Data for Decision Making 803: Outbreak Detection & Response[1]

Report of course delivery: Pohnpei- December 14-18, 2015

Report Submitted by: A Mark Durand, Pacific Islands Health Officers Association

Location and Dates: College of Micronesia-FSM and Pohnpei State Hospital- Dec. 14-18, 2015

Course Facilitators: Mark Durand (PIHOA), Sameer Gopalani (WHO), Mindy Sugiyama (PIHOA), Eliaser Johnson (Pohnpei DHS), Tebuka Toatu (SPC)

[1] Financial Support for this DDM803 pilot course provided by the PIHOA and the FSM Department of Health & Social Affairs. In kind support provided by College of Micronesia-FSM Area Health Education Center, WHO, SPC, Pohnpei Department of Health Services, and the Western Region Public Health Training Center

Course Background:

The DDM-SHIP Program:

DDM-803 is one of five courses in the Data for Decision Making (DDM) program. The DDM program is a product of the Pacific Public Health Surveillance Network (PPHSN). The program originated as a set of outbreak epidemiology and response workshops created by the US Centers for Disease Control and Prevention. In the Pacific, it is accredited by Fiji National University College of Medicine, Nursing, and Health Sciences, and was first delivered in the region in 2008-9, by PPHSN partner agencies, including FNU, WHO, SPC, and PIHOA. Students who pass all 5 courses are awarded a post-graduate certificate in applied epidemiology from FNU. The program curriculum has recently been revised to broaden its scope beyond outbreak-prone diseases. It now provides a general package of instruction suitable for building general data literacy and epidemiology skills at the Epidemiology Technician level.[2] Each of the revised courses was pilot tested (and further needed adjustments made) between August 2013 and October, 2015. In addition to a wider scope, the revision put DDM into a longer continuum of applied epidemiology training and practice called Pacific SHIP (Strengthening Health Interventions in the Pacific) which has also been under development by PPHSN. SHIP is comprised of the DDM program, plus a triad of operational research courses, plus three additional in-depth applied epidemiology projects in candidates' home jurisdictions. Selected Epidemiology Technicians who graduate from DDM will go on to achieve masters degrees in applied epidemiology through the remainder of the SHIP program. In addition to building knowledge and skills of health agency staff, the SHIP program, including DDM, is designed to upgrade the surveillance and health information systems within participants' health agencies. Projects designed to improve the surveillance and health information systems are a part of each course. DDM-SHIP activities are a response to numerous resolutions by health leaders in the Pacific, calling for strengthening of surveillance and health information systems.[3]

In-Country DDM Delivery in the Federated States of Micronesia:

At the 56th PIHOA Board meeting in Honolulu, Hawaii, Acting FSM Secretary of Health Arthy Nena, together with Director Liv Taulung, Paulino Rosario, and Julio Marar of the Kosrae, Pohnpei and Chuuk State Departments of Health, requested for the PIHOA Secretariat to

[2] Epidemiology technicians should be able to gather data with attention to maintaining its quality, to operate well-designed surveillance systems, to perform straightforward data analysis, and to present and explain routine reports and analysis results. They are not expected to design surveillance systems or to analyze complex data sets.

coordinate delivery of the DDM program in the FSM at each FSM State. This is the first time that DDM has been delivered in a concerted way within a single country. The purpose of this project is to produce a "critical mass" of Epi Technicians in the National and each of the State Departments of Health, and to strengthen priority components of disease surveillance and routine health information systems throughout the FSM. To date, planning workshops have been conducted in Pohnpei, Yap, and Kosrae, to identify suitable Epi Technician candidates and agree upon needed projects. Specific expectations are outlined in formal Memoranda of Agreement. The program will be delivered in partnership between PIHOA, the National and State Departments of Health, and with other technical assistance partners. DDM will be conducted over the coming year throughout the FSM, starting with the course reported herein. Upon completion of DDM delivery in the FSM, an evaluation of the program's impact on the health workforce and health information systems will be performed, with reference to the MOAs. The schedule of courses for delivery in Pohnpei is as follows:

