

Child health and nutrition in the Marshall Islands

Alison Culpin, Statistics for Development Division, Pacific Community (SPC)

This paper considers the health of children in the Republic of the Marshall Islands, one of the most urbanised countries in the Pacific with approximately 77 per cent of its population living in two urban centres, Majuro or Ebeye (Government of RMI 2012). Ebeye is the fifth most densely settled island in the world (Wikipedia/org 2017). The high levels of urbanisation and overcrowding, together with the high cost, limited availability and limited preference for fresh food, impact on child health.

Although, the majority of Pacific Island nations have experienced sufficient reductions in infant and child mortality to have met the 2030 target for mortality set in the Sustainable Development Goals (SDGs) and these improvements are now flowing through to better overall life expectancy among men and women, the most recent country observations show that children in three Pacific Island nations - Kiribati, the Republic of the Marshall Islands (RMI) and Papua New Guinea - face 'excess' mortality in both under-five and neonatal age groups. When considering maternal and child health in the Marshall Islands both geographic and historic factors continue to influence child morbidity and mortality.

Geography, history and health

The Marshall Islands, like Kiribati, comprises a number of small, widely scattered coral atolls with very limited land area, coralline soils that support only minimal agriculture, and considerable vulnerability to climate change (Connell and Lea 1995). Extreme weather conditions over the last 10 years have led to atoll inundation, a rapid loss of land and houses, salt water intrusion into water supply and, in Marshall Islands, loss of food crops from severe drought (Heine lecture 2017). There is no surface water. The populations of both countries have experienced very rapid in-migration from outer atolls and are now largely urban with very high urban population densities (Connell 2017). Between 2000 and 2009, 11,000 Marshallese migrated to the urban areas (UNICEF 2013) leading to an increased reliance on imported food and resulting in considerable health problems from both infectious and lifestyle diseases for children.

Historically, the urban populations of Ebeye and Majuro, include large families relocated from the atolls of Bikini and Enewetak to allow for American nuclear testing following World War II. Missile testing continues today and the consequences of both testing and relocation are still felt (UNICEF 2013). Since 1945, three generations of these families have continued to receive American pensions and food aid.

Currently, an estimated 55,300 people live in the Marshall Islands (SPC 2016). Majuro, the capital, has a population of 27,797 (Government of RMI 2012) and Ebeye, a

very small island of just 0.360 square kilometres and a population of around 15,000, has a population density of 41,667 per square kilometre (ibid). Urbanisation and high population density have put tremendous pressure on land as well as the provision of basic social services such as health, clean water, sanitation, housing, and classroom space, all of which are essential to children's growth and development (UNICEF 2013).

In Majuro, there are considerable social and economic inequalities and housing and living conditions vary considerably from well built, spacious modern houses to overcrowded shelters constructed of recycled, corrugated iron clinging to the shorefront (UNICEF 2013). Due to continued high fertility rates, nearly one-half of the Marshall Islands population is under the age of 18 years. In the urban areas, one-third of households have nine or more members, and one-fifth use only one room for sleeping. Forty per cent of households contain at least one child not living in the same household as either natural parent (Government of RMI 2012). Large household numbers contribute to the high level of poverty that persists, with one in two people living below the poverty line (ADB 2015) and eligible for American food aid. While overall fertility has declined from 7.2 births per woman in the 1988 to 4.1 in the 2011 Census, the teenage fertility rate remained largely unchanged over the same period. One in ten births in the Marshall Islands is to a teenaged mother. At the time of the 2007 Demographic and Health Survey (DHS), one in four teenaged girls had previously given birth or was pregnant. Children born to teenaged mothers have a significantly higher risk of dying in the first year of life (59 per 1,000 compared to 28 per 1,000 among children born to mothers aged in their thirties).

Maternal mortality in the Marshall Islands is high, at 105 per 100,000 live births (SPC 2016). (The SDG target is 70 or fewer deaths per 100,000 live births). Risk factors in maternal health also effect child morbidity and mortality.

