



Federated States of Micronesia: Tracking Progress in Maternal and Child Survival



A Case Study Report, 2013

Tracking Progress in Maternal and Child Survival, Case Study Report for the Federated States of Micronesia, July 2013

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Abstract

This document reports on the status of reproductive, maternal, newborn, child and adolescent health achievements and challenges experienced in the Federated States of Micronesia to fully achieve the targets of the health-related Millennium Development Goals as outlined in the Federated States of Micronesia National Strategic Plan.

Achievements

FSM has made progress in several areas of health care:

- Wide access to health care information
- Significant decrease in under age 5, infant, and maternal mortality rates
- Decline in total fertility rate (5 children per woman in 1990, 3.1 children in 2010)
- High coverage of measles immunization at 1 year of age (92% in 2011), although fully immunized children by age 2 years dropped to 53% in 2010
- High skilled birth attendance coverage

Challenges

FSM faces the following challenges to improve the nation's health care:

- Maternal and child nutrition is an urgent challenge, with anaemia and obesity posing major health threats
- Cultural and privacy issues inhibit seeking and use of available health care services
- Low follow through on antenatal care (19% in the first trimester)

Recommendations

The FSM case study offers the following recommendations:

- Increase outreach services
- Integrate obesity education and prevention in antenatal care and the MCH programme
- Initiate a dialogue on restrictive cultural beliefs
- Address structural and policy constraints to increase medical staff collaboration and outreach capacity of MCH teams
- Improve transportation options to provide timely access to emergency obstetric care

Keywords: Federated States of Micronesia, Millennium Development Goals; women's and children's health; reproductive, maternal, newborn, child and adolescent health care

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List of Abbreviations

ANC	antenatal care
BMI	body mass index
DHSA	Department of Health and Social Affairs
FSM	Federated States of Micronesia
GDP	gross domestic product
HIS	health information systems
IMR	infant mortality rate
MCH	maternal and child health
MDG	Millennium Development Goals
MMR	maternal mortality rate
MNCH	maternal, newborn and child health
RMNCAH	reproductive, maternal, newborn, child and adolescent health
STI	sexually transmitted infections
TFR	total fertility rate
UNICEF	United Nations Children's Fund
USG	U.S. Government
WIC	women, infants and children

Executive Summary

This document reports on the status of reproductive, maternal, newborn, child and adolescent health achievements and challenges experienced in the Federated States of Micronesia to fully achieve the targets of the health-related Millennium Development Goals as outlined in the Federated States of Micronesia National Strategic Plan.

The FSM is an island nation with approximately 607 islands with a combined land area of approximately 702 sq km (271 sq mi) that cover a longitudinal distance of almost 2,700 km (1,678 mi) just north of the equator. The population of FSM, under 103,000 residents, is spread over four states, and the estimated annual population growth rate was 0.25% in 2009. Low population density spread over a wide expanse of small islands complicates health care monitoring and evaluation, strategic planning, and outreach and service delivery.

The FSM Government receives most health-sector funding under a 20-year revised Compact of Free Association signed in 2003 with the United States. The maternal and child health (MCH) and family planning programmes receive U.S. Federal funding grants that are outside the general Compact funding arrangements. In 2008, the latest year for which gross domestic product (GDP) data are available, total U.S. Compact grants were 37% of FSM GDP and 63% of FSM Government revenue, compared with 51% and 66%, respectively, in 1995. FSM health services are provided at the state level. MCH programme services provide cost-free primary care for pregnant women and infants, including basic and routine high-risk antenatal care, delivery, postnatal care, postpartum family planning counseling and contraceptives; and preventive and primary care for children and children with special needs.

The National Health Progress Report (2008–2011) covers annual monitoring of 14 national health indicators on health status, availability of essential drugs, health care utilization, quality assurance and functionality of biomedical equipment. Accurately describing trends in infant mortality rates (IMR) and maternal mortality ratios (MMR) in FSM is challenging. Civil registration data suggest that underreporting of IMR exists because of

unrealistically low reported figures in some years and the status of complementary MCH indicators. Analyses of key child health indicators, such as IMR, are further complicated by the small number of vital events that occur in FSM and other countries with populations under 250,000. Small numbers cause wide rate fluctuations from year to year and make it difficult to discern underlying trends.

ACHIEVEMENTS

FSM has made significant progress in maternal and child health care:

- **Wide access to health care information**
- **Decreased mortality rates**
- **Decline in total fertility rate (5 children per woman in 1990, 3.1 children in 2010)**
- **High coverage of measles immunization at 1 year of age (92% in 2011), although fully immunized children by age 2 years dropped to 53% in 2010**
- **High skilled birth attendance coverage**

Targeted outreach activities have expanded access to maternal and child health services. Several successful initiatives offer improved tracking of key trends to promote strategic targeting of services and resources, such as web-based and electronic solutions for maternal and child health, newborn registry, online immunization registry and family planning registry; improved systems for data review and use; and surveys that are planned to increase knowledge in specific MCH areas of pregnancy risk assessment and children with disabilities. Community outreach services in remote areas have addressed low health-seeking behaviour that results from cultural or privacy issues.

Nationally available census data indicate marked decreases in IMR, from 40 deaths per 1,000 live births in 1996 to 10.2 deaths per 1,000 live births in 2010; however, several recent Department of Health statistics and other sources indicate an increase in IMR and neonatal mortality in the past 2–3 years, which could signal a need for increased focus on the newborn period. Preliminary FSM Department of Health 2012 data indicate an IMR of 19.2% per 1,000 live births. Recorded deaths are primarily hospital-reported deaths, and infant deaths in the outer islands are at times not recorded. Trend analysis of mortality data for children under age 5 years shows a decrease from 58 deaths per 1,000 live births in 1990 to 42 deaths per 1,000 live births in 2011.

The maternal mortality ratio appears to have decreased, although an accurate MMR is difficult to determine in a small population. The estimated 2012 MMR was 165 deaths per 100,000, down from 224 deaths per 1,000 in 1994. Coverage is high for skilled birth attendance (data sources vary from 88% to 100%), although coverage of antenatal care in the first trimester is low (19%). Outreach has resulted in promotion of early postnatal visits, follow-up on low birth weight or underweight infants, confidential treatment of sexually transmitted infection, and increased access to family planning services for adolescents and youth.

CHALLENGES

FSM still faces daunting challenges:

- **Maternal and child nutrition is an urgent challenge, with anaemia and obesity posing major health threats**
- **Cultural and privacy issues inhibit seeking and use of available health care services**
- **Low follow through on antenatal care (19% in the first trimester)**

Of children ages 2–5 years, 25% had a body mass index greater than the 85th percentile (2012 data) and, in one state, as high as 40%. More than 50% of women ages 24–64 were obese (2002 data). FSM has

high rates of noncommunicable diseases related to obesity, and the prevalence of child and maternal obesity is increasing (7.4% in 2011; 24.8% in 2012).

Preliminary 2012 MCH data show that only 19.2% of women who gave birth during the year received antenatal care during their first trimester, a decrease from 30.0% in 2010, and only 24% of pregnant women received 80% of the expected number of antenatal care (ANC) visits. In 2009, a survey of pregnant women that received ANC found that more than 70% came in their late second or third trimesters. Reasons provided for not attending early ANC were gender preference of service provider (30%), service cost (28%), personal choice (15%), transportation (11%), no health problem (8%), no babysitter (3%), community involvement (3%), use of local medicine (1%) and early ANC is not important (1%).

