

Yap Assessment for a Continuing Health Care Professional Development Program

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Abstract

In 2003, the University of Hawai'i Department of Family Medicine and Community Health entered a 4-year cooperative agreement with the U.S. Health Resources and Services Administration to establish the "Pacific Association for Clinical Training" (PACT). PACT's goal is to develop effective distance education methods to improve the education and skills of healthcare professionals in the U.S.-Affiliated Pacific Island nations. To determine the situation existing in 2004, one of PACT's first projects was to perform site visits to each jurisdiction, conducting needs assessments through interviews with key health care professionals, hospital administrators, and government officials. This article highlights findings of PACT's assessment of YAP State, Federated States of Micronesia. Meant to establish a baseline for future reference, all data are those collected in 2004/2005 and have not been updated.

Key words: Yap; Clinical Training; Workforce Development; Distance Education. (PHD 2007 Vol 14 No 1 pp 67-72)

Introduction

This report was compiled from interviews of key health administrators and personnel and a document review during a site visit performed at Yap Memorial Hospital by first author Gregory Maskarinec in August 2004. Although written surveys were attempted in advance of the site visit, none were completed; however, the survey instrument, described in the PACT executive summary in this issue, formed the organizational basis for the interviews and provided the structure of this report. Additional information was obtained through ongoing communications with PACT Board members in Yap, co-authors of this article, Dr. Durand and Lt. Governor Habuchmai. Discussion during the November 2004 Advisory meeting in Saipan provided additional information on recent activities, while Dr. Durand provided further corrections in 2005.

Description of Yap

Yap, the western-most state of the Federated States of Micronesia (FSM) is midway between Guam and Palau. Yap has a population of 11,200;¹ 65% of the population

reside on Yap Proper (Wa'ab): four islands connected by roads, waterways and channels, which includes the town of Colonia, Yap's capital, with a population about 1,000.²

Stretching 600 miles east of Yap Proper are 78 outer islands of which 22 are inhabited. Including the outer islands, the state of Yap covers approximately 500,000 square miles of ocean, yet consists of only 45.8 square miles of land area.

Yapese is spoken by the inhabitants of Yap Proper, while the distinct Micronesian languages of Ulithian, Satawalese, and Woleaian are spoken by outer islanders; communication between the island groups most often takes place in English (understood by all islanders). According to the 2000 census, there were a total of 2,030 households in Yap, with a median of 5.4 persons per household. 1,578 households (77.7%) reported some cash income, with a mean household income of US\$8,300. Yap's literacy rate is 92%. Life expectancy at birth is 66.5 years for males, 67.6 years for females. In 2004, per capita expenditure on health was US\$180, an increase from US\$116 in 2002.^{3,4}

Yap Memorial Hospital in Colonia is the only hospital in Yap and is directly accessible only to those residents who live in Yap Proper. Residents who live on the outer islands find access difficult due to limited transportation. Both of the government's regular ships were out of service for more than a year, but one returned to service

in September 2004. Other cargo ships that can also carry passengers sail infrequently. Only three of the outer islands (Woleai, Ulithi, and Fais) have runways. These are serviced irregularly by Pacific Missionary Airways (PMA), although PMA does offer free evacuation for medical emergencies and charges the Yap State government only fuel costs for non-emergent medical trips.

Yap Memorial Hospital has 43 beds and 10 doctors, including one obstetrician, one anesthesiologist, and one surgeon. The hospital has an emergency room, outpatient clinics, inpatient wards, surgical suites, a dental clinic, pharmacy, laboratory, x-ray services (the x-ray machine is 25-years-old), physical therapy services and health administration offices, including data and statistics offices. The hospital does have a ventilator but no dialysis unit. X-rays and EKGs (electrocardiograms) are the only tests performed by radiology. There is no mammography equipment in the state. There is a new ultrasound machine. A gift of a used defibrillator from Queen's Hospital in Honolulu in July 2004 replaced the hospital's only other defibrillator, on which the screen no longer worked.

The pharmacy dispenses 200-400 prescriptions daily. The Public Health Clinic provides services within the same facility as the hospital. Because the department receives a limited supply of Pap smear test kits through a contract with Clinical Laboratories Hawaii, screening is limited to those patients who seek out this service; 119 tests were done in 2003. For 6 months of 2003, no kits were in stock.