Closely spaced pregnancies and childbirth put women and their babies at risk especially in combination with inadequate nutritional habits. This in turn impacts on child health, particularly those that are breastfed. For example, vitamin A deficiency in pregnant women means breast milk does not maintain adequate vitamin A for infants. At the cessation of breastfeeding, which occurs earlier than recommended in urban Marshall Islands, the prevalence of vitamin A deficiency increases, leading to greater susceptibility to severe infections among children.

As a result of a 1994-95 study which estimated that 55 per cent of children aged one to five years had moderate vitamin A deficiency and eight per cent severe deficiency, the Ministry of Health instigated a vitamin A distribution program whereby supplements are allocated to children aged six months to 12 years and all women who have just

given birth. This greater awareness of the need for foods rich in vitamin A has been maintained in Majuro, with nearly three-quarters of mothers eating some fruits and vegetables rich in vitamin A, and over one-half reporting having received post-partum vitamin A supplements (Government of RMI, 2011).

Infrastructure and administrative services

In 2015, only three per cent of people in the Marshall Islands had drinking water piped into their dwellings, a level that has not increased since the 1990s (WHO 2016a). Overall, only five percent of people are using unimproved drinking water sources while the other 92 per cent who are largely urban dwellers use improved sources such as rainwater collection, public taps or standpipes. Three-quarters of urban dwellers have access to improved sanitation (84 per cent in Majuro and Ebeye and 56 per cent in rural areas) however, only one-third of children's stools are disposed of safely (21 per cent in rural areas and 41 per cent in the two urban areas) and disposable diapers continue to be thrown in the sea washing up on the beaches and further inland during tidal surges. Only 20 per cent of schools have adequate water supply and only 10 per cent have sanitation (WHO 2016a). Improved water and sanitation conditions in the Marshall Islands have helped address exposure to diarrhoea-causing agents, but continued efforts in community health education are required to improve the situation.

Prenatal care services are free, and 95 per cent of Marshallese mothers attend at least once, but the services received may not fully meet maternal needs. Of women who had a live birth in the five years preceding the 2007 DHS, just over one-half spoke of pregnancy complications, and only one-fifth claimed to have received two or more tetanus toxoid injections to protect against potentially fatal neonatal tetanus. These services are available in the two urban areas but are very difficult to access for outer island women. With such a high proportion of the population in urban areas with relatively easy access to health services, antenatal coverage is reasonably good in the Marshall Islands with 92 per cent of live births receiving at least one visit to an antenatal service, and 77 per cent receiving more than the recommended four or more visits (Government of RMI 2011). Although initial breastfeeding at birth is almost universal, the Marshall Islands has one of the lowest levels of exclusive breastfeeding in the Pacific (SPC2016).

Child morbidity and mortality in Marshall Islands

Three out of every 100 children born in the Marshall Islands die before they reach five years of age, and two of these will have died before their first birthday (SPC 2016).

Large declines in child mortality occurred from the 1980s to the end of the 1990s, but minimal improvement has been observed since then. The rate of decline has not kept pace with the rest of the Pacific region.

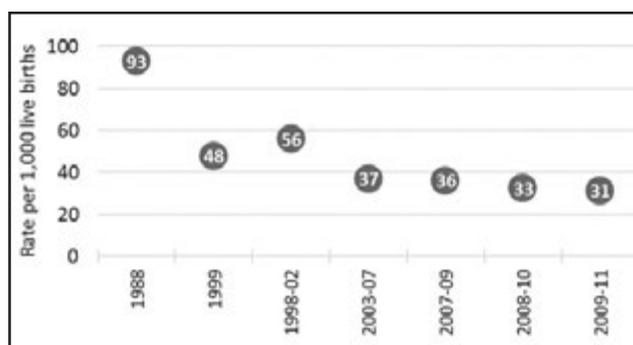


Figure 1: Under-five mortality rate in the Marshall Islands (deaths per 1,000 live births) (Source of data: SPC, NMDI.)

Statistics on the cause of death show the continued presence of ‘preventable’ deaths in children, namely infections and injuries, which account for more than one-third of deaths among those under five. This suggests the impact of crowded urban households, poor sanitation practices and an absence of early medical intervention.