RECOMMENDATIONS

The FSM report offers the following recommendations:

- **Increase outreach services**
- **Integrate obesity education and prevention in antenatal care and the MCH programme**
- **Initiate a dialogue on restrictive cultural beliefs**
- **Address structural and policy constraints to increase medical staff collaboration and outreach capacity of MCH teams**
- **Improve transportation options to provide timely access to emergency obstetric care**

Further investment in outreach services is needed to increase access to services and care for the most geographically and socially vulnerable populations and encourage early antenatal care. Solutions to tackle the deep-seated obesity problem may be tied to integration in the antenatal care and MCH programme. Likewise, cultural and privacy constraints need to be addressed to overcome reluctance to seek care.

Context and Current Status of Reproductive, Maternal, Newborn, Child and Adolescent Health

BACKGROUND

This document reports on the status of reproductive, maternal, newborn, child and adolescent health achievements and challenges experienced in the Federated States of Micronesia to fully achieve the targets of the health-related Millennium Development Goals as outlined in the Federated States of Micronesia National Strategic Plan. FSM has incorporated maternal, newborn and child health (MNCH) interventions into the national development and health strategic frameworks and also, with partners, prioritised funding and technical support in this area. The focus for the post-2015 period for MNCH should be derived from analysis of which interventions have worked and recommendations to scale up those initiatives. This document reports on the results gained in a recent consultative process with the Ministry of Health and key stakeholders for maternal and child health in FSM. It summarises available data on progress to date and uses a case study format to identify key success factors and challenges. The report includes recommendations for accelerated action and the Annex contains the 2011 Accelerating Child Survival and Development summary data profile for the Federated States of Micronesia.

CONTEXT

FSM, an island nation comprising approximately 607 islands, has a small total land area of 702 sq km (271 sq mi) spread out over a vast expanse (2,900 sq km [1,800 sq mi]) in the western Pacific Ocean (see Figure 1). FSM has a total population of 102,624¹ residents spread over four states, with an estimated annual population growth rate of 0.25% (2009)². The state of Kosrae, with the smallest population, has 6,616 residents (6.4%); Yap has 11,376 residents (11.0%); and Pohnpei has 35,981 residents (35.2%). Chuuk, with the largest population, has 48,651 residents (47.4%).



A new mother receives instructions on breastfeeding her infant in the maternity ward at Pohnpei Hospital in Micronesia.

¹ Federated States of Micronesia. (2011). Provisional results 2010 Census: FSM-wide, Kosrae, Yap, Chuuk and Pohnpei. Palikir, FSM: Palikir, FSM: Division of Statistics, Office of Statistics, Budget and Economic Management, Overseas Development Assistance and Compact Management.

² Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 Revision and World Urbanisation Prospects: The 2009 Revision, [http://esa.un.org/wup2009/unup/]Monday, June 06, 2011; 9:20:08 p.m.



Pohnpei Hospital Maternity Ward

STRUCTURE OF THE FSM HEALTH SYSTEM

Health services in FSM are designed and delivered at the state level. The MCH programme provides primary care and preventive services to pregnant women, mothers and infants; preventive and primary care for children; and services for children with special health care needs. Pregnant women are eligible for free direct health care services, which include basic and routine high-risk ANC. After delivery, mothers are counseled on family planning methods and those who decide to use a family planning method are given their choice of contraceptives at no cost. The National Health Progress Report (2008–2011) used 14 selected national health indicators for annual monitoring and reporting. These indicators measure health status, availability of essential drugs, health care utilisation (patient encounters) and functionality of biomedical equipment, including quality assurance, in the state hospitals.

The FSM Government receives most of its health-sector funding under a 20-year revised Compact of Free Association with the United States signed in 2003. From 2004–2009, FSM received USD\$492 million in grants, an average of \$82 million per year. In 2008, the latest year for which FSM gross domestic product (GDP) data are available, U.S. Compact grants represented 37% of GDP and 63% of FSM Government revenue, compared with 51% and 66%, respectively, in 1995³. The funding allocation process begins with the development of annual state budgets, which are submitted to the national level and then negotiated with U.S. Government (USG) officials. Both the MCH programme and the family planning programmes receive U.S. Federal funding grants that are outside the general compact funding arrangements. FSM Government sources have expressed concern about how the nation's comprehensive health programme will be funded after the financial provisions in the Compact end in 2023.

³ United Nations. (2011). Common country assessment: Desk review Federated States of Micronesia. New York, NY: Author.

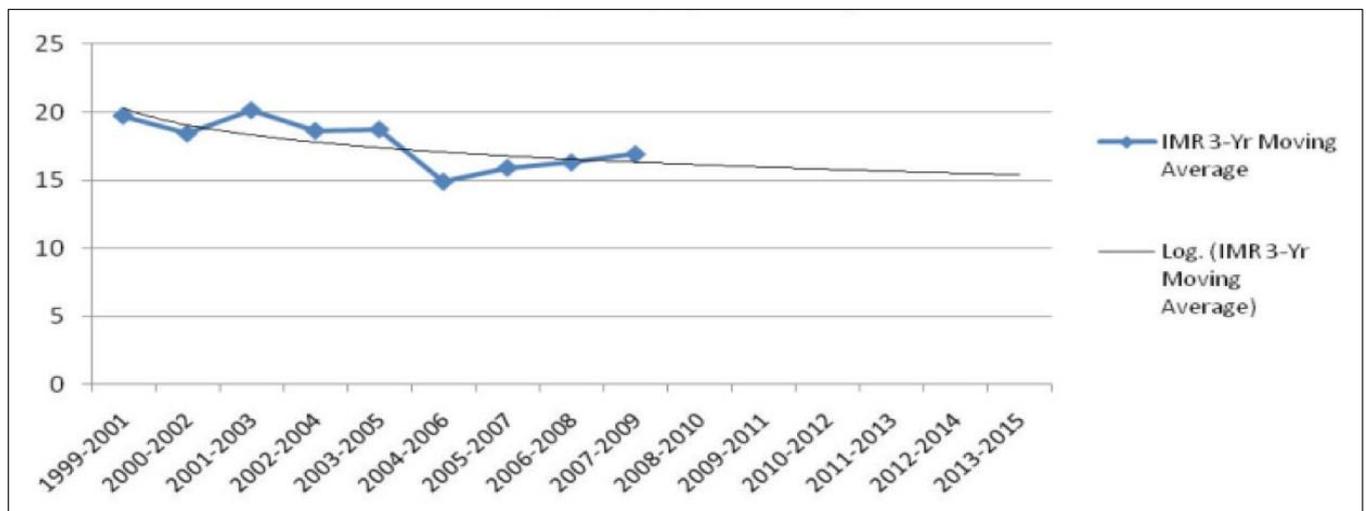
OVERVIEW OF KEY MATERNAL AND CHILD HEALTH INDICATORS

The accuracy of available data usually used to assess the infant mortality rate (IMR) and maternal mortality ratio (MMR) is questionable in FSM. Based on unrealistically low figures for some years compared with MCH indicators, current civil registration data suggest IMR underreporting. Analyses of key child health indicators, such as IMR, are further complicated by the small number of vital events that occur in FSM and other countries with populations under 250,000. Small numbers cause rates to fluctuate widely from year to year and make it difficult to discern underlying trends. Preliminary 2012 data from the FSM Department of Health MCH programme indicate an IMR of 19.2/1,000 live births. It is important to note that recorded deaths are primarily hospital-reported events and, at times, infant deaths in the outer islands are not recorded. Census data demonstrate that the IMR decreased from 68/1,000 live births in 1969, to 40/1,000 live births in 1996 and to 10.2/1,000 live births in 2010⁴. As part of the 2010 MDG Report, a 3-year moving average of civil registration data was analysed with a logarithmic projection to 2015, which provides a useful illustration of predicted IMR trends (see Figure 1).



