type: none"> • PowerPoint presentation • Group work: Activity 1
45 minutes	Component 5 of an M&E plan: <ul style="list-style-type: none"> • Data sources, collection, and reporting systems <ul style="list-style-type: none"> ▪ Activity 2. Identifying data sources (30 minutes) 	<ul style="list-style-type: none"> • PowerPoint presentation • Group work: Activity 2
60 minutes	Components 6–10 of an M&E plan <ul style="list-style-type: none"> • Plans for data use and dissemination • Capacity needs for implementation • Analysis of constraints and potential solutions • Plans for demonstrating program impact • Mechanism for plan updates <ul style="list-style-type: none"> ▪ Activity 3. Updating M&E plans (15 minutes) 	<ul style="list-style-type: none"> • PowerPoint presentation • Group work: Activity 3

Session Activities

Activity 1. Developing SMART objectives (30 minutes)

- Class will split into preformed case study groups and draft 3–5 specific measurable achievable relevant time-oriented (SMART) objectives for the program in support of the program goal
- Groups will have 10–20 minutes to work. Then, each group will present 1–2 SMART objectives to the class
- Class should discuss whether the objectives are SMART and provide constructive feedback to improve the objective if it is not SMART

Activity 2. Identifying data sources (30 minutes)

- Class will split into groups and *identify the potential data sources for the following two programs*:
 - **Program A** is an NGO-run reproductive health (RH)/maternal and child health (MCH) program operating in three districts in a country. The program aims to improve use of MCH services such as immunization, antenatal care (ANC), and family planning use in the districts in which it works. It provides training to staff in MOH clinics in the districts to improve the quality of services provided. Private-sector health services are limited in the program areas, so most people use government-sector services. The program also undertakes community mobilization through community health workers and local radio spots to promote use of services. The program wishes to use some of the M&E plan data for ongoing program

management and will be required to report to its donor annually on its performance, as well as at the end of the project on its overall results.

- **Program B** is a national AIDS-prevention program. The program includes a mass media campaign on the ABCs (abstinence, being faithful, and correct and consistent condom use) aimed at reducing risk behaviours in the general population, the initiation of a prevention of mother-to-child transmission (PMTCT) program and the expansion of its voluntary counseling and testing (VCT) program. The PMTCT and VCT program activities include training of health workers to provide quality VCT and PMTCT services, strengthening logistic systems to provide reliable supplies of HIV test kits to PMTCT and VCT sites as well as ARVs to PMTCT sites, opening new sites to increase the physical accessibility of these services to the population, and community mobilization to use VCT and PMTCT services through local media and community-based activities in areas where sites are located. In addition, new data-collection forms will be added to the routine health information system (RHIS) for PMTCT and VCT sites to collect service statistics on the new services, and sites will receive regular supervisory visits during their first few years of operation. The program wishes to use the M&E plan data for ongoing program management and annual reporting, as well as to fulfil relevant United Nations General Assembly Special Session (UNGASS) and donor-reporting requirements.

Activity 3. Updating M&E plans (15 minutes)

- Two options:
 - Ask participants to note changes that may take place within and outside the parameters of the case study program and how it may affect their M&E plan
 - Alternatively, provide a different scenario for the case study for each group and ask them to describe how it may affect the M&E plan

SESSION 2A. TRACKING RESULTS/CHANGES (3.5 HOURS)

Session Learning Objectives

- Understand the process of implementing an M&E plan
- Identify challenges with implementing an M&E plan
- Understand how to use qualitative and quantitative data to assess program performance

Topics Covered

- Definition: What is meant by tracking program results
- Importance of tracking program results
- Key steps in tracking program results
- Selecting and evaluating key performance indicators to monitor outcomes
- Developing a data collection plan
- Data analysis
- Identify common challenges in evaluating results
- Interpreting results
- Dissemination plan
- Quantitative and qualitative methods
- Cost of implementing M&E plan
- Challenges with implementing an M&E plan