DDM803 (Outbreak Detection & Response) December 14-18, 2015

DDM802 (Public Health Surveillance) February 15-19, 2016

DDM801 (Introduction to Epidemiology & Data Analysis) April 11-15, 2016

DDM805 (Intermediate Epidemiology & Data Analysis) June 6-10, 2016

DDM7114 (Applied Epi Project) longitudinal project mentored by distance: Feb-June, 2015

DDM-803 in Pohnpei:

DDM-803 provides an overview of classic epidemiology principles as applied to disease outbreaks. The course includes an introduction to surveillance systems, an overview of the International Health Regulations, hands-on training in use of Excel for processing data, and use of the PPHSN's Pacific Outbreak Manual as a tool for managing disease outbreaks. Hands-on work included data set cleaning and analysis of several data sets, and the use of a standardized situation report (SitRep) template for rapid reporting of outbreaks. Didactic sessions comprised 40% of the course with hands-on project activities 60% (see course learning objectives and agenda, **Annex A**). The high instructor to participant ratio allowed intensive 1:1 coaching for the hands-on sessions. Course facilitators met for debriefing every evening after class sessions to adjust course sessions based on student observations and feedback.

Student performance was measured against course learning objectives through an end of course written examination (50% of course grade) and through student projects which were measured against a grading rubric (50% of course grade).

Participant evaluation of the workshop was conducted through an anonymous survey which was administered at the beginning and end of the course.

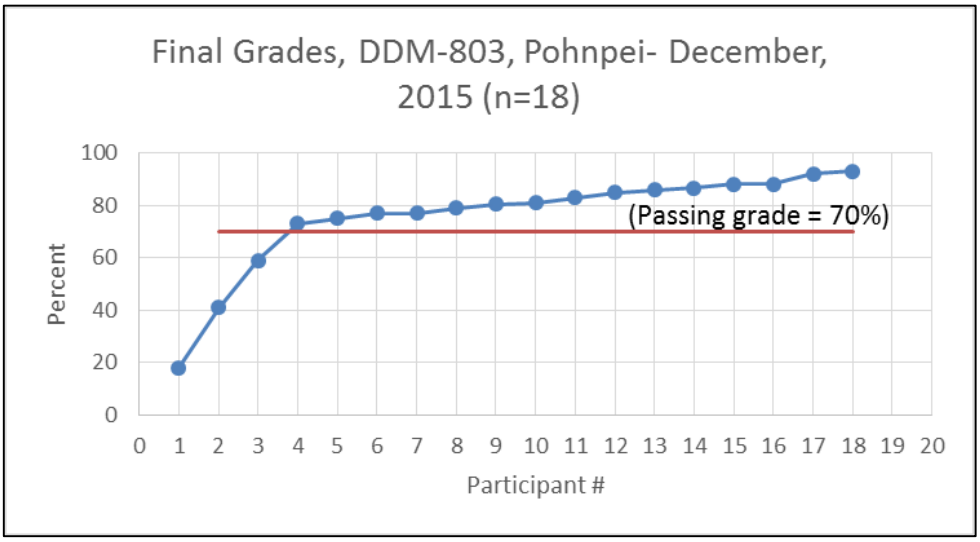
Results:

Nineteen participants took the course (see Annex B). Two dropped out and two did not complete the required Situation Report poster presentation.