A nurse on her daily rounds in the Pohnpei Hospital maternity ward tends a newborn.

FIGURE 1. Infant Mortality Rate Trends, 1999 Projected to 2015



Source: http://www.undp.org/fj/pdf/MDG%20Report/FSM_MDG.pdf

⁴ 2010 Census Preliminary Data.

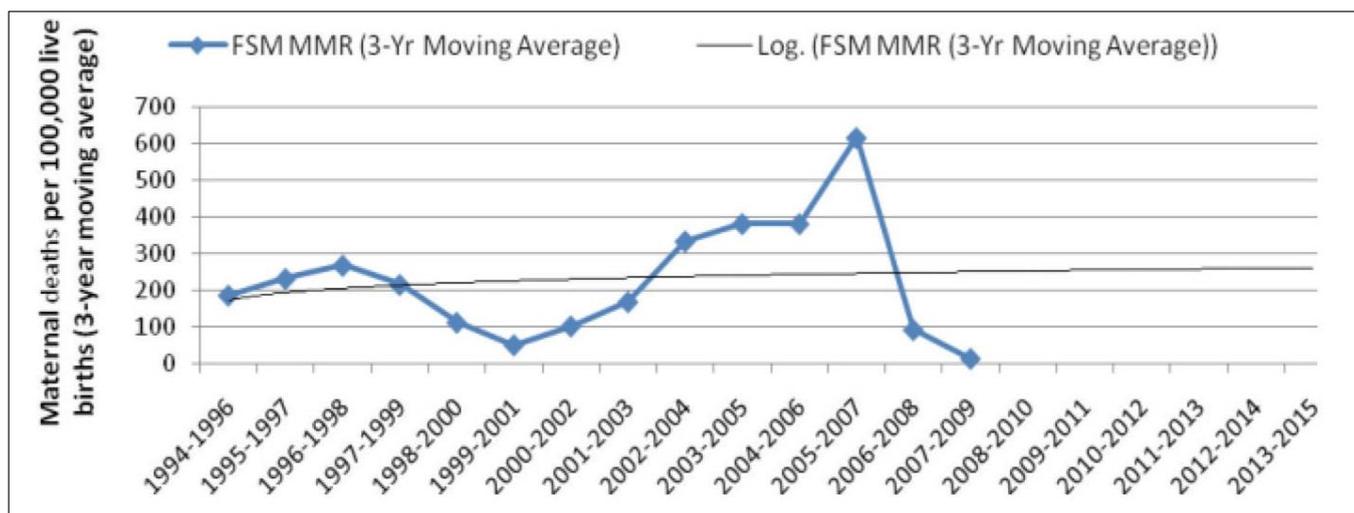
Neonatal mortality increased in 2010 (11/1,000) compared to 2009 (9.3/1,000)⁵. Hospital-reported infant deaths were primarily neonatal deaths resulting from prematurity and congenital anomalies⁶. Post neonatal mortality decreased in 2010 (1/1,000) from 2009 (3.7/1,000). In infants under age 1-year deaths, the major cause was acute infection complicated by malnutrition⁷. A 2007 review of pediatric hospital admissions carried out by the FSM Department of Health and Social Affairs (DHSA) offers additional insight into child health. The review found that in all four states, the five top reasons for admission were respiratory illnesses (mainly bronchiolitis and pneumonia); gastrointestinal diseases (diarrhoea with or without dehydration, malnutrition, and parasitism); skin infections (scabies and impetigo); injury (motor vehicle accidents); and abscesses (deep muscle and cellulitis)⁸.

The MMR in FSM is hard to define. A denominator of 100,000 is not appropriate to analyse MMR because of the limited number of births. One additional death in a year can change the FSM MMR by 50 points. In small populations, it is more accurate to assess trends on the basis of the actual number of reported deaths rather than rates. Between 1999 and 2009, 42 maternal deaths were reported, evenly distributed across the four states, yielding an 11-year average MMR of 162 per 100,000 live births. Across the four states, the 11-year average MMR was Chuuk, 98; Kosrae, 384; Pohnpei, 108; and Yap, 462.

In 2012, four deaths were recorded of women who died during pregnancy or up to 42 days after delivery, which were the first recorded maternal deaths since 2008; however, it is possible that a maternal death could have occurred in the outer islands and not been recorded as a maternal death⁹. In some locations, especially remote areas, health staff may be unsure of the definition of what should be recorded as a maternal death. In addition, reporting in some smaller remote health dispensaries appears to be inconsistent and untimely. Extrapolating trends based on moving averages, as in the recent Millennium Development Goals (MDG) report, does not resolve the problem when under-reporting, rather than random variation, is the problem.

Between 1999 and 2009, 42 reported maternal deaths were distributed evenly across the four states, yielding an 11-year average MMR of 162/100,000 live births. Across the four states, the 11-year average MMR was Chuuk, 98/100,000; Kosrae, 384/100,000; Pohnpei, 108/100,000; and Yap, 462/100,000. Ninety percent of maternal deaths occurred between 2002 and 2006, but no maternal deaths were reported in 2008 and 2009. The extremely high death rates in the 2002–2006 period caused United Nations agencies to label FSM as a high maternal mortality country. The graph in Figure 2 uses a 3-year moving average to more accurately illustrate a longer-term trend in MMR by taking into account the challenges noted above.

FIGURE 2. FSM 3-Year Moving Average Maternal Mortality Ratio Trends



Source: http://www.undp.org/fj/pdf/MDG%20Report/FSM_MDG.pdf

⁵ Federated States of Micronesia. (2012). Needs assessment family planning services in FSM. Palikir, FSM: Department of Health and Social Affairs.

⁶ Federated States of Micronesia. (2010). Annual progress report and 2011 work plan (Summary). Palikir, FSM: Department of Health and Social Affairs.

⁷ Ibid.

⁸ Federated States of Micronesia. (2011). Millennium Development Goals: The Federated States of Micronesia status report 2010: Pohnpei. Palikir, FSM: Division of Statistics, Office of Statistics, Budget and Economic Management, Overseas Development Assistance and

Compact Management.

⁹ Op. Cit., Federated States of Micronesia. (2012).

FSM has been transitioning from high to low fertility, which is evident from the age structures of the national, state and municipal populations recorded in the preliminary 2010 census results. The total fertility rate has declined from 5 children per woman in 1990 to 3.1 children in 2010. The overall adolescent fertility rates have steadily decreased, from a high of 90 births/1,000 women ages 15–19 years in 1973 to 43/1,000 women ages 15–19 years in 2010 (adjusted rate; unadjusted rate of 32/1,000 women ages 15–19 years in 2010, from 2010 census). While there is an overall decrease, significant differences in the rate and nature of the change exist between states. Chuuk has had a steady overall increase since 1994, and increases also have been seen between 2000 and 2010 in Kosrae and Yap. Pohnpei is the only state with a steady decrease in the teenage fertility rate since 1994. The decrease in Pohnpei may be attributed to the adolescent reproductive health programme that began in 2004 and included contraceptive counselling and sexuality education in schools and other venues for out-of-school youth¹⁰.