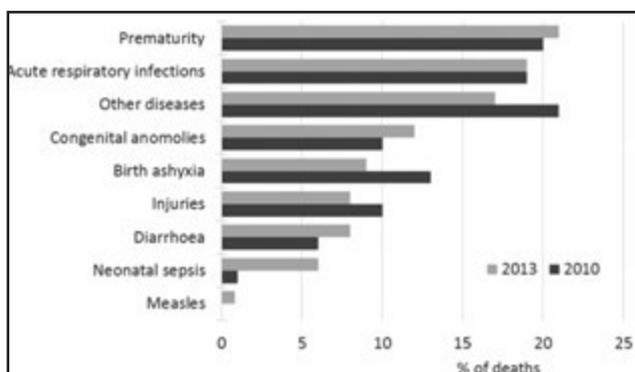


Figure 2: Causes of under-five deaths, 2010 and 2013, Marshall Islands (Source of data: WHO 2016b.)

Diarrhoea continues to lead to deaths in young age groups, accounting for eight per cent of all deaths among children under five in 2013. While a marked improvement from a decade ago, when diarrhoea caused 17 per cent of deaths in this age group, this remains double the Pacific average. One in ten children under five years were reported to have had diarrhoea in the two weeks before the 2007 DHS, rising to one in five among one year olds. In Majuro, approximately half of those children with diarrhoea were taken to a health care provider.

Estimates of the proportion of low birth weight infants (defined as less than 2500 grams) vary according to year and source of estimate. From the last decade, they have varied between 15.8 per cent and 23.5 per cent, and the 2007 DHS reported figure was 18 per cent (Government of RMI 2011). While not uncharacteristically high for the Pacific region, this is likely to be associated with the one-fifth of child deaths that are attributable to prematurity.

Food and nutrition

An estimated 37 per cent of children in urban areas, aged two to four years are overweight with 13 per cent of children already obese by the time they are aged 13 to 15 years of age (SPC 2016).

Last decade, nearly two in every five infants under the age of two were not meeting the minimum acceptable diet, and one in five were not meeting the minimum meal frequency. Overall, this led to 13 per cent of children aged five years and under being classified as malnourished in the 2007 DHS (10 per cent in urban areas, 19 per cent in rural areas, and over 20 per cent in the lowest three wealth quintiles).

As in much of the Pacific, populations are simultaneously dealing with under- and over-nutrition which leads to adult obesity and burgeoning non-communicable diseases (NCDs). Over one-half of adult women and 39 per cent of men in the Marshall Islands are obese and blood glucose are also above the Pacific average, with one-quarter of men and nearly one-third of women aged 25 years or more recording elevated blood glucose (WHO 2016b).

People in the Marshall Islands experience one of the highest rates of type 2 diabetes in the world, and the disease is established at an early age. It is estimated that nearly three in ten people aged 15 years and over, and one in two people over 35 years of age have type 2 diabetes (Davis 2008). The reality of this can be seen in the morbidity outcome – one-half of all surgical procedures in the Marshall Islands are amputations as a result of diabetes.

Changing diet is widely recognised as a major health issue for Pacific Islanders, particularly for those in the Marshall Islands due to a lack of land for food production and the readily available imported American food aid. Even when available, traditional Marshallese food products are often expensive and viewed as too time consuming to cook. For nearly 60 years, a high proportion of Marshallese have been recipients of American food aid, in the form of canned and dried food, much of it high in sugars, fats and carbohydrates. The heavy reliance on bought food or food aid is due in part to those families relocated from American nuclear testing on Bikini, Enewetak and nearby atolls. These nuclear refugee families continue to receive regular compensation payments and American food aid exacerbating the lack of incentive to grow food or to cook it.

The agricultural sector is small but still important to the livelihood of households and the Marshall Islands economy. However, the current tariff structure does not extend price incentives for local food producers (farmers and fishers), and livestock production is almost exclusively for subsistence (FAO 2012). Local fishing and consumption of fresh fish have both decreased across urban and rural areas, although commercial fishing for the overseas market continues to play a significant role in the primary sector economy. In 2012, fishing activities accounted for about 10 per cent of total employment, providing the largest private sector source of employment (FAO 2014).

