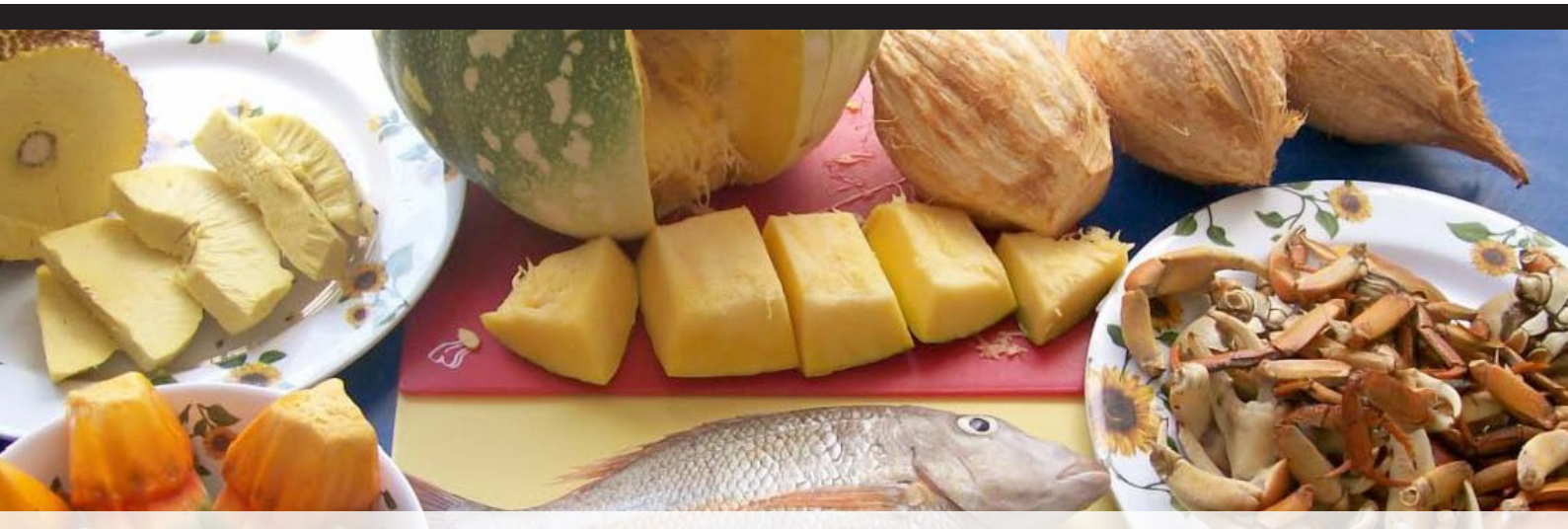
Comprehensive Multi-Year Plan for Immunization & Nutrition 2019 to 2023



Ministry of Health & Medical Services
KIRIBATI

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ACRONYMS

AD	Auto-Disable
AFR	Acute Fever and Rash
CDSRC	Communicable Disease Surveillance Response Committee
cEVM-IP	Comprehensive Effective Vaccine Management Improvement Plan
CRS	Congenital Rubella Syndrome
DFAT	Australian Department of Foreign Affairs and Trade
EPI	Expanded Programme on Immunization
EU	European Union
EVM-IP	Effective Vaccine Management Improvement Plan
EVMA	Effective Vaccine Management Assessment
GAVI	Global Alliance for Vaccines and Immunization
GIN	Gross national Income
HBsAg	Hepatitis B surface antigen
HepB	Hepatitis B vaccine
Hib	Haemophilus influenzae type B
RED	Reach Every District
HIU	Health Information Unit
HPV	Human Papilloma Virus
ICC	Inter-agency coordinating committee
IPV	Inactivated Polio Vaccine
JRF	WHO/UNICEF Joint Reporting Form
MCV	Measles Containing Vaccine
MFAT	New Zealand Ministry of Foreign Aid and Trade
MHMS	Ministry of Health and Medical Services
MR	Measles Rubella Vaccine
OBW	Obstetric ward
PCV13	Pneumococcal Conjugate Vaccine 13-valent
Penta	Pentavalent vaccine: (DPT- Hepatitis B-HiB)
PHC	Primary Health Care
PHN	Public Health Nurse
RMNCAH	Reproductive Maternal Child Adolescent Health
ROTA	Rotavirus Vaccine
SIA	Supplementary Immunization Activity
TCH	Tungaru Central Hospital
Td	Tetanus Diphtheria Vaccine
bOPV	bivalent Oral Polio Vaccine
tOPV	trivalent Oral Polio Vaccine
WUENIC	WHO-UNICEF Estimates of National Immunization Coverage

Executive Summary

Health is considered as a fundamental right of the people. Along with the constitution, the Immunization policy endorsed in 2018. states that every child has the right to access quality vaccines. This context gives the national immunization program a solid ground to move into more concrete action in the next few years.

In line with the Global Vaccine Action Plan (GVAP), NIP envisions delivery of immunization services throughout the country regardless of where they are born, who they are and where they live, in this regard it is essential to have a long-term immunization plan with priority activities identified and as well as a financial sustainability plan.

The comprehensive multi-year plan is a medium-term strategic plan for Kiribati Expended Programme on Immunization and Nutrition. This plan provides strategic direction for the immunization programme, Vitamin A and Deworming over a five years period. The cMYP is always prepared in consonance with the Ministry of Health Policies, Plans and strategies. The latest cMYP (2013-2018) ends December 31, 2018. To this, a comprehensive multi-year development (cMYP) workshop during the first week of October 2018 in Tarawa and almost all DPs including UNICEF, WHO, Gavi, World Bank and DFAT participated in this activity to cover the period (2019 – 2023) to accommodate and plan for the introduction of new vaccine (Human Papillomavirus Vaccine) as well as other key activities. During this workshop, MHMS had extensive discussions and working group exercises to reflect on the strategic issues and brainstormed almost all means to strengthen and sustain the immunization programme in Kiribati.

This cMYP elaborates strategies and activities along with costs that will contribute to the achievement of the Health strategic plan. The country has made great strides towards achieving its targets for the MDGs and substantial reductions in maternal and child mortality have occurred.

The comprehensive multi-year plan 2019 – 2023 provides a plan for the next five years to achieve the immunization and nutrition related goals expressed by the Government in various policy documents. The objectives, strategies and activities set forth in the plan provide the framework required to meet the goal of "reducing infant and child mortality and morbidity associated with vaccine-preventable diseases and improve population health and health equity through continuous improvement in the quality and responsiveness of health services, and by making the most effective and efficient use of available resources. Furthermore, this plan addresses new challenges and expands the previous plan by providing guidelines for the introduction of new vaccines, eradication, elimination and control of targeted VPDs and strengthening of routine immunization.

