Supplementary appendix

Supplement to: Hoy D, Durand AM, Hancock T, Cash HL, Hardie K, Paterson B, et al. Health data for decision-making in the Pacific: lessons learnt from a three-year pilot phase of a modified field epidemiology training programme. Western Pac Surveill Response J. 2017 May;8(2). doi:10.5365/wpsar.2016.7.4.005.

Appendix I

The Programme courses

Introduction to Epidemiology and Field Epidemiology: This course aimed to develop a sound understanding of the basic concepts and the general principles of field epidemiology. Some of the learning outcomes included being able to describe and calculate basic measurements in epidemiology and demography, describe various sources of data and their limitations, undertake data cleaning and basic descriptive analysis in Excel and communicate the results of data analysis. The information product was a presentation that students delivered to the class summarizing the methods and results of their own data analysis.

***Public Health Surveillance*:** This course aimed to develop an understanding of the importance of public health surveillance and the basic principles for conducting and evaluating surveillance. Some of the learning outcomes included being able to describe the purpose, uses and types of public health surveillance; interpret surveillance data; describe the attributes of a good surveillance system; evaluate and map the existing surveillance system for communicable diseases (CDs) or noncommunicable diseases (NCDs); explain ways of improving this surveillance system; develop and implement a disease surveillance system improvement plan; and practice communicating the results of data analysis to a variety of audiences.

***Outbreak Investigations*:** This course aimed to develop a sound understanding of the importance of carrying out outbreak investigations and the steps/principles in outbreak investigation. Some of the learning outcomes included being able to explain why outbreaks occur, describe types of outbreaks and investigation scenarios, describe how to determine if an outbreak exists, outline and execute the steps of an outbreak investigation, identify and draw different types of epidemic curves and discuss the causes and sources of outbreak, outline the control or management and prevention of epidemics and write a situation report of the outbreak investigation.

Computing for Public Health Practice: This course aimed to equip participants with knowledge of, and competency in, operational skills, such as entering and analysing data for public health practice. Some of the learning outcomes included being able to use Epi Info software (*1*) to design a questionnaire, collect data, perform data entry and analysis; describe and interpret results including relevant tests of significance; and describe, calculate and interpret the measures of association.

Field Epidemiology Project: This course is an independent field epidemiology project. Students were required to submit a written report to apply the principles learnt through the Data for Decision-Making (DDM) courses, gain practical experience in carrying out public health surveillance and maximize utilization of surveillance data.

Appendix II

Evaluation

An evaluation was conducted at each course delivery. An example of the evaluation form, which was used for the Outbreak Investigations course, is shown below. The evaluation form for other courses consisted of the same or similar questions as this example.

Participant evaluation

Overall course

How would you rate the usefulness of the overall course to your current job? (Select one) (Tick box)

Not useful	Limited usefulness	Useful	Very useful	Highly useful
□	□	□	□	□

How difficult did you find the course? (Select one) (Tick box)

Extremely difficult	Difficult	Easy	Very easy	Too easy
□	□	□	□	□

Excel

How would you rate your Excel skills **before** the course? (Select one) (Tick box)

Didn't know how to use Excel	Some knowledge	Reasonable knowledge	Good knowledge	Excellent knowledge
□	□	□	□	□

How would you rate your Excel skills **after** the course? (Select one) (Tick box)

Didn't know how to use Excel	Some knowledge	Reasonable knowledge	Good knowledge	Excellent knowledge
□	□	□	□	□

What were the key things that you learnt in Excel that you will you use in your workplace?

Syndromic surveillance

How would you rate your understanding of syndromic surveillance **before** the course? (Select one) (Tick box)

Didn't know about syndromic surveillance	Some knowledge	Reasonable knowledge	Good knowledge	Excellent knowledge
□	□	□	□	□

How would you rate your understanding of syndromic surveillance **after** the course? (Select one) (Tick box)

Didn't know about syndromic surveillance	Some knowledge	Reasonable knowledge	Good knowledge	Excellent knowledge
□	□	□	□	□

What were the key things that you learnt about syndromic surveillance that you will you use in your workplace?

Outbreak investigations

How would you rate your knowledge of outbreak investigations **before** the course? (Select one) (Tick box)

Didn't know how to investigate outbreaks	Some knowledge	Reasonable knowledge	Good knowledge	Excellent knowledge
□	□	□	□	□

How would you rate your knowledge of outbreak investigations **after** the course? (Select one) (Tick box)

Didn't know how to investigate outbreaks	Some knowledge	Reasonable knowledge	Good knowledge	Excellent knowledge
□	□	□	□	□

What were the key things that you learnt about outbreak investigations that you will you use in your workplace?
Is there anything that was covered during the course that you are still unsure about?
What did you like most about the course?
How can we improve the course?