Overall course grades were a composite of scores for written exams (50% of final grade) and poster presentations (50% of final grades)

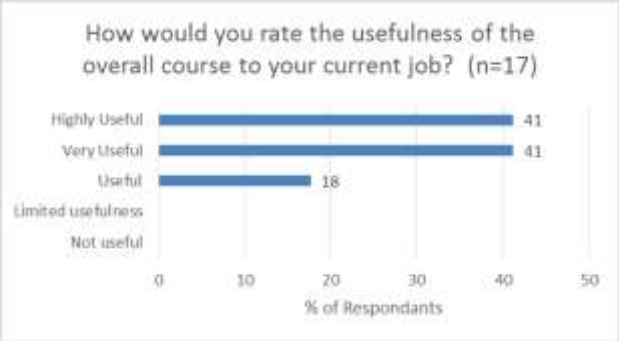
Score breakdown is as follows, with graphical presentation below:

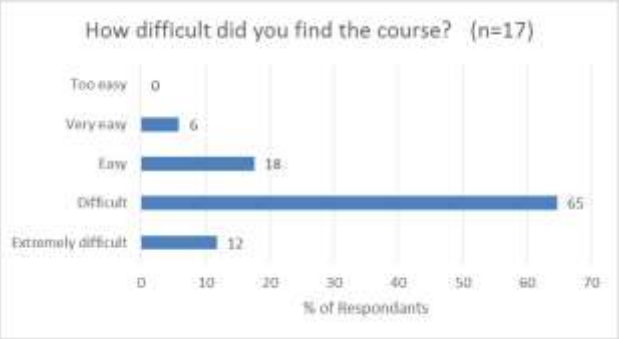
- Overall composite course scores ranged from 18 to 93 with mean of 76 (100 possible points). At a cutoff of 70%, only 14 of the 27 students passed the course.
- Written exam scores ranged from 18 to 45 with mean of 37.9 (50 possible points).
- Poster presentation scores ranged from 34 to 50 with mean 42 among the 16 who completed the assignment. (out of 50 possible points)

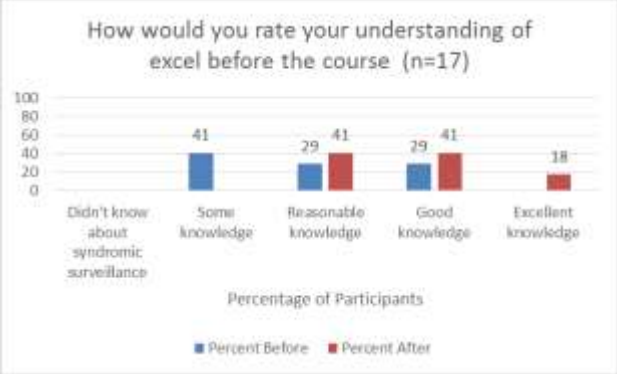


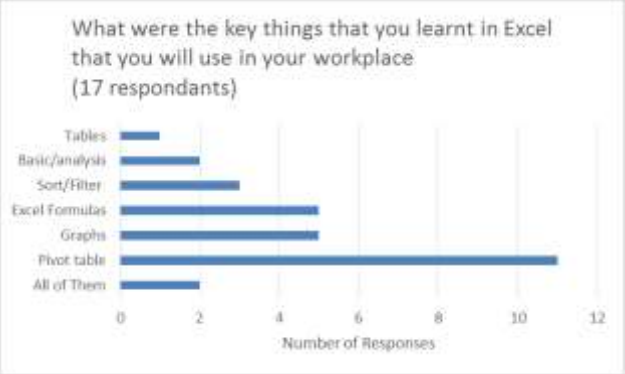
Course Evaluation Results:

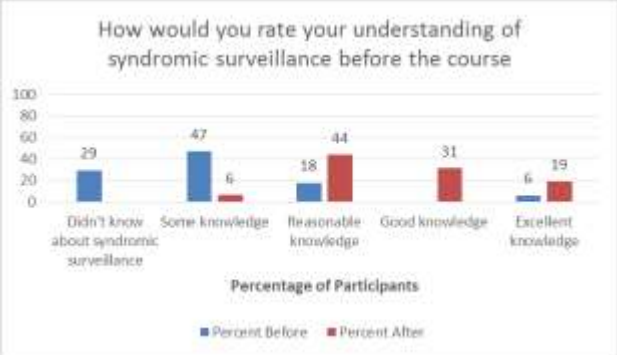
Seventeen participants completed evaluations. Detailed results are shown in the graphs below. Most rated the course as very or highly useful to their current jobs, and most considered the material to be difficult (but not very difficult). Self-rated knowledge of surveillance, outbreak investigation and response and use of Excel, all improved substantially.