The salient features of the cMYP are:

- Increase the Financial sustainability of the programme;
- Introduce new vaccines
- Offer a minimum integrated health services package at all levels in line with National policy;
- Build capacity of health workers to implement policies and ensure the use of quality vaccine and safe immunization practices by 2023;
- Improve organization of immunization and nutrition services to guarantee sustainable and equitable immunization for every child and other target groups by 2023 and;
- Improve the national surveillance system in line with the global goals by 2023.

Government of Kiribati has been committed to its co-financing contribution, provision of qualified and dedicated staff and effective collaboration with key health partners (UNICEF, WHO, World bank and GAVI) in supporting the delivery of high-quality immunization services.

Many inputs were placed in to the development of this document, ranging from situation analysis, through costing of all EPI systems areas (service delivery, advocacy and communication, surveillance, vaccine supply, quality and logistics, and programme management), annual workplan and finally monitoring and evaluation.

Background information

1.1 Geographic feature

The Republic of Kiribati includes three island groups – Gilbert, Phoenix and Line – and comprises 32 atolls and one elevated coral island with a total land area of 811 square kilometers dispersed over five million square kilometers of ocean.

Kiribati became independent from the United Kingdom in 1979. The capital and now most populated area, South Tarawa, consists of a number of islets, connected by a series of causeways. These comprise about half the area of Tarawa Atoll. Kiribati is a member of the Commonwealth of Nations, the IMF and the World Bank, and became a full member of the United Nations in 1999.

1.2 Demographic profile

The native people of the nation are the I-Kiribati, who are ethnically Micronesians. Archaeological evidence indicates Austronesians originally inhabited the islands thousands of years ago, although Fijians, Tongans, and Samoans invaded around the 14th century, introducing new ethnic diversity. Despite this, Kiribati has a fairly homogeneous population.

The I-Kiribati speak an Oceanic language, Gilbertese, but English is also an official language. The main religion is Christianity, which was introduced by missionaries in the 1800's. 56% of the population is Roman Catholic while 34% is Congregationalist Protestant.

Kiribati has a low life expectancy rate of just 63 for women and 57 for men with many health problems caused by the consumption of semi-raw seafood, bacterial contamination of food, and little few storage. Just 10 years ago, up to 7% of the population was treated each year for food poisoning in a hospital.

The data used for projections of population targets is based on the 2015 National Population Census. In 2015 population of the country was 103,058. The vast majority (>90%) of people inhabit the Gilbert Islands, with more than 33% populating an area of about 16 km2 on South Tarawa. . Population density in parts of South Tarawa have reached as much as 8,000 persons per square kilometre (making it one of the most densely populated islands in the world); contrasting with other areas, such as the Line and Phoenix Island Groups, where population density is around 20 people per square kilometre. Five islands are home to fewer than 1,000 people each. This wide dispersal of small population groups and the infrequency of transportation services pose significant challenges to the timely provision of health services.

1.3 Administrative and political structure

Kiribati is divided administratively into six districts (Linnix, North, South West, South East, Central and South & North Tarawa), 23 outer islands. The governance structures are centralized. The districts make decisions based on the MHMS objectives on the types of services and operational mechanisms to deliver all public services to the population.

1.4 Kiribati housing and population censuses

Population censuses in Kiribati have been conducted in 1963, 1968, 1973, 1978, 1985, 1990, 1995, 2000, 2005 and 2010. In 1990, the Kiribati National Statistics Office (KNSO) took full responsibility for conducting and administering censuses. Censuses in Kiribati closely follow the *de facto* census methodology, which enumerates people as to where they spent the census night.

According to 2015 population and housing census the total population of Kiribati is 110,136 with 51% of that living on South Tarawa an island of 14 km2. The vast majority (>95%) of people inhabit the Gilbert Islands with a population density of 152 and an average household size of 6. South Tarawa in the Gilbert Island group has the main 'urban settlements'. The remaining islands are commonly known as the Outer Islands.

1.5 Population growth

Disaggregating these population developments across all of Kiribati, highlights the key role played by South Tarawa in Kiribati's population dynamics. South Tarawa's population increased by a very high annual growth rate of 4.4% between 2005 and 2010, relative to a near stagnating rural population growth of 0.2%. The latter, however, is by no means representative of rural population growth, as shown by variations ranging from annual population declines of -5.7% on Makin and -5.2% on Tabuaeran, to high annual increases of +7.6% on Teeraina and +5.6% on Butaritari. Tabuaeran's decline could be the result of the closure of the secondary school, including boarding facilities, sometime after 2005 — a development that may have also impacted growth on neighbouring Teeraina. [1]

	2005	2010	2017
Population growth rate (average annual %)	1.8	2.1	1.8
Urban population (% of total population)	43.6	43.8	44.3
Urban population growth rate (average annual %)	2.0	1.6	1.8
Fertility rate, total (live births per woman)	4.0	3.9	3.8
Life expectancy at birth (females/males, years)	67.5 / 61.6	68.1 / 62.0	68.9 / 62.4
Population age distribution (0-14 and 60+ years, %)	36.9 / 5.4	36.1 / 5.4	35.0 / 6.4
International migrant stock (000/% of total pop.)	2.5 / 2.7	2.9 / 2.8	3.2 / 2.8
Infant mortality rate (per 1 000 live births)	51.6	49.3	46.9
Health: Total expenditure (% of GDP)	10.1	10.5	10.2
Health: Physicians (per 1 000 pop.)	...	0.3	0.2

[1] Kiribati 2010 census, volume 2; analytical report

Education: Government expenditure (% of GDP)	12.0p	...	...
Education: Primary gross enrol. ratio (f/m per 100 pop.)	112.8 / 111.2	113.8 / 108.0	106.1 / 102.9
Education: Secondary gross enrol. ratio (f/m per 100 pop.)	95.3 / 83.1	91.6 / 82.9	... / ...
Intentional homicide rate (per 100 000 pop.)	...	3.9	7.5
Seats held by women in national parliaments (%)	4.8	4.3	6.5

1.6 KIRIBATI POPULATION DENSITY

Kiribati population density is 145.2 people per square kilometre (376.1/mi2) as of 2018. Density of population is calculated as permanently settled population of Kiribati divided by total area of the country. Total area is the sum of land and water areas within international boundaries and coastlines of Kiribati. The total area of Kiribati is 810 km2 (313 mi2) according to the United Nations Statistics Division.