Percentages of women who receive ANC services in their first trimester remain low. Preliminary 2012 MCH data indicate that only 19.2% of women receive this care. The quality of ANC is also of concern. For those women who do initiate care, only 31% receive adequate care, 29% receive intermediate care and 40% receive inadequate care, as measured by the Kotelchuk Index of Adequacy of Prenatal Care¹¹. The nutritional status of pregnant women is gaining the attention of health providers. Data from the four state MCH programmes show that 34% of pregnant women attending ANC have low hemoglobin levels¹².

In 2010, 9% of all births in FSM were categorized as low birth weight. Yap had highest percentage of low birth weights (13%), followed Chuuk and Pohnpei (8%) and Kosrae (5%). These rates are considered quite high in comparison to the World Health Organisation standards of about 5%¹³. Vitamin A deficiency and iron deficiency anaemia are emerging health problems among children as well. In 2010, about 22% of children ages 1 year and younger were reported to have anaemia. The percentage of infants exclusively breast-fed at 6 months decreased to 62.0% in 2010 from 73.4% in 2009¹⁴. Children through age 2 years who have completed the scheduled vaccinations also decreased to 53.0% in 2010 from 67.8% in 2009. The decline in immunisation coverage has been attributed to the increased number of vaccines added to the schedule, insufficient personnel, logistical challenges and difficulties with a new immunisation data collection system¹⁵.

¹⁰ Ibid.

¹¹ Op. Cit., Federated States of Micronesia. (2010).

¹² Ibid.

¹³ Op. Cit., Federated States of Micronesia. (2012).

¹⁴ Op. Cit., Federated States of Micronesia. (2010).

¹⁵ Federated States of Micronesia. (2012). Health progress report 2008–2011. Palikir, FSM: Department of Health and Social Affairs.

Case Studies: Achievements and Challenges

Key national stakeholders, including the Ministry of Health, identified four case studies to illustrate success and challenges in FSM in the area of reproductive, maternal, newborn, child and adolescent health. Two case studies are examples of processes that are contributing positively and two describe challenges or system bottlenecks. The case studies were analysed for recommended actions to continue to improve RMNCAH in FSM.

CASE STUDY I: ACHIEVEMENTS IN STRENGTHENING HEALTH INFORMATION SYSTEMS

FSM and USG have, over the past 10 years, invested heavily in FSM DHSA's health information systems (HIS) to increase the ability to track key health indicators that can inform health service planning and programming at the state and national levels. The MCH programme has initiated several data collection and analysis tools to track services on an individual level and designed surveys to seek information that will better define health situations in key areas as such pregnancy risk factors and childhood disability.

Following is a summary of key FSM projects to increase the quality of HIS for RMNCAH:

- A web-based MCH module gathers real-time information on MCH services. The 3-year project to develop these modules will be operational in 2013.
- MCH data clerks posted in each state hospital vital statistics team verify MCH data and assure timely reporting.
- A newborn registry database is now part of the well-baby care system of services¹⁶.
- An online web immunisation registry tracks schedule completions.
- In Pohnpei, an electronic family-planning data registry and tracking system leads to a decrease in the number of defaulters and increases follow-up visit compliance and consistency in the number of family-planning users per month
- Annual review of key MCH indicators verifies that information provided by the states is accurately reported and builds understanding of the use of data for decision making.

- A hearing test tracking system is now operational.
- A survey is planned for early 2014 to examine parent satisfaction with and involvement in decision making about services provided to children with disabilities.
- A pregnancy risk assessment management survey is planned for 2013.

Challenges with data collection in FSM are often mentioned in RMNCAH programme analyses. A need exists for greater staff understanding of what information is used to generate key indicators and why, despite several on-the-job training initiatives. Late filing of death certificates for mortality coding remains a challenge and has been a contributing factor to the unrealistically low IMR recorded in some years. Data consistency between different programmes is also a problem. For example, different definitions of reproductive age are used between the MCH programme and the family planning programme, which limits comparisons and triangulation of data. The structure of donor funding has contributed to a compartmentalized effect and resulting data collection methods.

RECOMMENDATIONS

Following are some recommendations to maintain the current momentum in strengthening health information management systems:

- Assure sufficient staff training in the use and value of new health information and management systems to promote their full adoption.
- Address how late reporting into the systems affects state follow-up and remote service providers.
- Seek opportunities to streamline and integrate the databases between compartmentalized programmes, especially between MCH and family planning programmes.
- Assure that data collection and analysis systems are mainstreamed at the state level to build local-level capacity and sustainability.

¹⁶ Op. Cit., Federated States of Micronesia. (2010).

CASE STUDY 2: TARGETED COMMUNITY OUTREACH, A HIGH-IMPACT MCH INITIATIVE

In all FSM states, outreach activities are a key feature in RMNCAH programmes. The MCH programme, in collaboration with other public health programmes, conducts outreach activities at least once every quarter, depending on availability of transportation. Outreach activities involve education and counseling of pregnant women, breast-feeding mothers, women of childbearing age, adolescents both in school and out of school, parent groups, caretakers, women's groups, youth organisations and other social- and faith-based organisations. For example, in Yap training is provided for women from the outer islands and remote villages on the importance of ANC, screening, nutrition education and breast-feeding¹⁷.

Outreach has been particularly important in areas where health-seeking behaviour is low because of traditional beliefs, a lack of resources to attend a clinic, or concerns over privacy. Outreach clinics have enabled delivery of early postnatal in the home, which typically is sought only after bleeding has completely ceased because of a belief that a woman should not be seen or examined during this time. Home visits have also allowed follow-up of underweight and malnourished babies who would not be taken to the clinic because of traditional beliefs about the reasons for the lack of weight gain¹⁸. In Chuuk, concerns over privacy led to treatment delivery for patients with a diagnosis of chlamydia away from family homes in nonclinical locations. Family planning services that target adolescents are delivered at schools and youth centres to increase accessibility among this important age group.

Despite the success of outreach services, several challenges remain in their regular provision. Transportation to conduct regular outreach in outer Islands is primarily by boats that are operated by state transport authorities. Health departments in each state have little control over the timetable of operations and often are informed at the last minute that a boat is leaving the next day; thus, operations are reactive rather than proactive¹⁹. Financing health outreach remains a challenge in Chuuk and Kosrae, where the state government cash flow constraints restrict access to funds for outreach services, despite being allocated in the budget. A further challenge remains, to target outreach health education activities to reach key decisionmakers on maternal and child health matters in families and communities.

RECOMMENDATIONS

The following recommendations are offered to help strengthen MCH outreach services:

- Formalise access to regular transport services with state government transport agencies through a signed memorandum of understanding.
- Provide support from the national-level MCH team to state-level counterparts to work with state departments of finance to solve cash flow in Kosrae and Chuuk.
- Address low health-seeking demand at critical points of maternal and child health through a combination of outreach and health education and involve vulnerable women and communities to reach local solutions.
- Increase the effectiveness of health education by increasing community involvement; use community health workers more effectively and target key messages to decisionmakers who influence health-seeking behaviour (e.g., husbands and key relatives).

¹⁷ Federated States of Micronesia. (2013). Annual review of the MCH programme. Palikir, FSM: Department of Health and Social Affairs

¹⁸ Ibid.

¹⁹ Ibid.

CASE STUDY 3: INVESTMENT IN HEALTHY PREGNANCIES, DELIVERIES AND BABIES

Preliminary 2012 MCH data show that only 19.2% of women who gave birth during the year received ANC during their first trimester, a decrease from 30.0% in 2010. Data from 1999 to 2010 illustrated a trend of increasing rates in early ANC, from 9.7% to 30.0%, respectively. In addition, ANC has often been reported through MCH data as inadequate. Of the 2,087 pregnant women who reported having received ANC services in 2010, 494 (24%) received at least 80% of the expected number of visits based on the Kotelchuk Index of Adequacy of Prenatal Care Services. Approximately 31% of all the pregnant women received adequate care, 29% received intermediate care and 40% received inadequate care based on the Kotelchuk Index^{20,21}.