References and Resources

- Centers for Disease Control and Prevention. (2009). Developing Process Evaluation Questions. *Evaluation Briefs*, no. 4. Retrieved from: www.cdc.gov/healthyouth/evaluation/pdf/brief4.pdf
- Family Health International. (2004). Monitoring HIV/AIDS Programs, A Facilitator's Training Guide: Core Module 3: Developing a Monitoring and Evaluation Work Plan. Arlington, Virginia, USA: Family Health International. Retrieved from: <http://www.fhi360.org/sites/default/files/media/documents/Monitoring%20HIV-AIDS%20Programs%20%28Facilitator%29%20-%20Module%203.pdf>
- Kusek, J.Z., Rist, R.C. (2004). Ten steps to a results-based monitoring and evaluation system : a handbook for development practitioners. Washington, DC, USA: World Bank. Retrieved from: https://www.oecd.org/dac/peer-reviews/World%20bank%202004%2010_Steps_to_a_Results_Based_ME_System.pdf
- Gertler, P.J., Martinez, S., Premand, P., Rawlings, L.B., Vermeersch, C.M. (2016). Impact Evaluation in Practice, Second Edition. Washington, DC, USA: Inter-American Development Bank and World Bank. Retrieved from: <http://www.worldbank.org/en/programs/sief-trust-fund/publication/impact-evaluation-in-practice>
- Rogers, P.J. (2012). Introduction to Impact Evaluation. *Impact Evaluation Notes*, March 2012, No. 1. Retrieved from: <https://www.interaction.org/resources/training/guidance-note-1-introduction-impact-evaluation>

- World Health Organization. (2009). Monitoring and Evaluation of Health Systems Strengthening. An operational framework. Geneva, Switzerland: WHO.
- MEASURE Evaluation. Workshop materials from-GEMNet-Health Regional Workshop on Impact Evaluation of Population, Health and Nutrition Programs. Retrieved from: <https://www.measureevaluation.org/resources/training/capacity-building-resources/workshop-on-impact-evaluation-of-population-health-and-nutrition-programs/workshop-on-impact-evaluation-of-population-health-and-nutrition-programs-landing-page>

Useful Websites

- MEASURE Evaluation: <https://www.measureevaluation.org/resources/publications> and <https://www.measureevaluation.org/resources/training>
- Measuring Success Toolkit: Using Data for Health Program Planning, Monitoring <https://www.k4health.org/toolkits/measuring-success>

This toolkit provides guidance on how to use data to plan a health program and to measure its success through M&E. It also offers links to important M&E-related resources.

- World Bank: Development Impact Evaluation Initiative: <http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDEVIMPEVAINI/0,,menuPK:3998281~pagePK:64168427~piPK:64168435~theSitePK:3998212,00.html>
- M&E at the World Bank: <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/EXTISPMA/0,,menuPK:384336~pagePK:149018~piPK:149093~theSitePK:384329,00.html>
- Independent Evaluation Group at the WB: <http://ieg.worldbankgroup.org>
- DFID: <http://www.dfid.gov.uk/Global-Issues/Research-and-evidence/>

Teaching Methods

- Facilitator Presentation via PowerPoint,
- Discussion
- Small group activities
- Group work—based on the case study (to be introduced in Module 1 and referenced throughout the other modules)

Materials Needed

- PowerPoint Presentation
- Handouts for group activities
- Flipcharts, markers, etc., for group work

Table 6.2. Session 2A plan

Time	Title and description	Methods
30 minutes	<ul style="list-style-type: none"> • Definition: What is meant by tracking program results • Importance of tracking program results • Key steps in tracking program results 	<ul style="list-style-type: none"> • PowerPoint presentation • Discussion
45 minutes	<ul style="list-style-type: none"> • Selecting and evaluating key performance indicators to monitor outcomes 	<ul style="list-style-type: none"> • PowerPoint presentation • Discussion • Group activities (1–3)
105 minutes	<ul style="list-style-type: none"> • Developing a data collection plan • Data analysis • Interpreting results • Challenges in evaluating results • Qualitative and quantitative methods 	<ul style="list-style-type: none"> • PowerPoint presentation • Discussion • Group activity 4
30 minutes	<ul style="list-style-type: none"> • Cost of implementing M&E plan • Challenges with implementing an M&E plan 	<ul style="list-style-type: none"> • PowerPoint presentation • Discussion