1.7 SOCIAL AND ECONOMIC CONTEXT

- With a Gross National Income (GNI) per capita of US$3,050 in 2016, Kiribati is classified as an LMIC, ranking next to Swaziland. Despite its LMIC status, Kiribati is classified as a fragile state by the World Bank and is eligible for concessionary International Development Association financing due to its small population size, geographic challenges, and vulnerability to external shocks.5 From the mid-1990s, growth in real Gross Domestic Product (GDP) per capita had been erratic. Kiribati's domestic economy shrank for four consecutive years following the global economic crisis in 2007. The country experienced positive economic growth again in 2011 primarily due to significant contributions from fishing revenues. Since then, real GDP per capita in Kiribati has been increasing
- GDP growth has been solid over the period of the 2012-15 KDP with growth rates of 5.2 per cent in 2012, 5.8 per cent in 2013 and 2.4 per cent in 2014. The International Monetary Fund (IMF) predicts that economic growth will rise by 3.1 per cent in 2015. This follows a period of volatile fluctuation in growth rates.
- Recent GDP growth has reversed the trend of declining GDP per capita with the GDP per capita at $1,838 in 2014. However, GDP per capita in Kiribati is still the lowest of all Pacific countries.
- The incidence of basic need poverty in Kiribati was estimated at around 21.8 per cent of the population in 2006. No Household Income and Expenditure Survey has been done since 2006. Food poverty was estimated to be around 5 per cent of the population.
- Unemployment at the 2015 census was 31 per cent with the youth unemployment rate at 54 per cent.
- In Kiribati, the private sector is small in relation to the size of government with the geographical isolation and high costs associated with the importation of goods contributing factors. Nevertheless, Kiribati has experienced strong growth in employment in the private sector over the past 6 years. Data from the Kiribati Provident Fund shows that the number of contributors in the private sector has risen sharply from 2,156 in June 2009 to 3,277 in June 2015, a rise of 51.9 per cent.

1.8 LANGUAGE

The people of Kiribati speak an Oceanic language called 'Gilbertese'. Although English is also an official language, it is not used very often outside the island capital of Tarawa. It is more likely that English is mixed in its use with Gilbertese.

Health services

Kiribati has committed itself to international agreements relevant to child health, which include:

- The Sustainable Development Goals (SDGs),
- The Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). (Already ratified by the Government).1981
- The Convention on the Rights of the Child (CRC).1990
- The Safe Motherhood Initiative 1981
- The Baby Friendly Hospital Initiative

Current relevant National Policy, Act and Service Guidelines that guide child health practice include:

- Republic of Kiribati Development Plan: 2016-2019
- Republic of Kiribati: Ministry of Health and Medical Services (MHMS): Strategic Plan 2016-2019
- Republic of Kiribati: Sustainable Development Goals (SDG)
- Therapeutic Drug Guidelines: Kiribati MHMS 2008
- Republic of Kiribati STI and HIV/AIDS Strategic Plan 2005 - 2008
- Therapeutic Drug Guidelines: Kiribati Obstetrics, Gynecology, Pediatrics and Dental: MOH/MS 2008
- Republic of Kiribati Monetization in Atoll Society 2001.

The World Health Organization (WHO) advocates four main strategies to deliver the above interventions. These include:

- appropriate home care and timely treatment of complications for newborns;
- IMCI -integrated management of childhood illness for all children under five years old;
- EPI- expanded programme on immunization;
- IYCF- infant and young child feeding.

These child health strategies are complemented by interventions for maternal health, in particular, skilled care during pregnancy and childbirth.

1.9 HEALTH CARE SYSTEM ANALYSIS

Kiribati Ministry of Health and Medical Services functions and operates at four levels – Central, District, Island and Community. The entire system from central to community level is publicly financed. The system has four hospitals, and a primary health care

network that consists of health centres and health clinics of varying capacity. Primary care is delivered through six health districts (Tarawa & Central; Northern; South Eastern; South Western and Linnix). At the time of writing, there were only a few known medical practitioners providing private health services.

Health is a priority focus for the government of Kiribati Vision in 20 years' time and Kiribati development plan 2016-2019.

1.10 GOALS AND STRATEGIES

Health plays an important role in economic development for Kiribati. Improved living standards would lead to a healthier population, improved economic performance and a productive future.

The Health Ministry Strategic Plan describes the demographic and socio-economic factors that provide a general context for health service demand in Kiribati. It also provides evidence of the need for action, as well as the main challenges for the health system in meeting these needs, in seven priority areas: non-communicable diseases (NCDs); population growth; maternal and child morbidity and mortality; communicable diseases; health service delivery; and gender-based violence (GBV) and youth issues.

Goal 1: Improve population health and health equity through continuous improvement in the quality and responsiveness of health services, and by making the most effective and efficient use of available resources.

KDP Health Goal (Key Objective)	
Improve population health and health equity through continuous improvement in the quality and responsiveness of health services, and by making the most effective and efficient use of available resources.	
Outcomes	**KDP Health Strategies**
Outcome 1: Strengthened initiatives to reduce the prevalence of risk factors for NCDs, and to reduce morbidity, disability and mortality from NCDs.	Strengthen initiatives to reduce the prevalence of risk factors for NCDs, and to reduce morbidity, disability and mortality from NCDs through tobacco and alcohol control, healthy eating and physical activities. In additional, prevention, detection and early treatment of cervical cancer, hypertension, heart disease, chronic lung disease, diabetes will be pursued.
Outcome 2: Increased access to and use of high quality, comprehensive family planning services, particularly for vulnerable populations including women whose health and wellbeing will be at risk if they become pregnant	Increase access to and use of high quality, comprehensive family planning services, particularly for women.
Outcome 3: Improved maternal, newborn and child health.	Improve maternal, newborn and child health through care procedures during pregnancy, delivery and the immediate postpartum period and for the newborn; improve the skills and capacity of maternal care attendants; and improve maternal and child health facilities and

	equipment.
Outcome 4: Prevention of the introduction and spread of communicable diseases, strengthened existing control programmes and ensuring Kiribati is prepared for any future outbreaks	Prevent the introduction and spread of communicable diseases through strengthening existing control programs on TB, Leprosy, and Lymphatic Filariasis. In addition, new initiatives will be pursued to increase access to, and use of, safe water and basic sanitation services, and promote improved hygiene.
Outcome 5: Gaps in health service delivery are addressed and the pillars of the health system are strengthened	Improve the effectiveness and efficiency of health service delivery, including through expanding hospitals and clinics to meet demand; develop a formal asset maintenance and replacement programme for infrastructure and equipment; and improve procurement and supply of essential medical products, vaccines and technologies.
Outcome 6: Improved access to high quality and appropriate health care services for victims of gender-based violence, and services that specifically address the needs of youth.	Improve access to high quality and appropriate health care services for victims of gender-based violence and services that specifically address the needs of youth, through implementation of the Standard Operating Procedure of Eliminating Sexual and Gender Based Violence (ESGBV) policy and build capacity of health care givers to sensitively handle the needs of victims of GBV.
Outcome 7: Strengthened road safety awareness	Road safety action plan targets achieved

1.11 Kiribati Development Plan 2016-20191

The over-arching regulatory framework is complemented by national and sectoral policies, strategies and development plans. At the highest level is the new Kiribati Development Plan (KDP) which outlines priorities for the country as a whole between 2016 and 2019. Its vision is, "Towards a better educated, healthier, more prosperous nation with a higher quality of life", and its mission is "To promote better education, better health and inclusive sustainable economic growth and development through the implementation of higher education standards, the delivery of safe, quality health services and the application of sound economic policies."
The KPD has 6 key priority areas:

1. Human Resource Development;
2. Economic Growth and Poverty Reduction;
3. Health:
4. Environment;
5. Governance, and
6. Infrastructure.