Outer island communities in particular have become less self-sufficient and are now heavily reliant on remittances and purchased foods (Government of RMI 2007). As a result, an estimated 80 to 90 per cent of food calories are imported. With fresh produce being the most costly of all items, the purchasing preference is for non-perishable items such as rice, instant noodles, canned meat and soft

drinks. Food imports make up about 30 per cent of the total import bill in the Marshall Islands increasing household exposure to currency and commodity price variability, as well as the increased health risk from high fat, high sugar, and high salt foods. Some households spend up to half their household income on food (FAO 2014).

The most recent Household Income and Expenditure Survey (HIES) in 2002 showed canned meats, mainly corned beef and SPAM, represented nine per cent of all expenditure on food items, more than the total spent on fruit and vegetables combined. More than one-half of expenditure on non-alcoholic beverages (and five per cent of total expenditure on food items) was on cola soft drinks and Kool-Aid (a flavoured powder mixed with sugar). Other common food purchases were rice, chicken, canned tuna, fresh fish, instant noodles and doughnuts.

Food inflation jumped dramatically to 18.6 per cent in 2008 (from the range of zero to four per cent between the years 2000 to 2007), further impacting on the affordability and access to food (ILO 2017). It was about this time that improvements in under five mortality rates started to diverge from the general Pacific pattern and the rate of improvement stalled.

A high dependency on development assistance and food imports is complicated by vulnerability to natural disasters which further depress food security. For example, the Marshall Islands was recently the recipient of food assistance for disaster relief due to a severe drought. From October to December 2016, the United States provided \$US300,000 for household distribution to 3,000 impacted individuals.

Government response to food and nutrition needs

The government of the Marshall Islands has recognised the need to improve food security, nutrition and the retention of traditional local foods while also addressing economic dependency and resilience to disasters and climate change (Heine 2017). But there is limited capacity to address nutritional issues in the Pacific, with an absence of local nutrition training opportunities (Grieve 2013). Fiji is the only Pacific Island country providing specialised tertiary level nutrition training.

A National Plan of Action for nutrition and NCDs is in operation. Elements of the plan include the promotion of nutritious eating with emphasis on local foods; an increase in the production and consumption of local produce through the development of taxation strategies and agricultural policies; and re-establishing the school lunch program using local food and supporting health education in schools. For example, the locally grown pandanus fruit, naturally high in Vitamin A, formed part of a national program to promote locally grown produce. The 2002 HIES showed pandanus fruit was the second most purchased fruit or vegetable after bananas, accounting for 10 per cent of expenditure in this category.

School feeding programs are enshrined in Public Law 1991-125 (and 2008 revision) to guarantee school children access to nutritious food but budgetary constraints saw a reduction in the delivery and quality of this program.

Augmenting the school lunch menu with suitable nutrition guidelines and regulating local food content inclusion (50 per cent or more) could generate multiple benefits. In addition to improving children's nutritional intake, by using locally grown foods, school feeding programs can also guarantee a steady market demand and thus a reliable income stream for smallholder farmers.

The 'Health Promoting Schools' initiative was launched in 2008 with in-country training by WHO and a memorandum of understanding signed between the Ministries of Health and Education to implement this programme. The Education Department employs two health and nutrition specialists who could administer appropriate lunch menu choices (FAO 2014). The elementary school curriculum includes nutrition training up to grade 8. A curriculum benchmark expectation is that students will be able to use their knowledge of food groups to plan healthy meals.

The Diabetes Wellness Centre promotes healthy food, healthy cooking and healthy lifestyles, and advocates at the political level on eating healthy. Sponsored by various charities, in late 2015, the Majuro Agroforest Park (located at the Leroij Atama Zedkaia Memorial Hospital) opened, allowing patients to pick fresh fruits and vegetables. Locals, trained by technical experts in gardening, are now transferring these seeding and harvesting skills through community workshops (Marshall Islands Journal 2016).