Narrative responses of participants taken from post-course evaluation forms:

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

Event based surveillance

That you don't need to depend on lab tests and diagnosis fully, but that you can just use the signs and symptoms
I leant a lot from this course, the graphs, tables, and all those will help me with my data collection
Surveillance systems that exist plus their services offered
Safety measures, different cases of outbreaks diseases do case definition, roles & responsibilities of the epinet team
Use the sitrep during outbreaks
Very much applicable in workplaces
Four core syndromes
How to put together the syndromic report by data
Surveillance (monitor and evaluation) will be better
The importance of data collection, analysis & interpretation & dissemination
Steps on mapping how cases need to treated and reported
Most of the information will be useful
The actual process of outbreak investigation; roles of the team; unsure if it'll help in my work but knowledge does help in understanding the system
Learn the protocol of surveillance from state to national reports
It geared your staff to be on the alert & continue monitoring and evaluation

What were the key things that you learned about outbreak investigations that you will use in your workplace?

Response and control measures
That you don’t just rush into things but to make sure that everything is done step-by-step
Steps of investigating an outbreak; the essential parts of SitReps
Case detection, prevention, case management and contact management
Learn to use the Pacific Outbreak Manual
Response measures to specific diseases
How to identify the cause of an outbreak
How to organize an investigation; how my role fits into the overall process of planning, investigation, and field work; communicating data in easy-to-understand ways
Step by step approach; SitReps
Roles of team members. Process of outbreak investigation
Standard precautions and symptoms for core diseases
Understand the steps and use the manual on a daily basis
How to make a line list and gather information
It geared up staff to be on the alert and continue monitoring

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

I now know the basics of Excel
How to filter my line list, use the pivot table; I am so happy and excited
Pivot table; (10 participants)

Develop basic tables
How to create databases and analysis
Creating Epi Curves, cleaning data, summarizing Environmental Health data in simple, understandable way
Filtering data
Sorting data, inserting graphs
Designing graphs
Using ID value sum function

Is the anything in the course that you are still unsure about?

More on the chain of transmission
Need more understanding of the surveillance system map
Specifics of the types of control measures
The SitRep
Lab, and confirming hypotheses by using symptoms
Excel, I learn a lot but would like to learn and practice more
Just need more practice
Need more work on manual SitRep
How to complete charts, graphs in Excel
Just want to learn more

What did you like most about the course?

The Excel practice
The fact that it was taught in a way that is not boring and I paid attention all through the week
All the Consultants were so helpful and nice, so I love everything that was covered in the course
Investigating outbreaks
Learning and gaining knowledge of PPHSN
The SitRep
The group interactions and discussions
The Mystery Cases
Everything. Learned a lot
Organizing response to an outbreak; planning to end. Using outbreak data to prepare SitRep
Surveillance steps
The presentations
Hands-on
Creating SitReps and cleaning the data
I learned new things and it was challenging
Analyzing data, by place, time, person, and clinical features with tables and graphs
Knowing some basics of outbreak investigations and the challenges of these tasks in the real world

How can we improve the course?

More days added to the training so we can have better understanding
I think too loaded for one day. No presentation on exam day
None, I think
More time
Time period is too short
Please be prepared. While learning a new concept please do not use mysterious outbreaks. It confuses us
The Powerpoint presentations
More exercise in doing urgency assessment of different cases and different illnesses
Just extend the time for 2 weeks. More practice on scenarios
It would be better if we have more number of days
Everyone need to sign their name in the sigh-in sheet for accountability

---

Discussion and Next Steps:

This has been the first course activity in an ambitious project to produce epi technicians and surveillance/health information system improvement in the FSM through the DDM program.