Health is key priority area number three, and its goal is: "Improve population health and health equity through continuous improvement in the quality and responsiveness of health services, and by making the most effective and efficient use of available resources". Seven outcomes and strategies were identified to achieve the health goal, and each of these was accompanied by a number of indicators and targets. A list of

outcomes and strategies can be found below, and a full list of outcomes, strategies, indicators and targets below;

While the country only has a total land area of 726 square kilometres, it covers over 3.5 million kilometres of ocean, presenting significant challenges for both the healthcare and social service systems. With such a widely dispersed population, those living on outlying islands are not always able to access (or afford) an airlift or boat to the nearest medical facilities. Furthermore, the low-lying atolls of Kiribati are very vulnerable to climate change and rising sea-levels, with issues already arising from groundwater depletion, marine-life and sea-water contamination from human and solid waste, and over-fishing of the reefs and lagoons. Protection of water sources from pollution, mainly from nearby sanitation systems, is a constant public health concern. High internal migration from the outer islands to the capital, South Tarawa, coupled with ad-hoc urban planning and management has resulted in overcrowding, and inadequate sanitation. As with many countries in the Pacific region, Kiribati now faces a 'double burden of diseases. While many challenges remain in the areas of maternal and child health and in communicable diseases, there has been an important shift in the burden of diseases – from infectious to non-communicable diseases (NCDs). Overall, life expectancy in Kiribati is low for the Pacific region. In 2017, life expectancy at birth was estimated at 61.7 for males and 72.1 for females according to 2017 Annual Health Bulletin.

1.12 Ministry of Health and Medical Services' Ministry Strategic Plan 2016-2019

The KDP 2016-2019 is underpinned by a range of multi-sectoral, sectoral and sub-sectoral policies, and strategies. The health sector has the Ministry of Health and Medical Service's (MHMS's) Ministry Strategic Plan (MSP) 2016-2019 which outlines the over-arching priorities for the health sector between 2016 and 2019. The new plan is an extension of the 2013–2015 Plan, and its goal, strategic objectives and strategic actions related to MNCH&N can be found below;

MHMS's MSP 2016-2019 Primary Goal	
To improve population health and health equity through continuous improvement in the quality and responsiveness of health services, and by making the most effective and efficient use of available resources	
Strategic Objectives	Strategic Actions related to MNCH&N
1. Strengthen initiatives to reduce the prevalence of risk factors for NCDs, and to reduce morbidity, disability and mortality from NCDs.	1.3 Strengthen initiatives around healthy eating.
2. Increase access to and use of high quality, comprehensive family planning services, particularly for vulnerable populations including women whose health and wellbeing will be at risk if they become pregnant.	
3. Improve maternal, newborn and child health.	3.1 Improve the quality of services and care procedures during pregnancy, delivery and the immediate postpartum and for the newborn

	3.2 Improve the skills and capacity of maternal care attendants. 3.3 Improve maternal and child health facilities and equipment. 3.4 Collect quality health information and data and use to improve MNC health care practice. 3.5 Strengthen community-based and outreach maternal and child health services. 3.6 develop and implement set of guidelines for MNCH (treatment and referral) 3.7 development of mother and baby friendly settings – workplace, institutions 3.8 Scale up MNC programs through inter-sectoral policies and legislations 3.9 Integrate Child eye health into Child health programs
4. Prevent the introduction and spread of communicable diseases, strengthen existing control programmes and ensure Kiribati is prepared for any future outbreaks.	
5. Address gaps in health service delivery and strengthen the pillars of the health system.	
6. Improve access to high quality and appropriate health care services for victims of gender-based violence, and services that specifically address the needs of youth.	

Many population health outcomes have improved significantly in Kiribati in the two decades to 2017. Life expectancy at birth has risen from 60 to 69 years between 1990 and 2016 (74 years for females and 64 years for males) (World Bank 2017). Maternal mortality declined slightly from six deaths in 1990 to five in 2016.1 Under-five and infant mortality have also declined, albeit slowly, from 96 to 52 and from 69 to 33 per 1,000 live births, respectively between 1990 and 2016[2]

1.13 Organization of the Health Sector

Kiribati Ministry of Health and Medical Services (MHMS) functions and operate at four levels namely Central, District, Island and Community. The entire system from central to community level is publicly financed. Primary health care is provided through a network of health centres and outreach village clinics extending from district to community level. Essential referral care is provided through 4 referral hospitals and the main being the Tungaru Central Hospital (TCH) in South Tarawa.

[2] World Health Organization - WHO 2017; Kiribati Annual Health Bulletin 2016

1.14 Levels of Health Services

Four levels of health facilities exist within Kiribati:

1. The central referral hospital, Tungaru Central Hospital, located in the capital, South Tarawa, is a specialized 126-bedded hospital; it receives patient referrals from the hospitals and health centres.
2. There are three other referral hospitals – Betio Hospital based at Betio (Tarawa), London Kiritimati Hospital at Kiritimati Island (for the Line and Phoenix Island Groups), and Southern Kiribati Hospital at Tabiteuea North (for the southern Gilbert Islands). The hospitals receive referrals from health centres and are operated by doctors, nurses and allied health staff.
3. In the rural outer islands where there are no hospitals, two levels of health facilities exist. Nationally 22 Health Centres provide the population with primary health care curative and preventive services, and are staffed by medical assistants (registered nurses who have undertaken additional training). These nurses are the key health personals on each island.
4. Nationally there are 81 Health Clinics (also referred to as dispensaries), staffed by community nurses and nurse aids. Nurse aids do not dispense medicines but are trained to recognize the danger signs of illness.

1.14.1 Primary Health Care

Administratively Kiribati is divided into six health districts namely Tarawa & Banaba, Central, Northern, South Eastern, South Western and Linnix. Primary health care services are provided within the district health structure through a network of island health centres and village clinics.