Session Activities

Activity 1. Characteristics of indicators – validity

- Class discussion with the following questions:
 - Is parasitemia a valid measure of morbidity?
 - Is fever a valid measure for malaria?
 - Is parasite testing a valid measure for parasite prevalence?
 - Is the number of people reached by behavior change communication (BCC) campaigns a valid measure of malaria knowledge?

Activity 2. Characteristics of indicators – measurable

- Class discussion with the question, “are the following indicators measurable?”
 - Number of insecticide-treated mosquito nets (ITNs) distributed
 - Compliance to antimalarial treatment
 - Anemia
 - Parasitemia

Activity 3. Characteristics of indicators – programmatically important

- Class discussion with the question, “are the following indicators programmatically important?”
 - Example 1. ITN distribution program. Indicator: # of ITNs distributed in past quarter
 - Example 2. Program to increase access to ACTs through community-based health workers. Indicator: Number of ACT sales points with antimalarial drugs

Activity 4. Developing a data collection plan

- Using the case study, groups should develop a data collection matrix to evaluation control and management of Japanese Encephalitis(JE) outbreak, considering the following questions:
 - Who will be responsible for data collection and its supervision?
 - Who will be responsible for ensuring data quality at each stage?
 - How will data quality be checked at every stage?
 - How often will the data be collected, compiled, sent, and analyzed?
 - What indicators will be derived from each data source?
 - How will the data be sent (raw, summary)?
 - What tools/forms will be used, if any?
 - What resources (staff, office supplies, computers, transportation) will be needed at each stage?
 - Who will analyze the data? How often will analysis occur?
 - How often will the results be compiled into reports?
 - To whom and how often will the results be disseminated?

SESSION 2B: APPRAISING RESULTS (4.0 HOURS)

Session Learning Objectives

- Define appraisal/assessment/evaluation
- Identify different types evaluation designs/frameworks for designing evaluations
- Identify standards for good evaluations
- Practice appraisal of a program's performance

Topics Covered

1. Assessment, appraisal, and evaluation: what do they mean?
2. Standards for good evaluations – 3ie and CDC frameworks for designing evaluations
3. Choosing an evaluation design
4. Presenting a case study for discussion
5. Appraisal of the case study

Additional Readings

- Department of Environment and Conservation (NSW). (2004). Does Your Project Make a Difference: A Guide to Evaluating Environmental Education Projects and Programs. See: List of further terms and definitions, pp. 3–6 of at <https://www.environment.nsw.gov.au/resources/community/projecteval04110.pdf>
- Weiss, C.H. (1998). Evaluation: Methods for Studying Programs and Policies, 2nd Edition. Upper Saddle River, New Jersey, USA: Prentice Hall. (refer to Chapter 1)
- Rossi, P.H., Lipsey, M.W., Freeman, H.E. (2004). Evaluation: A Systematic Approach, 7th Edition. Thousand Oaks, CA, USA: Sage Publications. (refer to Chapter 1)
- Multiple resources on evaluation are available at: <http://gsociology.icaap.org/methods/>
- The updated USAID evaluation policy is available at: <https://www.usaid.gov/sites/default/files/documents/1870/USAIDEvaluationPolicy.pdf>

Useful Websites

- 3ie: http://www.3ieimpact.org/media/filer_public/2015/12/02/evaluation-proposal-form_VLwYBxo.pdf
- Centers for Disease Control and Prevention: <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr4811a1.htm>

Teaching Methods

- Presentations (1, 2, 3, 4, 5);
- Classroom discussion (3);
- Classroom reading/discussion (5);
- Group discussion/group work (7)

Materials Needed

- PowerPoint presentations
- Handouts: Case study, group work instructions
- Flipcharts, markers, etc., for group work