The project got off to a good start overall. Most participants were able to devote their time throughout the week to the course without distraction. The level of engagement was very good and the participants worked hard.

In preparation for the next course, Public Health Surveillance, to be held in February, a discussion was held on the last day to firm up concepts for the independent applied epidemiology projects which will be launched at the February PH Surveillance course and span the remainder of the program to June. (Annex C). There are two participants from FSM DHSA who are still considering what their projects will be for the DDM program.

Exit interviews were held with Acting Secretary Arthy Nena, and Moses Pretrick, who will direct the new FSM DHSA division that includes planning and data. Participants' results with DDM803 were reviewed and selection of applied epi projects for each participant was confirmed. They would both like two new FSM DHSA participants, Alynn Lambert of EH, and Siocy Soaz, of the data unit, to join the DDM program starting with the next course. Acting Secretary Nena also requests for work to be done to unify the surveillance SOPs of participating PH programs so that each program has a clear set of core indicators, with most recent data added on an ongoing basis, to allow reports to be updated easily at any time. The idea is similar to updating of a line list linked to a SitRep template. Working out how to do this might be the DDM project for Siocy Soaz.

Exit interview was also held with Dr Eliaser Johnson, the PDHS Director of Public Health, who also confirmed support for the projects assigned to the PDHS participants. He is not sure what

happened to a couple of participants who originally were scheduled to take the course but did not show up.

Course materials are being uploaded to the Facilitators' DDM Google Drive folder. Materials were also shared with Dr Ikoli Ilongo of COM-FSM, who is interested to adapt some of this material to courses offered at the college. Dr Ilongo also sat in on most of the course sessions.

It was very helpful having assistance from facilitate from several agencies with this course, both to allow for a high level of one-on-one instruction, and also to help put the course material into context with the work that the various facilitators are doing within the FSM DHSA and PDHS.

Next Steps:

1. Firm up applied epidemiology projects for those who don't yet have them: Alynn Lambert, Siocy Soaz, Carter Apaisam, Augustine Sue.
2. Verify whether PDHS nominees who did not show for this course (Gerlynne and Nancy) will enroll in the remainder of the program
3. Sameer Gopalani will work with one DDM803 candidate who is incomplete for this course.
4. Implement remainder of program as already planned.

Annex A: Course Learning Objectives

1. Be aware of (and link in with) important networks for surveillance in the Pacific (e.g., PPHSN) and the services they provide.
2. List the reasons that health agencies investigate reported outbreaks.
3. Explain "Why do epidemics/outbreaks occur?" and "why investigate outbreaks?"
4. List the conditions that present as outbreaks in the Pacific region, perhaps by countries.
5. Define the terms cluster, outbreak, epidemic, endemic, hyperendemic, pandemic, sporadic.
6. Describe types of outbreaks and investigation scenarios.
7. Given the initial information of a possible disease outbreak, describe how to determine whether an epidemic exists.
8. Outline the steps involved in an investigation of outbreak/epidemic.
9. Define and calculate attack rates.
10. Write a case definition, refine it and state the effect of increasing or decreasing the elements of case definition and identify the population at risk i.e. realise at which stage in the outbreak to use sensitive or specific case definitions.
11. State what a line listing is and what it is used for?
12. Given information about a community outbreak of disease, execute the initial steps of an investigation and develop biologically plausible hypotheses by analysing time/place and person characteristics of the epidemic.
13. Identify and draw different types of epidemic curves and discuss the sources of outbreak.
14. Decide when to investigate further
15. Outline the control or management and prevention of epidemics, including use of the Pacific Outbreak Manual as a reference.
16. Write a report of the outbreak/epidemic investigation and list the categories of person's that need to be communicated with during an outbreak investigation.
17. Understand the principles of risk communication.
18. Write a PacNet message that includes the appropriate information.
19. Present an overview of surveillance and outbreak investigation.