In 2005, the total number of admissions to the hospital was 964, with an average length of stay of 5.7 days, though in 2003, the total number of hospital admissions was 1,062, with an average length of stay of 7.66 days. Outpatient visits averaged just over 1,300 per month. At the time of this assessment site visit (August 2004), the hospital was still repairing significant damages to its roof caused in April 2004 by super-typhoon Sudal, which also severely damaged over 80% of the homes on Yap. The books in the hospital library were ruined by water damage during the typhoon, as was the library computer, and many other rooms were flooded.

Yap has 17 outer islands dispensaries, of which two (on Ulithi and Woleai) have been designated "super dispensaries." In May 2004, one doctor was assigned to each super dispensary, and they were provided with more extensive pharmacy stock. The other 15

outer island dispensaries are served by health aides. Only the most basic health care services are available at these sites; consultation with medical personnel at the hospital is necessary for any complicated medical care. The doctor assigned to Ulithi, Dr. Arthur Yolwa, conducts a daily "distance" morning report by radio with the outer island clinics and has used a combination of radio and face-to-face sessions to deliver six College of Micronesia dispensary manager program courses since August 2004.⁵ However, radio systems and power supplies are weak on some of the outer islands resulting in limited contact. A major upgrade of solar and radio systems in the outer island dispensaries was performed in October 2006 and should improve radio contact. The Director of Health recently (Oct/Nov 2004) completed an on-site assessment of each outer island clinic.

During the 5-month period of June-Oct 2004, Yap Hospital saw 514 cases of dengue fever, with 20 hospitalizations. Cases are determined by means of a clinical case definition, as the only four test kits initially available were being saved to test outliers when the epidemic wanes. By October, confirmatory rapid test kits were obtained for questionable cases.

One AIDS patient died in Yap. As of August 2004, there is one confirmed HIV positive case. Yap has a lower suicide rate than Chuuk⁶ (there were 15 documented cases for the 3 years of 1999-2001), possibly less schizophrenia than Palau (current rate unavailable, comparison based on anecdotal evidence),⁷ but both are much higher than the U.S. The elderly, mentally ill, and disabled are cared for at home by extended families.⁸

In 2005, Yap's referral program spent \$102,000 to send 34 patients off-island for treatment, of whom 32 went to St. Luke's in Manila. For comparison, in 2003, the medical referral program spent \$322,321 (overspending its budget by \$119,493) to send 47 patients off-island for treatment. The majority of these (32) also went to St. Luke's. Nine patients went to Tripler Army Medical Center in Honolulu, three to Palau, and two to Shriners in Honolulu. In 2002, the medical referral program spent \$260,672 (over budget by \$57,844) to send 30 patients off-island for treatment: 18 to St. Luke's, four to Palau, five to Tripler, two to Guam.

In 2005, the state of Yap imported \$1,200,000 worth of alcohol and \$600,000 worth of tobacco. In 2003, Yap imported \$1,000,000 worth of beer and tobacco valued at \$600,000, and hard liquor valued at \$110,000. A very

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large majority of the adult population habitually chews betel nut. Dr. Stanislaus Gufsag, Yap's dentist, reports that 98% of the children by 4th grade have dental caries. A 2005 survey showed that only 11% of 4-to 12-year-old children are caries-free. Public Health has a Well Baby Clinic in the hospital that applies fluoride, and an outreach dental program for application of fluoride varnish for pre-school-age children and fissure sealants for elementary school-age children began in 2005.

Health Workforce Demographics

Yap has 12 physicians (including two now assigned to super dispensaries in Ulithi and Woleai); 32 nurses who are hospital based, of whom 16 are practical nurses (i.e. without formal training); and 10 nurses who are public health-based; three nurse midwives; one dentist; seven dental nurses; 24 health assistants (health assistants staff outer island dispensaries); three medexes (having 2 years of formal medical training); six med lab techs; one pharmacist; four pharmacy techs; four radiology techs; three health inspectors; and one rehab specialist. Yap has no nurse practitioners, dental assistants, dieticians, patient educators, or social workers. Twelve new community health workers have recently completed training to provide outreach services for the new Wa'ab Community Health Center project (a U.S. 330 grant-funded Community Health Center with four new health center sites in the main islands of Yap).