Barriers are multifaceted to increasing the number of women who attend ANC in their first trimester and receive adequate care. In 2009, a survey was conducted among pregnant women who received ANC. Of those surveyed, more than 70% came in their late second and third trimester. Reasons provided for not attending early ANC were gender preference of service provider (30%), service cost (28%), personal choice (15%), transportation (11%), no health problem (8%), no baby sitter (3%), community involvement (3%), use of local medicine (1%) and early ANC is not important (1%). When the Kosrae state MCH programme conducted focus group meetings and a survey of pregnant women in 2009, 70% of participants indicated that pregnancy is a normal process in life for women, with no need to seek ANC unless physical dysfunctions occur. Some women did not attend ANC because they felt ashamed that they were pregnant at a young age. Women in remote outer islands face particular constraints in accessing early ANC because of transportation difficulty and by the cultural belief that women should not travel on boats during their first trimester.

The MCH programme is implementing public awareness campaigns on the importance of ANC in all four FSM states. In 2009, the campaigns were affected by transportation problems; the number of women who received ANC in their first trimester decreased. Despite the low number of women who attended early antenatal care, 75% of the women who were surveyed in 2009 indicated they were satisfied with the services provided during later ANC visits. Of the women surveyed, 60% indicated their satisfaction came from health education information and moral support the clinic provided. At the state hospital in Pohnpei, six examination rooms are dedicated to ANC and two staff members provide the services. During the annual 2013 MCH review, it was noted that ANC clinics are often busy, which results in long wait times. It was suggested that other nursing staff members who could assist are unable to because their position descriptions allocate them to specific programmes.

RECOMMENDATIONS

The following recommendations are offered to continue to increase the number of pregnant women who seek early ANC:

- Address structural and policy constraints to increase collaboration between nursing staff for ANC in busy clinics.
- Increase the capacity of MCH teams to provide ANC services during outreach, especially in remote islands.
- Target key decisionmakers in families to strengthen community awareness of the importance of ANC and open dialogue on restrictive cultural beliefs.
- Ensure that women with pregnancy complications and live in remote areas have transportation available for timely comprehensive emergency obstetric care, as recommended by health staff.

²⁰ Op. Cit., Federated States of Micronesia. (2012).

²¹ The Kotelchuk Index of Adequacy of Prenatal Care Services includes two crucial elements obtained from birth certificate data—when prenatal care began (initiation) and the number of prenatal visits from when prenatal care began until delivery (received services). The Kotelchuk Index classifies the adequacy of initiation as follows: pregnancy months 1 and 2, months 3 and 4, months 5 and 6, and months 7 to 9, with the underlying assumption that the earlier prenatal care begins the better. To classify the adequacy of received services, the number of prenatal visits is compared to the expected number of visits for the period between when care began and the delivery date. This does noquality of care.



FSM. Pohnpei Hospital Maternity—Nurse doing her routine checks.

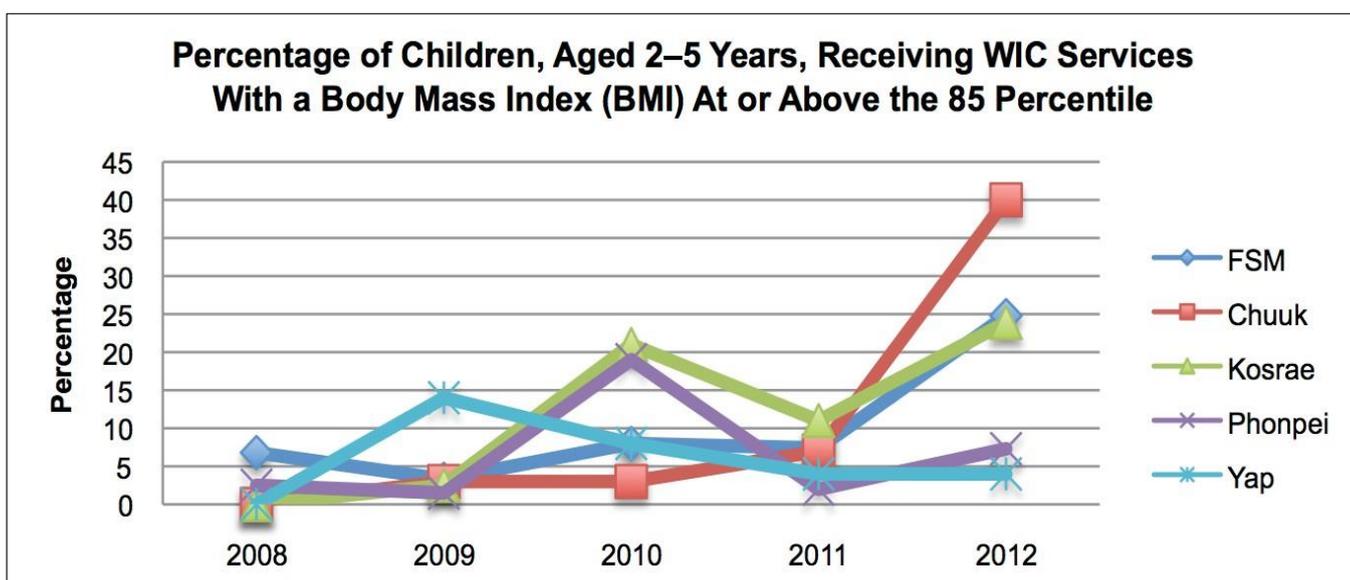
CASE STUDY 4: ADDRESS MATERNAL AND CHILD NUTRITION TODAY FOR OUR CHILDREN'S FUTURE

Health information data illustrate high rates of anaemia and obesity among both children and women of reproductive age in FSM. The most recent data from MCH HIS indicate a sharp increase in childhood obesity in the four states. Nationally the percentage of children ages 2–5 years with a body mass index (BMI) >85th percentile has risen from 7.4% in 2011 to 24.8% in 2012. Chuuk has seen an increase (from 7% to 40%) over the past year of children ages 2–5 with a BMI >85th percentile among those that receive Women, Infants and Children (WIC) services (see Figures 3 and 4).

no monitoring is conducted to determine if women take the supplements and a repeat follow-up test is not performed until a woman is in the labour room. The low rates of women attending ANC in their first trimester indicate that few women receive treatment for anaemia during the early stages of pregnancy.

In FSM, the DHS noncommunicable disease programme is working in a wide range of policy, systems and environmental initiatives to reduce obesity in the general population. Activities that target child obesity include development of a nutrition and physical policy for schools, establishment of a walk-to-school programme, and development of relevant communication for behavioural impact strategies. A study is also being conducted by the University

FIGURE 3. Trends in Body Mass Index for Children Ages 2–5 Years That Receive WIC Services



Source: <https://mchdata.hrsa.gov/tvisreports/Documents/NeedsAssessments/2011/FM-NeedsAssessment.pdf> (pages 65-66)

Figure 4 (page 18) illustrates that more than 40% of the adult population ages 24–64 years in 2002 were overweight. Of particular concern is the percentage of the female population that is overweight (50%), compared to the male population (30%). Research has illustrated that maternal obesity during pregnancy is a key risk factor for the development of child obesity²².