Table 6.3. Session 2B plan

Time	Title and description	Methods
20 minutes	<ul style="list-style-type: none"> Assessment, appraisal and evaluation: What do they mean? 	<ul style="list-style-type: none"> PowerPoint presentation
45 minutes	<ul style="list-style-type: none"> Frameworks for designing evaluations <ul style="list-style-type: none"> 3ie Centers for Disease Control and Prevention (CDC) 	<ul style="list-style-type: none"> PowerPoint presentation Classroom discussion
45 minutes	<ul style="list-style-type: none"> Choosing an evaluation design 	<ul style="list-style-type: none"> PowerPoint presentation
40 minutes	<ul style="list-style-type: none"> Discussion: “Whither the Impact Evaluation?” 	<ul style="list-style-type: none"> Activity 1: Classroom reading and discussion
90 minutes	<ul style="list-style-type: none"> Appraisal of the case study example 	<ul style="list-style-type: none"> Activity 12 : Group discussion/group work

Session Activities

Activity 1. Classroom reading activity: “Whither the Impact Evaluation?”

- Read the article by authors Heidi Reynolds and Siân Curtis on the MEASURE Evaluation website, available at <https://www.measureevaluation.org/news/whither-the-impact-evaluation>
- What are your conclusions?
 - Potential discussion points (adapted from work by Stacey Gage, Tulane University/MEASURE Evaluation):
 - Complex evaluation designs are most costly, but allow for greater confidence in a study's findings
 - Complex evaluation designs are more difficult to implement, and so require higher levels of expertise in sampling, research methods, and statistical analysis
 - Be prepared to encounter stakeholder resistance to the use of comparison or control groups, such as an individual wondering why his/her area will not receive a potentially beneficial intervention
 - No evaluation design is immune to problems; there is a long list of possible complications associated with any evaluation study

Activity 2. Case study/group work: Interpreting and reviewing evaluation results

Note to facilitators:

- This case study will assist teachers to summarize essential elements of the course.
- The case study assumes that students are familiar with the basic elements in the control of infectious diseases.
- The case study assumes that students are familiar with the “Framework for Program Evaluation in Public Health,” drafted by the CDC.
- The case study is set within the context of a low-middle-income country in Asia. However, its context can be assumed to be similar among other developing countries in the world.
- The case study is expected to be completed within the 120–150 minutes allocated for the session.

Instructions for Facilitators in Using the Case Study for Teaching

1. This case study is comprised of five parts (sections). Each part provides a write-up followed by questions. Please note that there are no questions after the write-up of Section 5. Share the case study along with the “instructions for students.”
2. The students are expected to work in groups of three to five students per group for this case study.
3. This case study is expected to stimulate discussion within the groups. Groups may need additional resources to support group work; such as flip charts, white boards, etc.
4. You will be required to provide a print out of each part of the case study on separate sheets of paper to the groups.
5. Groups are expected to read the write-up of each part before answering the questions provided with the write-up.
6. Although sufficient information about the condition (Japanese encephalitis) is provided for the groups to answer the question, additional resources about the disease are available, including:
 - a. World Health Organization (WHO): <http://www.who.int/news-room/fact-sheets/detail/japanese-encephalitis>
 - b. National Vector Borne Disease Control Program, India: <http://www.nvbdc.gov.in/index1.php?lang=1&level=1&sublinkid=5773&lid=3693>
 - c. Control of Communicable Diseases Manual (20th Edition) by David Heymann
7. The evaluation of the case study can include either of the following:
 - a. A brief seven minute group presentation summarizing the responses. This is expected to be completed within the time-limit set for the module.
 - b. Additionally, if the facilitator so decides, the responses can be submitted as written answers to the questions included in the case study.
8. There are no fixed/correct answers to the questions. Responses are expected to stimulate student thinking and help them to summarize their knowledge and understanding of evaluation.