Health Workforce Training

Dr. Durand, the Director of Health in 2004, is the only U.S.-board-certified physician. Dr. Gufsag, the only dental officer in Yap in 2004, trained in Fiji with one additional year of public health training in Australia. In 2005, Dr. Lefagopal returned from dental school in Fiji to replace Dr. Gufsag, who had retired.

Dr. Lefagopal spent an additional 3 months of preventive dentistry attachment in the Marshall Islands following graduation, an activity that was supported by PACT. All six dental nurses trained in Palau (five are on the outer islands and one in Yap Proper).

Yap has one BSN (Bachelor of Science in Nursing), Anna Boliy, who works in nursing education at Yap Hospital. The nurse supervisor, Doris Chutneg, trained in the Republic of the Marshall Islands (RMI) when the college was still part of the Community Colleges of Micronesia. Others have graduated from the RMI more recently; government scholarships requiring a service commitment upon completion of the course are available, but (as is true throughout the FSM) it has been difficult to enforce the service commitment. Since January 2005, the practical nurses in Yap have

been enrolled in an associative degree nursing program which is being administered as a satellite of the Palau Community College nursing program.

In Radiology, only the chief, Eddie Yamnang, has a certificate, from Saipan in the 1980s; the other radiology techs have on-the-job training, but started classes with the University of Alaska Limited Radiology Program in April 2006, a web-based program with a local facilitator.

The lab supervisor, Maria Marfel, has a Bachelor of Arts degree (BA) from Michigan; all other lab techs have had on-the-job training. Some have gone to the Pacific Paramedical Training Center in New Zealand for one month of training and have completed short workshops in various areas (two just completed the blood safety course taught recently in Palau).

The head of pharmacy, Jesse Haglelfeg, trained in Boston after service in the U.S. Navy. Another staff member had some basic training in Fiji. Since September 2005, the assistant pharmacists have been enrolled in classes for the University of Alaska Pharmacy Tech Program, which is web-based.

Of the three employees in vital statistics, one studied at a medical careers school in Nevada and has a biology degree from Hilo. The other two have one-the-job training only.

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Current Continuing Professional Development Activities

Anna Boliy, has been the Continuing Education (CE) Coordinator since 2004. Yap Memorial Hospital holds regular CE sessions every Friday morning; most are lectures prepared by the staff. Medical Staff Chief, Dr. Paul and

the staff expressed a strong interest in using problem-based-learning cases in these weekly sessions. Efforts toward the CE of other staff were disrupted by the typhoon, but have been resumed. In May 2004, Dr. Durand led a week-long workshop training course in data management for health professionals. The course was PH 143, Intro to Information Systems for Health Managers. Course materials were from Fiji through the Pacific Health Open Learning Network (PHOLN), which will offer pilot on-line courses sponsored by the World Health Organization.

At the same time, Dr. James Edilyong (OB/GYN) had begun a 6-month course for the outer island birthing attendant trainees (BATs). Dr. Edilyong, himself, designed the curriculum for this course, which has been combined with three credit courses from the College of Micronesia health assistant curriculum: anatomy/

physiology, Maternal Child Health (MCH) I and MCH II, which are provided to the BATs.⁹

As is true throughout the FSM (National Board standards) practical nurses need 15 hours of CE every 2 years with staff nurses need 30 hours CE (15 in their speciality). Doctors in the FSM currently need no CE to maintain their licenses.

Priority Continuing Professional Development Needs

Targeting education based on leading causes of mortality is one approach to developing a relevant CE curriculum. However, in Yap the actual numbers of deaths in the given 4-year period is so small that any ranking of cause has little or no statistical significance.

Based on hospital death certificates, the 10 leading causes of death (1998-2002) for Yap were: (1) cancer; (2) pneumonia; (3) heart disease; (4) renal failure; (5) suicide; (6) Chronic Obstructive Pulmonary Disease (COPD); (7) Cerebrovascular accident (CVA); (8) trauma; (9) infant mortality; (10) sepsis.¹⁰

The 10 most common reasons for out-patient visits were: (1) respiratory infection; (2) diarrhea or vomiting; (3) fever; (4) injury; (5) hypertension; (6) diabetes; (7) cellulitis; (8) conjunctivitis; (9) prevention; and (10) prescription refills.