One of the first routine determinations to be tested at the first ANC visit is hemoglobin level; however, MCH coordinators report that this service is not provided consistently and sometimes, because of lack of supplies, is not conducted at all. Data from the four state MCH programmes show that 34% of pregnant women who attend ANC have low hemoglobin levels²³. Iron supplements are provided for women with low hemoglobin levels; however,

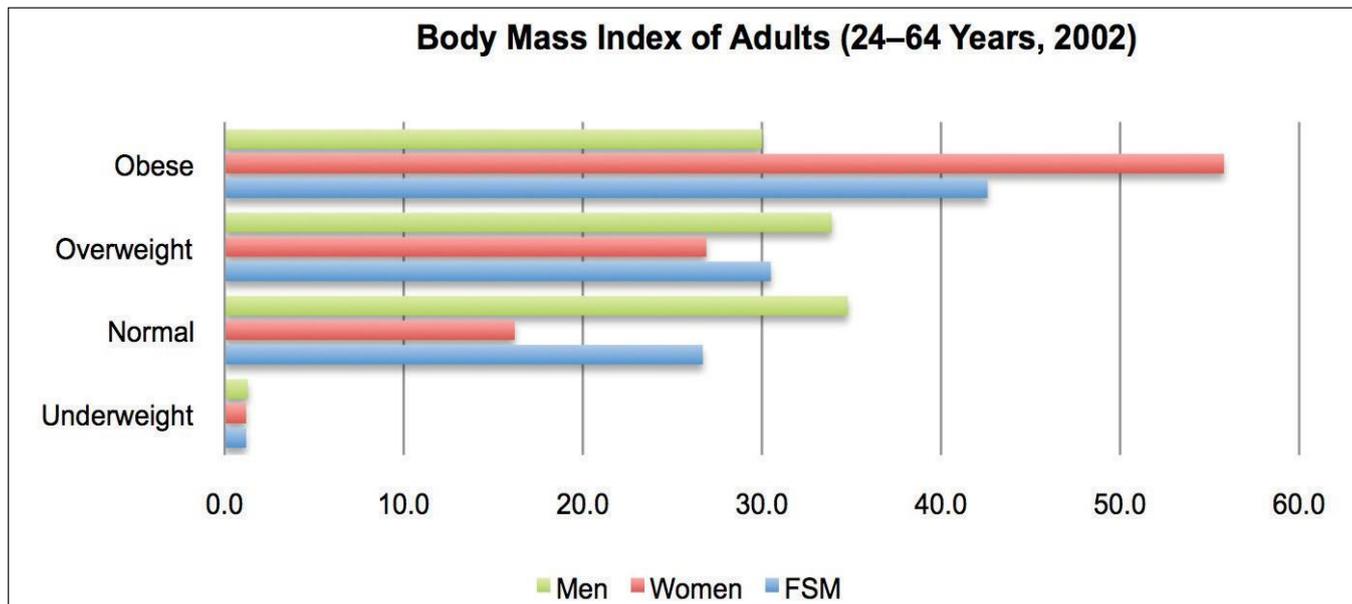
²³ Op. Cit., Federated States of Micronesia. (2010).

of Hawaii to better understand the prevalence of childhood obesity in FSM.

Few initiatives are targeted at improving the nutritional status and decreasing obesity among women of reproductive age. Although nutrition education services are available in ANC clinics, no protocols or procedures are in place and the quality of the health promotion education lacks consistency. In 2011, state MCH programmes reported that despite their active and continuous nutrition education and counselling programmes aimed at improving the diets of pregnant women to address iron deficiency anaemia, the percentage of pregnant women with anaemia continues to increase. It has been reported anecdotally that most pregnant women who cannot afford nutritious foods are choosing low-quality imported food rather than locally available nutrient-rich foods.

²² Institute of Medicine. (2009). *Weight gain during pregnancy: Reexamining the guidelines*. Washington, DC: National Academies Press.

FIGURE 4. Trends (2002) in Body Mass Index for Adults Ages 24–64 Years



Source: Data for BMI of adults (aged 24–64), 2002, are at http://www.undp.org/fj/pdf/MDG%20Report/FSM_MDG.pdf (p. 67)

Many barriers and challenges exist in FSM in the effort to improve the nutritional status of women and children. The transition from traditional nutrient-rich diets to the consumption of imported high-calorie but low-nutrient foods has been a key factor in the rising levels of obesity. Some important cultural and gender factors also influence the understanding and perceptions of obesity in the FSM population. It was reported that it is a source of pride for a husband to have a large wife because it shows that she is happy and well taken care of. This belief may contribute to the much higher rates of female obesity.

Childhood obesity is influenced by the mother’s weight, her smoking during pregnancy and breast-feeding practices. Across the four FSM states, data suggest that the weight of mothers is increasing. In Pohnpei, the rate of mothers who smoke during the third trimester is increasing. Infants often receive coconut milk at a very young age; thus, rates of exclusive breast-feeding are low. Health messages on the benefits of exclusive breast-feeding must take into account the nature of caregiving arrangements for young children, where extended family members often assist with feeding.

A success story in preventing childhood obesity has been noted in Yap, where the percentage of children ages 2–5 years who have a BMI >85th percentile remained at 4% of the population, according to 2012 MCH data. This success has been attributed to an innovative nutrition education school health programme that includes early childhood development centres. Cooks from different schools received training in nutrition and were shown how to prepare healthful student meals using local ingredients. In addition, obesity was discussed with parents and children’s BMI was monitored routinely.

RECOMMENDATIONS

The following lessons learned and recommendations are aimed at improving the nutritional status of women and children in FSM:

- Clarify the links between maternal obesity and child obesity and integrate preventive measures in the MCH programme.
- Collect information on maternal obesity as part of ANC.
- Integrate nutrition promotion outreach activities that include messages on healthy weight gain during pregnancy and the importance of eating nutritious, iron-rich foods, especially locally available, inexpensive products.
- Consider expanding the Yap school nutrition education model into other states.
- Develop targeted nutrition and obesity education messages for women of reproductive age on the importance of nutrition and the effect of maternal weight on the child.
- Initiate an open dialogue during health education sessions with women and men on cultural beliefs about obesity.
- Investigate implementation of a vitamin A and iron distribution programme in grade schools.
- Seek opportunities to partner with civil society, church, and women’s groups to expand health promotion messaging.

Conclusions and Recommendations

These four case studies highlight some key achievements and challenges that face the Government of the Federated States of Micronesia in reproductive, maternal, newborn, child and adolescent health. The investments made to increase the capacity of health information systems are beginning to come online. These improved systems will enable better tracking of key trends and result in the strategic targeting of services and resources to improve the health status of women and children in FSM. Challenges remain, however, to build staff capacity to understand data quality management and to use data for decision making.

The experience in FSM has illustrated how targeted outreach services to remote areas can help address low-health-seeking behaviour. In the medium term, however, it is important to address key causes for low-health-seeking behaviour through health education activities that target key household decisionmakers, for example, to increase early ANC

visits. Outreach also will need to address cultural barriers that deter seeking care. Further investment in outreach services can help reach the most vulnerable, geographically or socially, populations so they will have increased access to services and care. This should be prioritised at the state level.

Maternal and child nutrition will be a key determining factor in health outcomes of future generations in FSM. High rates of anaemia and obesity are a dual challenge that must be addressed to prevent the rapidly increasing rates of noncommunicable diseases and other outcomes related to poor nutrition. The move back to healthful locally grown foods and away from imported calorie-dense foods will be an important component of future health promotion initiatives. The sustainability of health system funding is also of concern because of the reliance on USG funds through the Compact agreement that will expire in 2023.