Instructions to Students

1. This case study will assist you to summarize essential elements of the course. It requires some familiarity with the basic elements in the control of infectious diseases, in the developing country context.
2. This case study assumes you are familiar with the “Framework for Program Evaluation in Public Health” drafted by the CDC.
3. The case study is expected to be completed within the 120–150 minutes allocated for the session.
4. This case study is comprised of five parts (sections). Each part provides a write-up followed by questions. Please note that there are no questions after the write-up of Section 5.
5. The facilitators will allocate you within groups. Work with the group members to read the case study and answer the questions listed with each section.
6. You will be provided a print out of each part of the case study on separate sheets of paper.
7. Although sufficient information about the condition (Japanese encephalitis) is provided for the groups to answer the question, additional resources about the disease are available at:
 - a. WHO: <http://www.who.int/news-room/fact-sheets/detail/japanese-encephalitis/>
 - b. National Vector Borne Disease Control Program, India: <http://www.nvbdc.gov.in/index1.php?lang=1&level=1&sublinkid=5773&lid=3693>

MODULE 6 CASE STUDY: INTERPRETING AND REVIEWING EVALUATION RESULTS

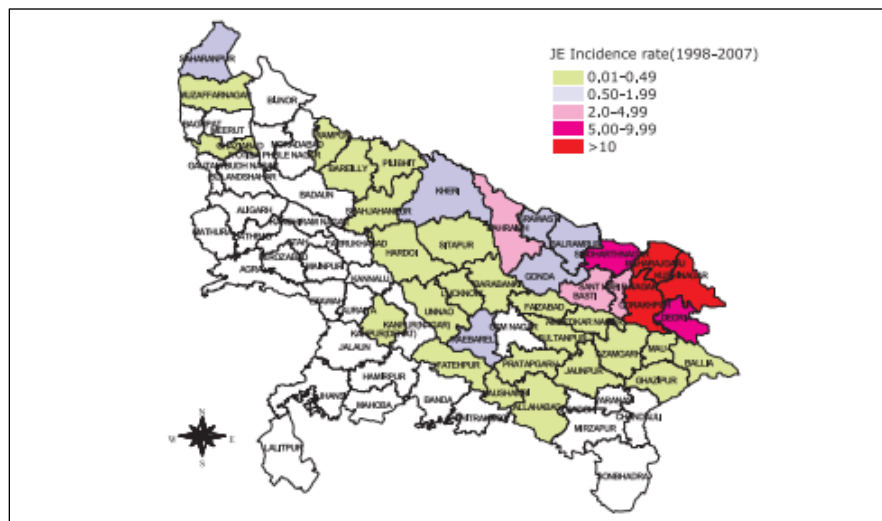
Part 1. Overview of an Infectious Disease Outbreak in the State of Uttar Pradesh, India

Instructions

Read this section and answer the questions before reading part 2

Background

Gorakhpur and adjoining districts of Uttar Pradesh (UP), which border Nepal in the foothills of the Himalayas, are low-lying and prone to floods. This is a paddy growing area, with clay soil and a high water table, thereby providing a breeding ground for mosquitoes which commonly transmit the Japanese encephalitis (JE) virus. These districts, belonging to two divisions of eastern UP, Gorakhpur and Basti, are at the highest risk of JE infection.



In 2005, there was a massive virulent outbreak of JE in eastern Uttar Pradesh. This was the longest and most severe epidemic in three decades—since 1978, when 6,000 persons were affected in seven districts of eastern Uttar Pradesh and 1,500 persons died,¹ mostly children. Of these, 997 cases and 263 deaths were reported from Gorakhpur district alone.² Heavy rains saturated the ground in 2005, which caused ideal breeding conditions for the mosquitoes that transmit the virus from pigs to humans. In addition, high temperatures and relative humidity provided a suitable environment for JE virus transmission. At the time, the only laboratory and treatment facilities available were at Baba Raghav Das (BRD) medical college, Gorakhpur; King George medical college, Lucknow (now Shahu Maharaj Medical University); and Sanjay Gandhi Post Graduate Institute, Lucknow.

Q.1. Who should be on the outbreak team? In your opinion, what is the role of the state and district administration in strengthening the implementation strategies for prevention and control of JE?