Additional topics that emerged during needs assessment discussions included computer literacy training, management and administration skills; basic pharmacology, especially risks in pediatrics and obstetrics; formal training for practical nurses (who have on-the-job training only); basic sciences for public health; and more training for outer island healthcare providers.

There is a pressing need to promote preventive dental care for children. Provision of continuing professional development (CPD) to public health nurses, health assistants, and dental nurses is needed to help with this.

Much of the healthcare workforce lacks even the basic education that would make most CPD a meaningful activity. Math, science, and language skills are very basic. Any courses provided, if they are to have any significant impact, need to be prepared to address very basic issues.

Potential Collaboration

The new Yap Area Health Education Centers (AHEC) program has recently initiated training for dispensary managers based on a curriculum from the Pohnpei College of Micronesia campus using distance education with books and daily morning radio conferences that include case discussions and core topic review. College foundation courses in math, science, and English have been started at Yap State Hospital. A public health BA program from Fiji School of Medicine has started and a clinical nursing associate degree program from Palau Community College will begin in January 2005.

Distance Education Technologies¹¹

The Yap PEACESAT (Pan-Pacific Education and Communication Experiment by Satellite) station is located a few miles from the hospital at the Education Department; it is neither very accessible nor very reliable. No one at the hospital could recall any recent use of PEACESAT. No other distance education resources are currently used, although computer photo images (.jpg) are sometimes sent to Tripler Army Hospital, Honolulu, for consultations.

Through the FSM Federal Bioterrorism Grant, Yap Memorial Hospital recently received four new computers, which have LAN internet connectivity. One is in the director's office, the other three are used by the vital statistics and IT (Information Technology) specialists (Maria Marfel, Lucille Stevens, and Daisy Fanapin). There is also another new computer purchased by the Hawai'i AHEC Bioterrorism Grant that has been installed in the library for general staff use once the typhoon damage has been repaired. There are also computers with slow internet access in the public health offices and in the pharmacy. The pharmacy also uses a computer for dispensing. The lab has a computer with internet access; the Dental Department has no computer. There is a VCR to watch training films.

Staff internet skills are rudimentary; there was no reported use of CD-ROMs for learning, nor any other computer-based education efforts. The classroom physically needs repairs and new furniture, in addition to any technology for distance learning. Access to full text journal articles is also a high priority for the medical staff, at present these are difficult to obtain.

Pacific Resources for Education and Learning (PREL)-Hawai'i has installed radio side band systems that provide simple e-mail communications with 14 outer islands schools. There is a need for computers and

Finally, the situation is a dynamic one, constantly changing; consequently, this report was outdated upon completion; however, it does establish a baseline in 2004/2005 for future comparison.

printers for the super dispensaries in Woleai and Ulithi so that these sites may make better use of this system.

Limitations

The most serious limitation of this study was its failure to include the outer island dispensaries in the site visits, despite the large percentage (45%) of Yap's population that is served by them and the urgent need for better training of their staff. That the initial survey was done while repairs to damage from super-typhoon Sudei were still underway, also affected the assessment, although everyone at Yap Memorial Hospital very generously granted adequate time for full interviews and site inspection.

Additionally, with our focus on CE needs, no assessment was attempted to determine how many or what kind of health professionals are needed in the future to maintain and improve health care services in Yap, although this should also be factored into CE recommendations.

Some respondents had difficulty ranking or prioritizing the various barriers or content areas. This occurred for several reasons: varying exposure or access to the different types of information, varying educational backgrounds, and varied job duties; however, all uniformly agreed that additional training was essential for better healthcare.

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Summary

Growing social and environmental health problems, including rising prevalence rates of non-communicable diseases, rising rates of cigarette and alcohol consumption, and the threat of natural disasters (such as typhoons) leading to epidemics (such as dengue fever) all complicate the health situation on Yap.