Annex B: Course Agenda

DDM 803 Outbreak Detection & Response- Pohnpei, December 14 to 18, 2015

SCHEDULE	ACTIVITY	TIME	BREAKCHING METHOD
Day 1- Monday, December 14			
8.00am	Registration, (i) Opening prayer; (ii) Opening address	30	Secy Nena, Director Rosario
8.30am	1-Pre workshop expectations	15	Group work-Durand
8.45am	2- Course background (PPHSN, EpiNet Breakms and SHIP feasibility study and continuum) and overview	30	Facilitator-led plenary (participatory)-Durand
9.15am	*MORNING BREAK*	15	
10.00am	3-Introduction to Disease Surveillance and IHR	60	Facilitator-led plenary (participatory)-Gopalani
11.00am	4- Mass-gathering and event based surveillance	60	Facilitator-led plenary (participatory)-Johnson
12.00pm	*LUNCH*	60	
1.00pm	5- National Syndromic Surveillance/EBS and response: Mapping of the process of SS in your country (including surveillance and response)	120	Group work-Goplani/Johnson
3.00pm	*AFTERNOON BREAK*	15	
3.15pm	5- National Syndromic Surveillance/EBS and response: Mapping of the process of SS in your country (including surveillance and response): Identify process problems	75	Group work-Goplani/Johnson
4.30pm	Daily summary/wrap up	30	Facilitator-led plenary (participatory)-Sugiyama
5.00pm	Adjourn		Facilitators debrief
Day 2- Tuesday, December 15			
8.15am	Recap from yesterday	15	Group work-Participant
8.30am	6- Introduction to infectious disease epidemiology	60	Facilitator-led plenary (participatory)-Durand
9.30am	7- Descriptive epidemiology	60	Individual work-Johnson
10.30am	*MORNING BREAK*	15	
10.45am	8- Descriptive Epidemiology exercise - manual sit rep	45	Facilitator-led plenary (participatory)-Durand <Descriptive Epi Exercise Hndt>
11.30am	9-Displaying data	60	Gopalani
12.30pm	*LUNCH*	60	
1.30pm	10- Excel cafe: Data cleaning, presentation and analysis	120	Group work-Sugiyama <Excel Café Exercise Overview Hndt>
3.30pm	*AFTERNOON BREAK*	15	
3.45pm	10- Excel cafe: Data presentation and analysis (Con't)	60	Group work-Sugiyama
4.45pm	Daily summary/wrap up	15	Facilitator-led plenary (participatory)-Sugiyama
5.00pm	Adjourn		Facilitators debrief
Day 3- Wednesday, December 16			
8.00am	Recap from yesterday	15	Group work-Participant
8.15am	11- Steps in an outbreak investigation	60	Facilitator-led plenary (participatory)Gopalani
9.15am	11- Outbreak investigation: mystery outbreak introduction	60	Facilitator-led plenary (participatory)-Durand <Mystery Outbreak Instructions Hndt>