Part 2. Response of District Administration and the Health System

Instructions

Read this section and answer the questions before proceeding to part 3.

The district health team and the district administration came together to control the outbreak with the following objectives:

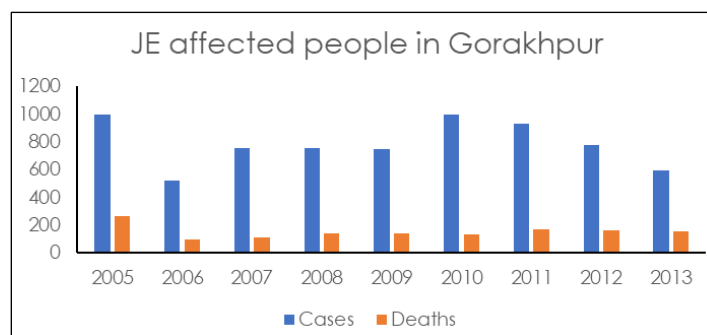
- Management of the cases in the healthcare facilities
- Source reduction: vector control (mosquitoes)
- Vaccination of children between 1 and 15 years of age (mass campaigns), followed by integration of vaccine in routine immunization (RI) for the new cohorts
- Risk communication
- Strengthening surveillance of JE cases



Specific strategies: Following the outbreak of 2005, there was serious concern among the district and state level authorities for controlling it. Vector control measures, such as spraying of insecticides, alone were not proving to be successful in controlling the outbreak. Clinical case management became the mainstay of treatment, albeit with limited facilities. To combat this problem, in 2006, prior to the advent of the next seasonal outbreak of JE, the Government of India, with assistance from an international organization, Programme for Appropriate Technology in Health (PATH), decided to conduct mass JE vaccination campaigns in the highest-risk districts for children between 1 and 15 years of age with a single dose of the SA-14-

14-2 vaccine. This was later integrated into the routine immunization program for the new cohort of children, and was to be administered at 16–24 months of age. The focus of the outbreak control was on clinical case management and mass vaccination.

Although JE vaccination campaigns continued in Gorakhpur and adjoining high-risk districts in a phased manner during the period between 2006 and 2010, JE cases and deaths continued to occur,² thus prompting the government to undertake more stringent measures (see graph below).



Q.2. Which stakeholders would be the most important for engaging in the control of the outbreak?

Q. 3. Who would be stakeholders if we eventually have to evaluate this control program? Would this list of stakeholders be similar? Or different? Why?

Part 3. Immediate Response of District Administration and the Health System

Instructions

Read this section and answer the questions before proceeding to part 4.

In Eastern UP, at the onset of fever most people living in rural areas traditionally first sought treatment from traditional healers or untrained individuals. As the condition of the case worsened in 2–3 days, the family members rushed the patients to BRD Medical College, Gorakhpur. The patient was brought directly to the medical college, without seeking treatment at the primary or secondary health care facilities. The government had opened up a 100-bed JE epidemic ward at the medical college, hence around 90% of JE cases preferred seeking treatment there because they felt that it had better facilities to treat JE patients as compared to the primary and secondary health care facilities. Also, shortage of staff at the lower level facilities was a challenge.

The main cause of high mortality among the JE cases in the district was the prolonged time taken to transport the patient over long distances without proper basic supportive medical care (i.e., first aid/oxygenation). For a case of JE, it is important to receive first aid within 30 minutes. Lack of access to health care services in a timely manner, inadequate clinical infrastructure, and non-availability of trained staff are major contributors for high case fatality rates. Prompted by this, the Government of UP developed innovative ideas for early referral and prompt treatment of JE cases to prevent mortality.³

Alongside the mass vaccination campaigns, there was research being conducted on the safety and efficacy of the JE vaccine. Due to low coverage in routine immunization, the Government of India introduced another dose of JE vaccine between 9–12 months of age.

Q.4. Using the description given above, describe the JE control program under the following subheads:

- a) Statement of need
- b) Expected effects
- c) Activities and resources
- d) Context

Q.5. Identify and list a few key performance indicators for such a program. What are any special indicator measurement challenges/issues?