The smallest and lower most facility based primary care service at grass root level is named as village clinics and are manned by a specially trained Public Health Nurse (PHN). They are able to deliver a minimum package of curative and preventive health care. Village clinics are situated in each village and number at present stand at 84.

At island level, health centres provides a higher and wider range of services than a village clinic. They provide both inpatient and outpatient services manned by a Medical Assistant (MA). The MAs either possess a degree in bachelor of nursing or a public health degree. At least one health centre is situated in each inhabited island and at present the number stands at 22.

1.14.2 Hospital Care

In Kiribati, secondary care is provided through four hospitals. TCH is the specialized 139 bedded hospital in the country located in Nawerewere, South Tarawa. It provides emergency & outpatient care facilities and inward facilities in four major specialties namely Internal Medicine, Surgery, Pediatrics and Gynaecology & Obstetrics. In addition, a special ward for Tuberculosis patients and a paying ward is also present at TCH. TCH is staffed with medical specialists as well as general medical officers. It also functions as a training centre for Intern Medical Officers (IMO) and for primary health

care workers. Southern Kiribati Hospital (SKH) situated in Tabiteuea North is a 20-bed hospital while Betio Hospital (BH) located in Betio, South Tarawa consist of 29 beds. Another 17 bedded facility is located in Kiritimati, Line & Phoenix Islands called London Kiritimati Hospital (LKH).

1.14.3 PRIVATE HEALTH SECTOR

The private health care facilities are not available in Kiribati at present, except for a couple of registered shops selling pharmaceuticals.

1.15 SERVICE DELIVERY MODEL

The Ministry of Health and Medical Service's Referral and Caretaker Policy (2011), sets out a standard referral process between facilities and islands. However as distance is less of a barrier in the main island of Tarawa, residents of South Tarawa and Betio commonly bypass primary-level facilities and go directly to hospital outpatient facilities for their healthcare needs. This creates high patient loads at the hospital for conditions that can be managed at the primary care level. On the other hand, people living in the outer islands are far from hospital services, and due to transportation costs and travel time, generally present very late to the doctor.

The Ministry is responsible for organizing and funding the transport of patients and caretakers approved for referral from their home island to the referral hospital and back home afterwards. Patients are referred from outer islands to Tungaru Central Hospital on the advice of a doctor after consultation with medical assistants or nursing officers on the islands. To minimize 'unnecessary referrals', referrals are not accepted from public health nurses working in the health centres or clinics; only in cases of emergencies that nurses working on isolated islets can directly seek assistance from the on-call doctor at the referral hospital.

1.16 TRADITIONAL MEDICINE PRACTISE

Traditional medicine is practiced in Kiribati, but it is not integrated with the national health system. Many patients use both form of health services. Traditional health workers provide some form of services, but anecdotal evidence suggests the number of practitioners is decreasing. Traditional health workers are not funded by the government.

1.17 HEALTH FINANCING

The government of Kiribati is the main provider of health services in the country. Government health facilities includes the four hospitals, 22 health centres and 84 village clinics. In addition to these health facilities there are 12 other health care providers that also report to the Health Information Unit (HIU) that include Integrated Management of Children's Illness (IMCI) clinic, TCH Outpatient Clinic, Gynaecology clinic, Kiribati Family Health Association (KFHA), Diabetic, ANC and Postnatal, TB, Leprosy Clinics, Youth Friendly Health Service, Healthy Family Clinic (GBV), Anaieta Pharmacy and Prison Clinic. All heath care services are provided free to all Kiribati residents by the government and there is very minimal out-of-pocket spending for health. In 2017, the

government spent approximately 14.2% of its total recurrent budget on health, a per capita expenditure on Health of AUD $282 for Kiribati.

Economic assumptions [3]

Economic assumptions

	2017	2018	2019	2020	2021
Real economic growth (%rGDP)	3.1	2.3	2.4	2.4	2.4
Nominal economic growth (%nGDP)	4.2	4.5	3.7	3.7	3.7
Consumer price growth (%CPI)	2.2	2.5	2.5	2.5	2.5
Population growth (%)	2.1	2.1	2.1	2.1	2.1

As health care services are provided free-of-charge to all Kiribati residents by the government, there is very minimal out-of-pocket spending for health. All non-I-Kiribati tourists and travelers, and foreign seamen are charged for any medical services offered to them. There are also charges for patients admitted to the private ward.

In principle, the population of Kiribati has low cost access to some form of basic health care, delivered predominantly by the Ministry of Health and Medical Services (MHMS) through a network of four hospitals, 22 health centers and 83 village clinics, all public facilities.

Kiribati has a small population dispersed on 21 islands across a vast area in the Pacific Ocean. Access to basic health services in remote, hard-to-reach small maritime populations in outer islands makes referrals and health services logistics very difficult, expensive and often only available by sea. Facilities and staff vary significantly across geographic locations and island groups, and nearly two-thirds of the clinical staff are in the highly-urbanized island of South Tarawa (50 percent of the population). Outpatient consultations were 4.9 per person in 2016, much higher than that reported by other countries in the region.

Total health expenditure (THE) per capita in Kiribati was US$154 (AU$171) in 2014, comparable to other countries with similar levels of income. Significant increases in nominal THE in the decade to 2017 have not translated into similar increases of real or per capita expenditure. Indeed, real THE has only increased slightly between 2004 and

[3] Kiribati Government, 2018 Budget

2014, while real THE per capita has decreased by approximately 25 percent in that same period, reflecting high population growth. [4]

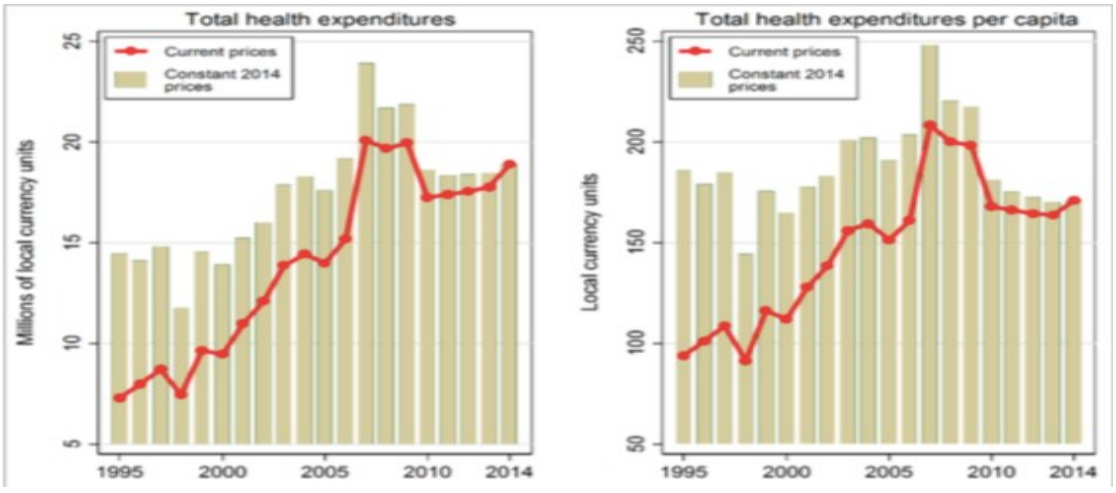
1.18 TOTAL HEALTH EXPENDITURE (THE)