10.15am	*MORNING BREAK*	15	
10.30am	11- Outbreak investigation: mystery outbreak (continued)	120	Individual work-Durand
12.30pm	*LUNCH*	60	
1.30pm	11- Outbreak investigation: mystery outbreak (continued)	120	Individual work-Durand
3.30pm	*AFTERNOON BREAK*	15	
3.45pm	11- Outbreak investigation: mystery outbreak wrap-up	60	Facilitator-led plenary (participatory)-Durand
4.45pm	Daily summary/wrap up	15	Facilitator-led plenary (participatory)-Sugiyama
5.00pm	Adjourn		Facilitators debrief
Day 4- Thursday, December 17			
8.00am	Recap from yesterday	15	Group work
8.15am	12- Outbreak response and control: introduction	60	Facilitator-led plenary (participatory)-Durand
9.15am	13- Outbreak: investigation, response and control case study 1	60	Participant-led plenary (participatory)-Durand
10.15am	*MORNING BREAK*	15	
10.30am	13- Outbreak: investigation, response and control case study 2	60	Participant-led plenary (participatory)-Durand
11.30am	14- Risk communication during outbreaks	60	Facilitator-led plenary (participatory)-Sugiyama
12.30pm	*LUNCH*	60	
1.30pm	15- Introduction to Microbiology	60	Facilitator-led plenary (participatory)Toatu/Barrow
2.30pm	16- Laboratory testing methods and laboratory's role in public health surveillance	60	Facilitator-led plenary (participatory)Toatu/Barrow
3.30pm	*AFTERNOON BREAK*	15	
3.45pm	Presentation of situation reports	75	Participant-led plenary (participatory)Sugiyama
5.00pm	Adjourn		Facilitators debrief
Day 5- Friday, December 18			
8.00am	Recap from yesterday	15	Group work-Participant
8.15am	Exam preparation	120	Individual work
10.15am	*MORNING BREAK*	15	
10.30am	Exam	90	Facilitator-led plenary (participatory)-Gopalani
12.00pm	*LUNCH*	60	
1.00pm	National Syndromic Surveillance/EBS and Response: Review maps and summarise problems for improvement projects	60	Participant-led plenary (participatory)-Johnson
2:00pm	Overview of next DDM-Public Health Surveillance and Discussion of Applied Epi Projects (DDM5)		Facilitator-led plenary (participatory)-Durand
4.00pm	*AFTERNOON BREAK*	15	
4.15pm	Evaluation of the workshop	15	Sugiyama
4.30pm	Workshop wrap-up and closure	30	Facilitator-led plenary (participatory) -Durand
5.00pm	Adjourn		Facilitators debrief

Annex C: DDM5 Projects*

Name:	Position	Proposed DDM7114 Project
PDHS		
Pamela Etger	SPIF Data Officer	System for capturing alcohol-related police data
Artina George	SPIF Coordinator	Annual report of alcohol related health impact
Stephanie Kapriel	Hansen Dis Coord	Patient Tracking System SOPs for elimination of Leprosy
Wefonne Billen	Hearing Screen Coor	Develop Tracking System for newborn hearing screening
Pertina Albert	Cancer Coord	Compact Indicators- SOPs and Annual Performance Profile for PDHS
Herbert Johnny	PDHS Lab Mngr	? Will enroll in course
Charles Loney (PCHC)	CHC Data Clerk	Initiate syndromic surveillance for CDs at Pohnpei CHC
Aieleen Mauricio	MH/SA Pgm Mngr	Patient Tracking System SOPs for chronic mentally Ill patients
FSM DHSA		
Moses Pretrick	EH Supervisor	FSM Annual Environmental Health Profile
Scott Mori	Performance Officer	Annual FSM DHSA Performance Report (Compact Indicators)
Eliashib Edward	CD Surv Officer	Develop CD Surveillance SOPs and Weekly Report Template
Selma Primo	NCD Pgm Mngr	FSM NCD Monitoring & Surveillance Plan and Annual Profile of NCD risk factors and disease prevalence
Cecilia Primo	NCD Pgm Staff	FSM Annual Profile of Clinical Care for Diabetes
Juveena Jose	MH/SA Pgm Officer	Develop standardized MH/SA Monitoring & Surveillance Plan with annual report template
Carter Apaisam	Imm Pgm Mngr	Project selection pending
Augustine Sue	Disability Pgms Mngr	Project selection pending
Siocy Soaz	Data Unit Officer	Develop system for updating core indicators and producing standardized reports across PH programs

* Artina George, Delpihn Abraham have already completed DDM5 projects from participation in regional course delivery