The state of Yap has very limited resources with continuing dependence on outside funding sources, administrative organizational challenges, a very limited budget for healthcare, and unique geographical barriers, which combine to pose very challenging barriers to CE programs. CE will need to address very basic levels of education and training. The health workforce is characterized by very inconsistent educational foundations. Important categories of health workers lack even the basic training that makes CE meaningful. The

present possibilities for distance education are severely restrained by unreliable telecommunications, poor internet access, and the lack of personnel for upkeep of computers and networks, though this seems to be improving.

PACT should look to support the recently initiated Yap AHEC program through the provision of health information sources such as textbooks and computer-based health information sources. The close association of training programs for staff with the Yap College of Micronesia campus serves as a good model for programs in other regions that also need to address basic workforce capacity issues.

With programs developing in public health with Fiji School of Medicine, Clinical Nursing with Palau Community College, and Health Assistant training through the College of Micronesia, Yap anticipates obstacles, which PACT may help to overcome, as with the FY2004 assistance buying textbooks for the Health Assistant program. There are gaps, for example, in dental nurse training and sanitarian training, and Yap will need resources to take advantage of opportunities that may develop regionally. Since the specific items or input required will become clear only as events unfold, Dr. Durand, Director of Yap Hospital, requests that PACT resources be set aside for Yap to utilize in a timely fashion. These funds could be utilized for travel, communications equipment, learning materials, and consultations from University of Hawai'i staff.

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References

1. Investment Guide, Federated States of Micronesia [homepage on the Internet]. Polikir, Pohnpei, FSM: FSM Guide [cited 2007 Mar 30]. About the Federated States of Micronesia: Population [1 screen]. Available from: http://www.fsminvest.fm/fsm/about_fsm.htm1.
2. Hezel FX. The new shape of old island cultures: a half century of social change in Micronesia. Honolulu: University of Hawai'i Press; 2001.
3. Pacific Island Health Officers Association, Health Data Matrix (1999-2001). Pacific Islands Cancer Initiative 2002. Country Assessment. Honolulu, HI: PIHOA; 2002.
4. World Health Organization Country Health Information Profiles (CHIPS): Micronesia, Federated States of, pp 227-242 [monograph on the Internet]. Manila, Philippines: WHO Regional Office for the Western Pacific. c2006 [cited 2007 Mar 30]. Available from: <http://www.wpro.who.int/NR/rdonlyres/CDF5AF2-175E-4471-BBA9-97896AF6D900/0/21MicronesiaFS08.pdf>.
5. Hancock TW, Durand AM, Yolwa A, Sagury J, Legthar C, Ratima M, et al. Ulithi Atoll health assessment: a peek at the health of rural Micronesia. *Pac Health Dialog*. 2007;14(1):156-64.
6. Hezel FX. Schizophrenia and chronic mental illness in Micronesia: an epidemiological survey (with Wiley M) Isla. *Micronesian Seminar articles* [serial on the Internet]. 1992 (Dry Season) [cited 2007 Mar 30];1(2):329-54. Available from: <http://www.micsem.org/pubs/articles/socprobs/frames/schizmentfr.htm>.
7. Waldo M. Schizophrenia in Kosrae, Micronesia: Prevalence, gender ratios, and clinical symptomatology. *Schizophr Res*. 1999 Jan 11;35(2):175-81.
8. Hezel FX. In search of the social roots of mental health pathology in Micronesia. In: Robillard A, Marsella A, editors. *Contemporary issues in mental health research in the Pacific Islands*. Honolulu: University of Hawai'i Press; 1987. pp 12-31.
9. Harui-Walsh E. Changes in the lifestyle of women in Ulithi, Micronesia. In: Lutz C, editor. *Micronesia as strategic colony: the impact of US policy on Micronesian health and culture*. Cambridge, MA: Cultural Survival; 1984. pp 81-8.
10. Taoka S, Hancock T, Ngaden V, Yow A, Durand A. Cancer in Yap State, Federated States of Micronesia. *Pac Health Dialog*. 2004 Sept;11(2):50-6.
11. Higa C. Pacific Association for Clinical Training: e-Learning telecommunication infrastructure assessment in the U.S.-Affiliated Pacific Islands. *Pac Health Dialog*. 2007;14(1):89-97.