Over the two decades to 2017, THE has risen substantially, both in nominal and in real terms, however, due to population growth, real THE per capita has decreased. Between 1995 and 2014, Kiribati experienced one of the lowest real annual growth rates in total health spending per capita amongst comparator countries in the

Pacific; more recently, between 2004 and 2014, real THE per capita has dropped by 25 percent. THE per capita in Kiribati was US$154 in 2014, as expected given the country's income. As a share of GDP, THE was 10.2 percent, much higher than expected given Kiribati's income. This is, however, a very difficult metric to interpret for small economies where significant deviations from the global norms are expected (and not necessarily meaningful).

Kiribati has experienced this marginal decline in health spending per capita despite negative real annual growth in GDP per capita (albeit the negative growth was close to zero). Given that most health spending in Kiribati is public, it is clear that the government has struggled to maintain its commitment to the health sector.

THE and THE Per Capita, Real vs Nominal (AU$) (1995-2014)5



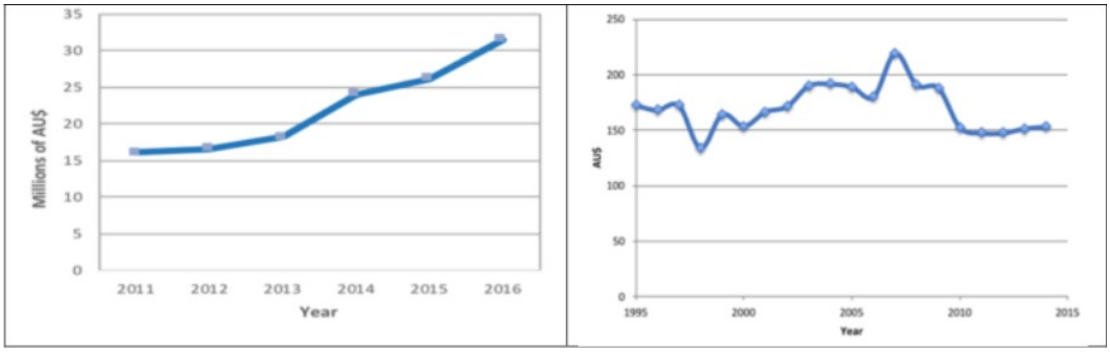
Public expenditure on health has almost doubled between 2011 and 2016–from AU$16 million to AU$31.5 million. This equated to around AU$286 per capita in 2016. According to national data, MHMS received the third largest recurrent budget allocation of any ministry in Kiribati (AU$22.8 million, or 15 percent), after the Ministry of Education in 2016.

[4] HEALTH FINANCING SYSTEM ASSESSMENT, Kiribati, World bank report 2018

5 Source: WHO GHED 2017

Major recurrent budgetary allocations included: Education AU$32.4 million (22 percent); Finance and Economic Development (MFED) AU$29.6 million (20 percent); Environment, Lands and Agricultural AU$6.4 million (4.3 percent); and Public Works and Utilities AU$5.4 million (3.6 percent). The MFED was allocated AU$29.6 million but this included AU$23.2 million in subsidies. The rest of this section is based on Government of Kiribati budget and expenditure data. Notably, there is volatility in public expenditure on health– both budget and actuals–across the period 2011-16, in part because of volatility in DP contribution reporting of budget and expenditure. Actual spending was significantly below budget from 2011-13, and above budget in 2014- 16.

Public Expenditure on Health: Total Nominal (Left) and Real Per Capita (Right) (2011-16) [6]



1.19 HEALTH SITUATION AND TRENDS

Kiribati enters the 2030 UN development agenda with unfinished business regarding many of its health-related Millennium Development Goal targets. Life expectancy at birth in 2013 was 64 for males and 69 for females, the second lowest in the Pacific after PNG.

Its under-five mortality rate (52.9 per 1,000 live births in 2013) is the second highest among the Pacific Island countries after PNG, mainly due to neonatal mortality, malnutrition and common, life-threatening infections (such as pneumonia and diarrhea). Problems include the lack of skills and capacity of maternal care attendants, particularly in the outer islands and the quality of maternal and child health facilities and equipment. Immunization rates vary greatly between islands.[7]

The MDG target for maternal mortality in Kiribati was to reduce the rate to 25 by 2015. In 2013, the figure was nil because there were no maternal deaths that year. However, the figure was 150.6 in 2014, a significant variance from the target. The actual number of maternal deaths in Kiribati is quite low (4 in 2015), but due to the small population and relatively low number of live births annually, the figure is multiplied up to calculate a ratio per 100,000 live births, magnifying small variations. The average number of

6 Source: MFED 2016; World Bank 2017

7 WHO, Global Health Observatory Data Repository

maternal deaths was 3.25 between 2012 and 2015 whereas the average number in the previous four-year period was 1.25.

The 2010 modern methods Contraceptive Prevalence Rate (CPR) was 18 per cent, a drop from 32 per cent in 2005 and 22 per cent in 2007 and is well below the MHMS target of 57 per cent.

Communicable diseases are endemic in Kiribati and most of them are associated with overcrowding and poor hygiene. Access to, and use of, safe water and basic sanitation are the best ways of promoting improved hygiene. However, potable water and sanitation remain large challenges with South Tarawa the biggest concern. Kiribati is one of four countries in the world that still has leprosy.

The incidence of tuberculosis is the highest in the Pacific. It has risen from 116 per 100,000 population in 1990 to a high of 605 in 1997 but has declined steadily since then until 2009. The incidence rate in 2014 was 497. Treatment rates have been declining since 2009. Diabetes is a major driver of the TB epidemic. [8]

The disease statistics relating to water, sanitation and hygiene issues are at all-time highs, with more than 35,000 cases annually reported during 2010-2012, including diarrhea, dysentery, conjunctivitis, rotavirus, giardia and fungal infections such as ringworm. Dysentery and diarrhea rates in South Tarawa are 350 cases/1000 population annually, including many infants. Kiribati has the second highest rate of under 5-year child mortality in the Pacific, with a reported 60 deaths per 1000 births. In 2010-2012, 16 deaths per year were attributable to water, sanitation and hygiene issues. Unsafe hygiene and sanitation practices are causing contamination of tank water, ground water and lagoon water. Targeted programs need to continue and be strengthened and water quality results need to be monitored more closely and published. The economic burden of poor water and sanitation on South Tarawa alone is estimated to be AUD 3.7–7.3 million, which equates to AUD 550- 1,100 per household per annum. This estimate considers the health expenditure for households and government, the loss in economic productivity due to lost time and earning potential, the reduced benefits from tourism and impacts to fisheries.