A newborn baby rests peacefully on his brightly coloured towel in Pohnpei Hospital's maternity ward.

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Federated States of Micronesia,

Maternal, Newborn &
Child Survival

January 2011

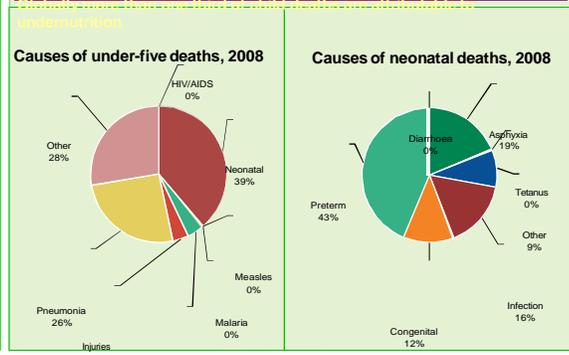
Micronesia, Federated States of

DEMOGRAPHICS

Total population (000) 111 (2009)
 Total under-five population (000) 13 (2009)
 Births (000) 3 (2009)
 Under-five mortality rate (per 1000 live births) 39 (2009)
 Infant mortality rate (per 1000 live births) 32 (2009)
 Neonatal mortality rate (per 1000 live births) 16 (2009)
 Total under-five deaths (000) 0 (2009)
 Maternal mortality ratio, adjusted (per 100,000 live births) -
 Maternal mortality ratio, reported (per 100,000 live births) 270 (1999)



Causes of under-five deaths



Lifetime risk of maternal death (1 in N) - - 0

Target 4%

Total maternal deaths (number) - - 1990 1995 2000 2005 2010 2015

WHO/CHERG 2010

WHO/CHERG 2010

Source: IGME 2010

Note: Figures may not add to 100% due to rounding.

INTERVENTION COVERAGE FOR MOTHERS, NEWBORNS AND CHILDREN

NUTRITION

Stunting prevalence (based on 2006 WHO reference population, moderate and severe, %) - -

Wasting prevalence (based on 2006 WHO reference population, moderate and severe, %) - -

Complementary feeding rate (6-9 months, %) - -

Low birthweight incidence (%) 18 (2000)

Underweight prevalence

Percent children < 5 years underweight for age

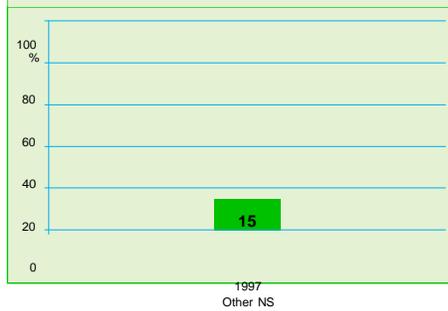
Based on 2006 WHO reference population



Underweight prevalence

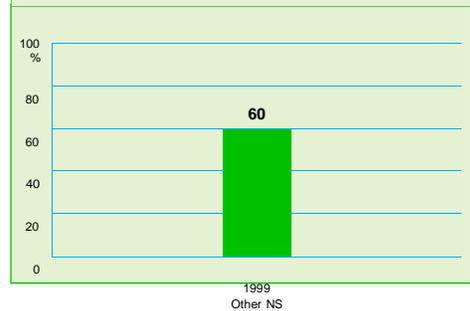
Percent children < 5 years underweight for age

Based on NCHS/WHO reference population



Exclusive breastfeeding

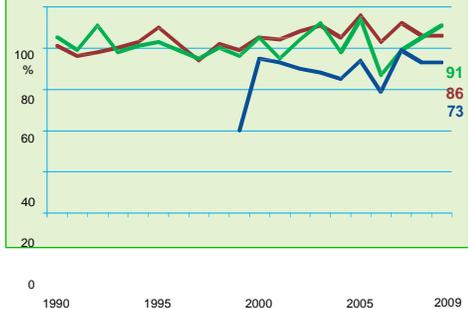
Percent infants < 6 months exclusively breastfed



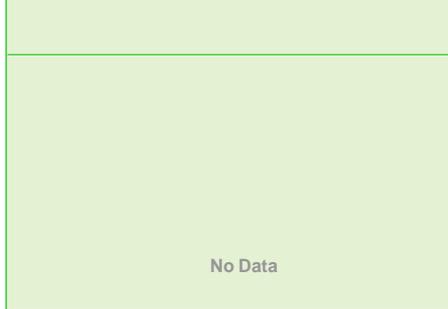
CHILD HEALTH

Immunisation

Percent of children immunised against measles
 Percent of children immunised with 3 doses DPT
 Percent of children immunised with 3 doses of Hib

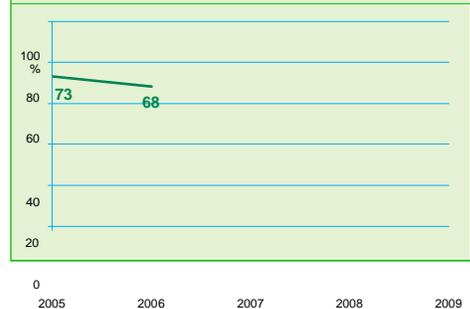


Pneumonia treatment



Vitamin A supplementation

Percent children 6-59 months receiving two doses of vitamin A during calendar year



Source: WHO/UNICEF

Diarrhoeal disease treatment

Percent children < 5 years with diarrhoea receiving oral rehydration therapy (ORS, recommended homemade fluids or increased fluids), with continued feeding

No Data

Malaria treatment

Percent febrile children < 5 years using anti-malarials

No Data

Source: UNICEF

Malaria prevention

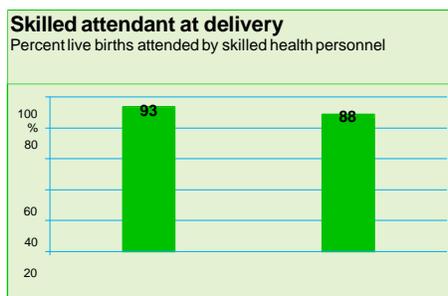
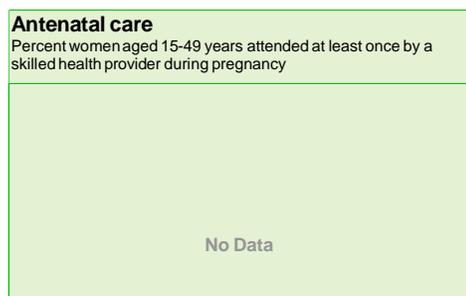
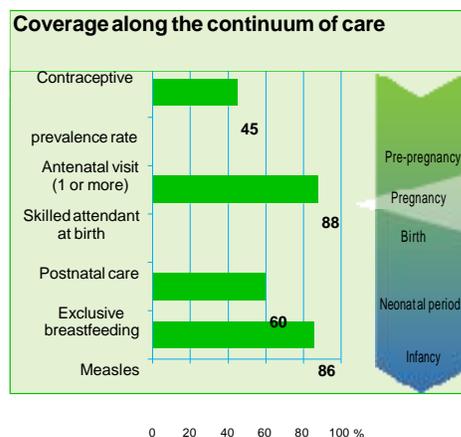
Percent children < 5 years sleeping under ITNs