Part 4. Response of District Administration and the Health System

Instructions

Read this section and answer the questions before proceeding to part 5.

Subsequently, in 2013 an expert group, convened by the Government of Uttar Pradesh, decided to further strengthen strategies to control the recurrent JE outbreaks. Thus, a thorough gap analysis was done, following which 104 primary healthcare centres (PHCs) and community healthcare centres (CHCs) across the seven districts of Gorakhpur and Basti divisions were upgraded as encephalitis treatment centres (ETCs) for clinical care management of the JE cases, with the aim to reduce mortality and disability. The two principles on which this model worked were early oxygenation and quick transportation to the nearest healthcare facility, and within a timespan of not more than 30 minutes (the most crucial time to save a child's life from JE). These ETCs were equipped with the necessary facilities, including infrastructure, human resources, equipment, and logistics. Additionally, ten fully equipped ICUs were established and seven district laboratories were upgraded.

Since quick transportation was the key to saving the lives of those affected with JE, linkages were established with the existing free 108/102 ambulance services to transport suspected JE patients to the ETCs within the minimum time. To this effect, the ambulance drivers (called “pilots”) and the paramedical workers within the ambulances were thoroughly trained. The state administration mandated quick transport of a JE patient in these ambulances, with trained personnel, to the nearest PHC/CHC. If, for some reason, the ambulance was not available at the time and the patient was brought to the healthcare facility in a private vehicle, a recommendation was given to get the parents reimbursed through the funds available with the Gram Pradhan.

Several rounds of skill-building trainings were also conducted around this time for the grassroots-level healthcare workers (accredited social health activists [ASHAs], auxiliary nurse midwives [ANMs], and Anganwadi workers [AWWs]), laboratory technicians, staff nurses, medical officers, so that each healthcare staff member’s role in the management of JE was very clear. The ASHAs and ANMs who visit the households in the villages were trained to carry out first aid management of JE cases, with the designated symptoms, and arrange for their transfer to the nearest healthcare facility.

Realizing the gravity of the problem of JE in the country, a group of Ministers (GoM) was constituted in 2011 by the Government of India envisaging a multi-pronged strategy encompassing preventive (sanitation, safe drinking water, improvement in nutrition, etc.), case management (capacity building of medical and para-medical staff, referral, etc.), and rehabilitation (physical and social rehabilitation of disabled children) measures to address the problems relating to JE. On the recommendations of the GoM, the Government of India approved the National Programme for Prevention & Control of JE.

Media sensitization workshops were conducted for media carrying responsible and positive stories. Crisis communication and management workshops were conducted to train the program managers of the administrative and health departments. Laboratories at the PHCs/CHCs, as well as at district hospitals, were upgraded with the necessary equipment and reagents for testing for JE.

What Did the Program Do Differently?

- Upgradation of 104 PHCs and CHCs to ETCs for timely management of JE cases
- Reinforcement of key awareness messages for prevention and control of JE through various modes of IEC
- Increasing the dosage schedule of the SA-14-14-2 vaccine from single to two doses for better coverage
- Improvement in the treatment facilities for JE, not only at the district hospital, but also at the PHCs and CHCs for timely management
- Since children between 1 and 15 years were being vaccinated, an age shift was observed in the JE cases and deaths, thereby prompting the Government of India to launch adult campaigns in high-risk districts, including UP. Adult JE vaccination campaigns were carried out in November–December 2015 in six districts of UP.

Q6: Based on the write-up of the activities above, do you think the program will be effective? Please give reasons to support your opinion.

Q7: What “evidence” would be ideal in these circumstances to convince you about the effectiveness of the program results? Which research design will you choose for gathering this evidence?

Q8: Who should conduct this evaluation? Why?

Part 5. Consequences of the Interventions

Instructions

This section does not have any questions

Later in April/May 2015, an external evaluation was conducted to assess the impact of the implemented strategies. It was found that there was a 28% decrease in the number of JE cases and deaths from 2014 to 2015. This positive result motivated the administration and the healthcare system to further promote the prevention and control measures for JE.