THANK YOU FOR YOUR TIME!

Qualitative findings

The revised programme was very well received by students and many Pacific health leaders. The course evaluations revealed that students felt they improved across nearly all competency areas. The majority of students rated the training as either "very" or "highly" useful. Most students found the courses to have the right degree of challenge, although some students felt the Computing for Public Health Practice course was too difficult.

Positive student feedback included:

- learning practical skills important for their work in public health;
- the great value of interactive training methods to transfer knowledge and skills in a simple, yet effective way;
- interest in accessing further training through this Programme;
- the benefit of networking with colleagues from their own country or from other countries in the region.

As a direct result of one of the courses, one country decided to create and fill the position of a Surveillance Officer for the first time.

The potential for academic accreditation of the programme was considered extremely important by many of the students. The possibility of earning a formal qualification at the end of the programme provided a significant incentive for students; many health leaders reported never having seen such high levels of participation and engagement at previous workshops. Facilitators were impressed with the after-hours work that students undertook during the courses. They also noted that the relevance of the modified programme to the students' current public health situations and systems greatly increased the level of student interest. Additionally, one of the benefits of the programme was the level of collaboration between Pacific Public Health Surveillance Network partner agencies. The programme provided an avenue for promoting a harmonised approach to strengthening epidemiological skills in the Pacific.

Facilitators felt that the high ratio of facilitators to students had important benefits, including:

- greater engagement of students and improved relationships between external partners and the Pacific;
- focused facilitation of group activities with substantial time for one on one work with students and supporting them to develop their products; and
- improved relationships and harmonization between external partner agencies.

The fact that the programme included Pacific facilitators was also considered important for ensuring sustainability. The focus on strengthening core public health functions and integrating CDs and NCDs in the Programme was considered important. Facilitators agreed that the main reasons for the high level of student engagement were the potential for accreditation by the Fiji National University (FNU), the relevance of the programme to students' work within their health systems with possible immediate benefits and the intensive facilitator support.

As the pilot phase progressed, facilitators increasingly promoted the use of standardized information products. These were refined through the input of the numerous course facilitators as well as the participants. Templates for NCD annual profile dashboards, one-page outbreak situation reports, routine communicable disease surveillance reports and one-page posters for the presentation of data analysis projects were all developed. The availability of these templates made the courses easier to teach and reinforced the importance of packaging health information graphically, succinctly and with an explicit target audience in mind. As a result of the pilot programme, anecdotal evidence suggests these information products are now in routine use by participants in some health departments across the region.

Appendix III

Logistical aspects

Funding restrictions and requirements usually determined where each course workshop was held. A web-based Google Drive series of folders allowed storage of the curriculum and related materials for organizing and delivering the courses. All partners had access to these folders. This assisted in ensuring control of updated versions. Regular teleconferences were held with all partners to ensure the collaboration stayed active, engaged and well informed. A standard approach to branding and acknowledgements was agreed upon. The logos of all partners who had been involved in the development or delivery of a particular course were included in the branding of any materials related to the course workshop. As many external partners collaborated on curriculum development and review, the group agreed that the intellectual property belongs to no single organization, institution, agency or person. However, if the curricula were to be used for any alternative purpose than the DDM, the developers of the material(s) should be informed before use and properly acknowledged.

Delivering each DDM course required a large amount of logistical work, including arranging the venue, ensuring supplies and handouts were available, arranging for travel and lodging of participants, organizing facilitators from multiple technical assistance agencies and locations, working with participants and their supervisors in advance of each course to assure that they came prepared with appropriate data and other information from their home agencies, registering participants for FNU admission and enrolment of each course, performing formal student assessments and assembling assessment documentation for FNU. While these functions were largely provided by faculty from participating agencies during the pilot testing phase, sustainability will require a dedicated administrative unit to support DDM delivery.

Appendix IV

Standardised consultations with health department ministers and other leaders

The purpose of these consultations are to identify the most appropriate Programme candidates; select health information system projects and resulting products that can be well integrated into, and have an immediate impact on the particular health systems; determine data sets to utilize during training; and discuss an undertaking that would involve immediate work supervisors and senior leaders allocating adequate time for participants to work on the project in the course of their routine duties, and ensure the results of projects were used to inform public health actions, plans and policies. This consultation also allows discussion about the career structure and opportunities for graduates of the Programme. The product of the consultation is a signed Letter of Agreement with the health department ministers responsible for identifying these elements and delineating the roles and responsibilities of all parties. Leaders are asked to attend opening and closing days of the classroom-based courses and receive feedback on student progress between courses.

References

1. US Centers for Disease Control and Prevention. Epi Info. Atlanta: US Centers for Disease Control and Prevention; 2016 (https://www.cdc.gov/epiinfo/index.html).