There is increasing sale of expired products in the market which has become a serious threat to health and safety of consumers. This is attributed to growth in businesses through increase in imported goods, without complementary measures to monitor and effectively enforce the Food Safety Act. [9]

Key Health Related Indicators[10]

Indicator	Year	No.	Rate	Source

8 Kiribati Development Plan 2016-19

9 Activity Design Document: Kiribati Water, Sanitation and Hygiene (WASH) Sector Programme

10 Kiribati Annual Health Bulletin 2017

Demographic					
Total population		2015	110,136		National Statistics Office
Crude Birth Rate (per 1,000 population)		2017	3,069	27.9	KHIS & MS1
Crude Death Rate (per 1,000 population)		2017	719	6.5	
Life expectancy at birth (years)	Male	2017	61.7	66.6	WHO, ANACoD 2017
	Female	2017	72.1		
Land area (Sq. km)		2015	726		National Statistics Office
Health and Nutrition					
Neonatal Mortality Rate (per 1,000 live births)		2017	34	11.1	KHIS & MS1
Infant Mortality Rate (per 1,000 live births)		2017	81	26.4	
Under-five Mortality Rate (per 1,000 live births)		2017	135	44.0	
Maternal Mortality Rate (per 100,000 live births)		2017	1	32.6	
Adult mortality rate from NCDs (30-69 years) (per 10,000 population 30-69 years)		2017	211	55.9	
Mortality rate from road traffic injuries (per 100,000 population)		2017	12	10.9	
Adolescent birth rate for 10-14 years (per 1,000 girls in age group 10-14 years)		2017	9	1.8	
Adolescent birth rate for 15-19 years (per 1,000 girls in age group 15-19 years)		2017	263	45.2	
Contraceptive contacts (all forms) seen at health facilities per 1,000 population		2017	29,147	264.6	MS1
Percentage of pregnant mothers received at least one home visit by PHN		2017	328	10.4	
Access to antenatal care		2017	12,421	4.0	
Percentage of Low Birth Weight		2017	220	7.2	KHIS & MS1
Malnourished children <5 years		2017	704	5.0	MS1
Tuberculosis case notification rate (all forms, per 100,000 population)		2017	389	353.2	
TB treatment success rate		2016	460	88.9	MS1 & TB control program
Number of Leprosy cases (new and relapses)		2017	200		MS1
Acute respiratory infection (ARI) in children treated at Tungaru Central Hospital (TCH)		2017	229	15.9	KHIS
Children immunized against measles		2017	2,524	92.2	MS1
Percentage of Diabetes		2017	17,820	51.8	KHIS & MS1
Percentage of Hypertension		2017	16,203	47.1	
Outpatient consultations per capita		2017	532,349	4.8	MS1
Outpatient consultations per capita for TCH		2017	31,527	0.3	KHIS
Tungaru Central Hospital (patient discharges/week)		2017	5448	104.8	
Tungaru Central Hospital (bed occupancy)		2017		85.3	
Tungaru Central Hospital (average length-of-stay)		2017		6.5	

Health Resources				
Number of Hospital Beds per 1,000 population	2017	205	1.9	KHIS
Availability of Medical Officers	2017	66	6.0	MHMS Admin Division
Population per Medical Officer	2017		1668.7	
Availability of Dental Surgeons	2017	6	0.5	
Population per Dental Surgeon	2017		18,356.0	
Availability of Medical Assistants	2017	41	3.7	
Population per Medical Assistant	2017		2,686.2	
Availability of Nurses	2017	383	34.8	
Population per Nurse	2017		287.6	
Availability of Midwives	2017	75	6.8	
Population per Midwife	2017		1,468.5	
Number of Pharmacists available	2017	5		
Number of Physiotherapists available	2017	3		
Number of Hospitals	2017	4		KHIS
Number of Health Centers	2017	22		MS1
Number of Village Clinics	2017	84		
Number of Hospital Beds	2017	205		KHIS

1.20 Maternal and Newborn Health

Maternal Mortality decreased between 1990 and 2015, and estimates by the Maternal Mortality Estimation Inter-Agency Group (MMEIG) show the maternal mortality ratio (MMR) decreasing from 234 maternal deaths per 100,000 live births in 1990 (or 6 maternal deaths per year), to 90 maternal deaths per 100,000 live births (or 3 maternal deaths per year) in 2015. [11] Similarly, the Ministry of Health and Medical Services (MHMS) reported that the average number of maternal deaths between 2012 and 2015 was 3.25.[12]

Antenatal care (ANC) coverage is moderate and, as of 2009, 88.4% of pregnant women received at least 1 ANC check from a skilled health professional, and just over 70% of pregnant women received 4 or more ANC checks. However, only 36% of pregnant women had an ANC check in the first trimester of pregnancy, and quality of ANC is also an issue. While 89.7% of pregnant women were weighed; 92% had their blood pressure taken, and 84.1% had a blood sample taken during ANC, only 77.2% of pregnant women had a urine sample taken, and only 49.5% were informed of the signs of pregnancy complications.[13]

The level of Skilled Birth Attendance (SBA) is also moderate and, as of 2009, 79.8% of pregnant women delivered with a skilled birth attendant, and 65.9% of deliveries occurred in health facilities. However, the proportion of women and newborns receiving early Post-Natal Care (PNC) is low, and, as of 2009, only 48% of women and babies received a PNC check within 2 days of delivery, and 40% received no PNC checks at all, and this is a significant concern.[14]

Neonatal mortality in Kiribati is considered to be high when compared to other Pacific Island Countries (PICs), and, since 2000, 50-60% of infant mortality is said to be attributable to neonatal mortality.[15] The Kiribati Demographic and Health Survey

11 WHO, UNICEF, UNFPA, World Bank Group and UNPD; Trends in estimates of maternal mortality ratio 1990-2015; 2015.

12 Government of Kiribati; Kiribati Development Plan 2016-2019; 2016.

13 Kiribati National Statistics Office and the Secretariat of the Pacific Community; Kiribati Demographic and Health Survey 2009; 2010.