It was realized that while vaccination and clinical case management were good prevention and control strategies, a more holistic approach was required. The district commissioner worked with the health workforce, and other departments such as water and sanitation, education, public health engineering, and women and child departments, to spread awareness about JE, including the breeding and biting habits of the mosquito, the role of contaminated water and the importance of sanitation, modes of transmission of the disease, early recognition of danger signs, home-based first aid care, and preventive measures for JE, etc. Community sensitization sessions (using materials such as animation film (<https://www.youtube.com/watch?v=1yNuSg2Yff4>), flip books, *Sebat Sandesh Vahini*, rallies, hoardings, wall paintings, etc.) were held at the district level, including Gorakhpur.

Consequences of the Interventions

The fear of losing their children to the disease, and the safety and efficacy of the vaccine prompted almost 99.97% of the children between 1–15 years being vaccinated across UP during the first campaign in 2006.^{4,5} Subsequently, there were more campaigns and also the introduction of an integrated approach to control the disease. It has been observed that there is a positive response from the community as a result of intensive awareness campaigns, with increasingly more people coming forward to gain additional information about the disease, as well as following the instructions of the district administration and the health staff in getting their children to the ETCs as quick as possible. The state and district administrations monitor the program initiatives regularly by conducting frequent review meetings and monitoring the functionality of the ETCs, as well as the other healthcare facilities. These intensive initiatives prompted the Rural Development Department to provide safe drinking water through the use of India Mark II hand-pumps. Panchayati Raj department has constructed over 470,000 toilets; and animal husbandry department training piggery holders for netting, cleanliness, and use of insecticides around the piggeries.

It is now hypothesized that Acute Encephalitis Syndrome (AES) as a syndrome can be caused by other organisms as well. Three studies conducted by medical colleges (Sanjay Gandhi Post Graduate Institute [SGPGI], King George's Medical University [KGMU], and Baba Raghav Das [BRD] Medical College, Gorakhpur) have shown that 50–60% of samples tested positive for rickettsia. Samples collected from rats in Eastern UP have shown the presence of Scrub Typhus. Research is being conducted to investigate the other causes of AES, apart from JE.

References

1. Ministry of Health and Family Welfare, Govt. of India. (2014). National Programme for Prevention and Control of Japanese Encephalitis/Acute Encephalitis Syndrome – Operational Guidelines. 2014. Retrieved from: [www.nvbdc.gov.in/Doc/JE-AES-Prevention-Control\(NPPCJA\).pdf](http://www.nvbdc.gov.in/Doc/JE-AES-Prevention-Control(NPPCJA).pdf)
2. Ahirrao, K.D., Kumar, S., Magare, S.R. (2014). Epidemiology of acute encephalitis syndrome/Japanese Encephalitis a mosquito-borne disease in Gorakhpur district. *Scholarly Research Journal for Interdisciplinary studies*, Sept–Oct 2014; 2/14: 2072–2080.
3. Government of Uttar Pradesh. (2014). Expert Group Recommendation on Clinical care management of AES. April 2014.
4. PATH. (2007). Protecting India's Children from Japanese Encephalitis. New Delhi, India: PATH. Retrieved from: <https://www.path.org/resources/protecting-indias-children-from-japanese-encephalitis/>

MEASURE Evaluation

University of North Carolina at Chapel Hill
123 West Franklin Street Building C, Suite 330
Chapel Hill, North Carolina, USA 27516
Phone: +1 919-445-9350
measure@unc.edu
www.measureevaluation.org

This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of MEASURE Evaluation cooperative agreement AID-OAA-L-14-00004. MEASURE Evaluation is implemented by the Carolina Population Center, University of North Carolina at Chapel Hill in partnership with ICF International; John Snow, Inc.; Management Sciences for Health; Palladium; and Tulane University. Views expressed are not necessarily those of USAID or the United States government. MS-18-149G