Conclusion

A combination of the geography and history of the Marshall Islands, together with the increasing rate of climate change and the impact of three generations of reliance on, and preference for, American food aid and store bought food and drinks is now evident in the shockingly high rates of diabetes and lack of improvements in child health. With the same vulnerability to climate change, rapid urban migration and shortage of agricultural land it is not surprising to see similar trends in Kiribati where urban population density increases each year. While Marshallese can and do migrate to other American territories this option is not available to the I-Kiribati. In the Marshall Islands, efforts are now being made to encourage healthier eating patterns and greater consideration for nutritious food for infants and small children, in particular during the early years when malnutrition can have lasting impacts on mental and physical development. But while food aid and food imports of particularly low nutritional value remain free or of relatively low cost, and while limited land, climate change and serious water shortages and drought make local agriculture risky, achieving healthier eating patterns will require considerable and consistent support from both government and non government organisations. It is hoped that similar nutritional programmes are to be put in place in Kiribati.

Note:

In the Marshall Islands, a nutrition survey is currently underway and a new 2017/18 Household Income Expenditure Survey is in the planning stages. Data from these surveys will provide valuable information to assess the success of initiatives in the areas of healthy food promotion and local food production in the Marshall Islands and what actions need to be undertaken in the future.

References

- ADB (Asian Development Bank) 2015, *Key Indicators for Asia and the Pacific*, 2015 Edition.
- Connell J and JP Lea, 1995, *Pacific 2010: Urbanisation in Polynesia*, National Centre for Development Studies, Australian National University.
- Crocombe R, 2001, *The South Pacific*, University of the South Pacific, Suva.
- Davis, B 2008, 'Defeating Diabetes: Lessons from the Marshall Islands', *Today's Dietician*, 10(8), 24-27.
- FAO 2014, *Policy options for improved food security in the Republic of Marshall Islands*, August 2014.
- FAO 2012, *Pacific Multi-Country CPF Document 2013 – 2017: For the Cooperation and Partnership between FAO and its 14 Pacific Island Members*.
- Grieve, H, J Busch-Hallen, and K Mellor, 2013, 'Undernutrition in Pacific Island Countries: an issue requiring further attention', *Women's and Children's Health Knowledge Hub*, May 2013.
- Government of the Republic of the Marshall Islands 2012, *2011 Census Report*, Economic Policy, Planning and Statistics Office, Republic of the Marshall Islands, and the SPC Statistics for Development Programme, 2012.
- Government of the Republic of the Marshall Islands, 2011, *2007 Demographic and Health Survey*, Economic Policy, Planning, and Statistics Office Majuro, Republic of Marshall Islands.
- Government of the Republic of the Marshall Islands, 2003, 'A Situation Analysis of Youth and Women', Government of the RMI with assistance from UNICEF.
- Government of Republic of Marshall Islands, 2007, *National Action Plan for Disaster Risk Management 2008-2018*, November 2007.
- Heine Hilde, President of the Republic of the Marshall Islands, lecture at the Australian National University, May 16, 2017.
- ILO, *Labour Statistics Database*, accessed May 2017.
- Pacific Community (SPC), *National Minimum Development Indicators Database (NMDI)*. Accessed November 2016.
- Pacific Islands Forum Secretariat (PIFS) 2015, *2015 Pacific Regional MDGs Tracking Report*, September 2015.
- The Marshall Islands Journal* 2016. 'Agroforest Park opening', January 15 2016.
- UNICEF, 2013, https://www.unicef.org/infobycountry/marshallislands_statistics.html, 27 December 2013.
- UNICEF, 2013, *Children in the Republic of the Marshall Islands: An Atlas of Social Indicators*, UNICEF Pacific.
- UNICEF, 2013, 'UNICEF Situation Report No.1, Drought situation Reppublic of the Marshall islands', May 10, 2013.
- United Nations, 2015, <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>
- WHO, 2016a, *Sanitation, Drinking Water and Health in Pacific Island Countries*.
- WHO, 2016b, *Marshall Islands: WHO statistical profile*. Ward RG and A Proctor, 1980, *Kiribati: South Pacific Agriculture: Choices and Constraints*, Australian National University, Canberra.
- Wikipedia <https://en.wikipedia.org/wiki/Ebeye-Island> access July 15 2017.