No Data

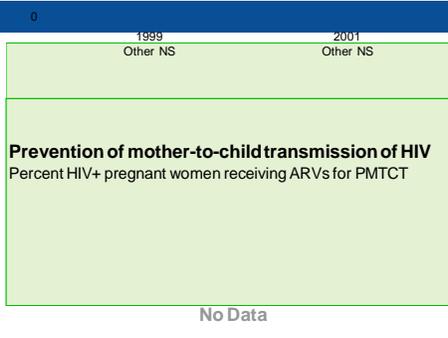
Micronesia, Federated States of

MATERNAL AND NEWBORN HEALTH

Proportion of women with low BMI (< 18.5 Kg/m ² , %)	-	-
Unmet need for family planning (%)	-	-
Total fertility rate	3.5	(2009)
Adolescent birth rate (births per 1000 woman aged 15-19 yr)	51	(2003)
Antenatal visit for woman (4 or more visits, %)	-	-
Early initiation of breastfeeding (within 1 hour of birth, %)	-	-
Institutional deliveries (%)	-	-
Postnatal visit for baby (within 2 days for home births, %)	-	-
Postnatal visit for mother (within 2 days, %)	-	-

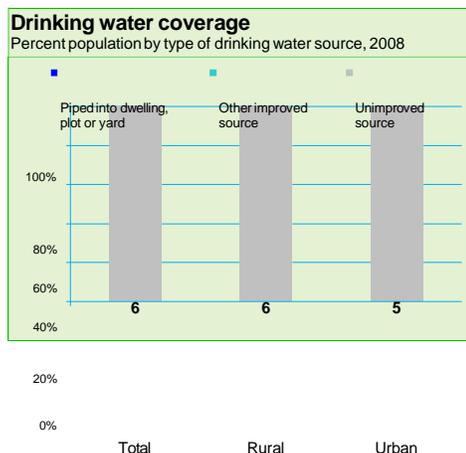


HIV prevalence among young women (15-24 yrs.%)	-	-
HIV prevalence among young men (15-24 yrs.%)	-	-
HIV+ children receiving ART (%)	-	-
Orphan school attendance ratio	-	-



Survival rate to last grade of primary school (% administrative data)	-	-
Survival rate to last grade of primary school (% survey data)	-	-
Primary school net enrolment or attendance ratio (% total)	92	(2000)
Primary school net enrolment or attendance ratio (% male)	-	-
Primary school net enrolment or attendance ratio (% female)	-	-

WATER AND SANITATION



Source: WHO/UNICEF JMP, 2010

Source: WHO/UNICEF JMP, 2010

POLICIES *(being updated)*

International Code of Marketing of Breastmilk Substitutes	-	-
New ORS formula and zinc for management of diarrhoea	-	-
Community treatment of pneumonia with antibiotics	-	-

SYSTEMS *Financial Flows and Human Resources (being updated)*

IMCI adapted to cover newborns 0-1 week of age	-	-
Costed implementation plan(s) for maternal, newborn and child health available	-	-
Midwives to be authorised to administer a core set of life saving	-	-

interventions	-	-	Per capita total expenditure on health (US\$)	-	-
Maternity protection in accordance with ILO Convention 183	-	-	General government expenditure on health as % of total government expenditure (%)	-	-
Specific notification of maternal deaths	-	-	Out-of-pocket expenditure as % of total expenditure on health (%)	-	-
			Density of health workers (per 10,000 population)	-	-
			Official Development Assistance to child health per child (US\$)	-	-
			Official Development Assistance to maternal and neonatal health per live birth (US\$)	-	-
			National availability of Emergency Obstetric Care services (%)	-	-

Micronesia, Federated States of

DISPARITIES IN INTERVENTION COVERAGE ²

Indicator	Total	Gender			Residence			Wealth Quintile						Source
		Male	Female	Ratio of Male to Female	Urban	Rural	Ratio of Urban to Rural	Poorest	Second	Middle	Fourth	Richest	Ratio of Richest to Poorest	
NUTRITION ¹														
Low birthweight incidence (%)	18	-	-	-	-	-	-	-	-	-	-	-	-	MoH 2000
Underweight prevalence (based on 2006 WHO reference population, %)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Underweight prevalence (based on NCHS/WHO reference population, %)	15	-	-	-	-	-	-	-	-	-	-	-	-	Other NS 1997
Stunting prevalence (based on 2006 WHO reference population, %)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wasting prevalence (based on 2006 WHO reference population, %)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Exclusive breastfeeding (0-5 months, %)	60	-	-	-	-	-	-	-	-	-	-	-	-	Other NS 1999
Complementary feeding (6-9 months, %)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CHILD HEALTH ⁴														
Careseeking for pneumonia (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antibiotic use for pneumonia (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diarrhoeal treatment - children receiving ORT and continued feeding (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malaria prevention - children sleeping under ITNs (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malaria treatment - febrile children receiving antimalarial medicines (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MATERNAL AND NEWBORN HEALTH														
Proportion of women with low BMI (< 18.5 Kg/m ² , %)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antenatal care coverage at least one visit (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antenatal care coverage (4 or more visits, %)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Skilled attendant at delivery (%)	88	-	-	-	-	-	-	-	-	-	-	-	-	Other NS 2001
Early initiation of breastfeeding (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WATER AND SANITATION ³														
Use of improved drinking water sources (%)	89	-	-	-	95	-	-	-	-	-	-	-	-	2008 (WHO/UNICEF JMP 2010)
Use of improved sanitation facilities (%)	29	-	-	-	-	-	-	-	-	-	-	-	-	2008 (WHO/UNICEF JMP 2010)
EDUCATION														
Survival rate to last grade of primary school (administrative data, %)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Survival rate to last grade of primary school (survey data, %)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Primary school net enrolment or attendance ratio	92	-	-	-	-	-	-	-	-	-	-	-	-	Other NS 2000
CHILD PROTECTION														
Women aged 20-24 years who were married or in union by age 18 (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Birth registration (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Female genital mutilation/cutting (%)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: The format for this Country Profile has been adapted from the Countdown to 2015 report. Coverage data have been largely derived from national household surveys such as the Multiple Indicator Cluster Surveys (MICS) and Demographic and Health Surveys (DHS). For the majority of coverage indicators, UNICEF global databases were used. Other organizations such as the World Health Organization, UNAIDS, United Nations Population Fund, London School of Hygiene and Tropical Medicine and Saving Newborn Lives also provided data. Details on indicators, data sources, and definitions of indicators, can be found at www.childinfo.org.

1. **Anthropometric indicators - Reference Standards for Underweight, Stunting and Wasting.** New international Child Growth Standards for infants and young children were released by WHO in 2006, replacing the older NCHS/WHO reference population. During this transition period, the Country Profile provides underweight, stunting and wasting data based on both the 2006 WHO reference population and the older NCHS/WHO reference population, where available. In using the 2006 WHO reference population, estimates generally change in the following manner: stunting is greater throughout childhood; underweight rates are higher during the first half of infancy and lower thereafter; and, wasting rates are higher during infancy.

2. **Disparities.** Disparity information is only available for data directly derived from household surveys such as MICS and DHS. Therefore, disparity data are not available for the following indicators: mortality, vitamin A supplementation, immunization, and for HIV/AIDS. In addition, neither UNICEF Global Databases nor databases from partner organizations maintain disparity data for the following indicators: total fertility rate, unmet need, institutional deliveries, contraceptive prevalence, adolescent birth rate.

3. Water and sanitation wealth quintile data are derived from MICS or DHS surveys. Urban, rural and total coverage estimates provided are for 2008 and are those published by the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation.

4. Child Health - All indicators in this section refer to children under 5 years of age.