14 Kiribati National Statistics Office and the Secretariat of the Pacific Community; Kiribati Demographic and Health Survey 2009; 2010.

15 SPC and UNSW; Trends in Neonatal and Infant Mortality for Pacific Island States – April 2015; 2015.

estimated the Neonatal Mortality Rate (NMR) at 25.6 neonatal deaths per 1000 live births between 2005 and 2009 [16], and this is in line with international estimates which put Kiribati's NMR at 35 in 1990 and 23 in 2016.[17] However, it is important to note that while neonatal mortality is declining, the 2016 NMR is still more than double the Western Pacific Regional target of < 10 newborn deaths per 1000 live births by 2020.
The proportion of infants with low birthweight was moderate, at 9.3% in 2009[18], and the proportion of service delivery points meeting the standards for basic emergency obstetric and newborn care (EMONC) was 1.8% in 2009, and 1 hospital was able to meet the standards for comprehensive EMONC in 2010.[19] No data was available on early essential newborn care.

1.21 Child Health

Infant and under-five mortality are also considered to be high when compared to other PICs, but both are declining. The Kiribati Demographic and Health Survey estimated the Infant Mortality Rate (IMR) at 42.6 infant deaths per 1000 live births, and the Under Five Mortality Rate (U5MR) at 75.1 under-five deaths per 1000 live births between 2005 and 2009.[20] These figures are slightly different than global estimates which showed IMR decreasing from 69 infant deaths per 1000 live births in 1990, to 42 in 2016, and the U5MR decreasing from 96 under five deaths per 1000 live births in 1990, to 54 in 2016.[21] However, it is important to note that all of the more recent U5MR estimates are still significantly higher than the Sustainable Development Goal (SDG) U5MR target of ≤ 25 by 2030.
In 2010, the leading causes of morbidity in Kiribati were acute respiratory infections (ARI), diarrheal diseases and eye diseases, and, the main causes of death in children under 5 were pneumonia, prematurity and birth asphyxia.[22] Prevalence of diarrhea and ARI amongst children under five are high, and appropriate care giving and care seeking behaviors are moderate. In the 2 weeks preceding the DHS survey in 2009, 10.4% of children under five were reported to have symptoms of diarrhea, and 6.9% to have symptoms of ARI. Of the children with diarrhea, 61.5% were given Oral Rehydration Salts (ORS) or other pre-packaged fluids, and 67.8% were given ORS or recommended home fluids. Of the children with signs of ARI, 81.1% were taken to a health facility or provider for treatment or advice.[23]

1.22 Nutrition

Over and under-nutrition are both significant issues in Kiribati. Under-nutrition continues to be a problem, particularly in children under five years of age, and the 2009 Demographic and Health Survey (DHS) found that 14.9% of children under five years of age were underweight. However, as height measurements were not taken in the DHS, no information is available on wasting or stunting.[24]
Early breastfeeding is relatively high, and, as of 2009, 79.9% of women started breastfeeding their infants within 1 hour of birth. However, exclusive breastfeeding drops dramatically with increasing age of the infant, and only 23% of infants were exclusively

16 Kiribati National Statistics Office and the Secretariat of the Pacific Community; Kiribati Demographic and Health Survey 2009; 2010.
17 UNICEF, WHO, WB Group and UNPD; Levels and Trends in Child Mortality – Report 2017; 2017.
18 Kiribati National Statistics Office and the Secretariat of the Pacific Community; Kiribati Demographic and Health Survey 2009; 2010.
19 Kiribati Ministry of Health and Medical Services; Ministry Strategic Plan 2016-2019; 2015.
20 Kiribati National Statistics Office and the Secretariat of the Pacific Community; Kiribati Demographic and Health Survey 2009; 2010.
21 UNICEF, WHO, WB Group and UNPD; Levels and Trends in Child Mortality – Report 2017; 2017.
22 Kiribati Ministry of Health and Medical Services; Ministry Strategic Plan 2016-2019; 2015.
23 Kiribati National Statistics Office and the Secretariat of the Pacific Community; Kiribati Demographic and Health Survey 2009; 2010.
24 Kiribati National Statistics Office and the Secretariat of the Pacific Community; Kiribati Demographic and Health Survey 2009; 2010.

breastfed at 6 months of age. Infant and young child feeding (IYCF) practices are also a concern, and, in 2009, only 31.3% of children aged 6-23 months were fed according to all 3 IYCF practices.[25]

Micronutrient deficiencies are also an issue, and anemia in children under five years of age was estimated at 45% in 1990 and 39% in 2016, and anemia in women of reproductive age (WRA) was estimated at 36% in 1990 and 26% in 2016. While anemia in children and amongst WRA does appear to be decreasing, current prevalence levels continue to be of moderate public health significance.[26,27,28]

The prevalence of overweight and obesity is increasing in both children and adults, and, as of 2013, 47.7% of boys and 66.1% of girls less than 20 years of age, and 76.5% of males and 81.1% of females ≥ 20 years of age, were estimated to be overweight or obese.[29] Preliminary findings from the Kiribati STEPS Survey 2015-2016 reinforce these figures, and 81.4% of the adult population aged 15-64 years of age was found to be overweight or obese as of 2015-2016.[30] Increased consumption of imported, cheap, low-quality food products high in salt, sugar and fat are reported to be contributing to this problem,[31] and the recent STEPS survey found that 98.4% of the adult population was not eating the recommended ≥ 5 servings of fruit and/or vegetables per day. [32]

A table summarizing the current status of key MNCH&N indicators is included below.

Indicator	2010 Figures	2015 Figures	Targets	
			Global/Regional	**National[33]**
IMR (per 1,000 live births)	42.6 from 2005-2009 (DHS) 48.2 (IGME)	42 (2016) (IGME)		22
<5 mortality rate (per 1,000 live births)	75.1 for 2005-2009 (DHS) 62.7 (IGME)	54 (2016) (IGME)	< 25 by 2030 (SDG)	30

25 Kiribati National Statistics Office and the Secretariat of the Pacific Community; Kiribati Demographic and Health Survey 2009; 2010.

26 World Bank; World Bank Website – Data – Prevalence of anemia amongst children; accessed 9 January 2018.

27 World Bank; World Bank Website – Data – Prevalence of anemia amongst women of reproductive age; accessed 9 January 2018.

28 WHO; Haemoglobin concentrations for the diagnosis of anaemia and assessment of severity - Vitamin and Mineral Nutrition Information System; 2011.

29 Institute for Health Metrics and Evaluation, University of Washington School of Medicine, La Saplenza University of Rome, School of Public Health Makelle University, University of Texas School of Medicine, Institute of Community and Public Health, Birzeti University, Ministry of Health, Botswana; Lancet 2014; 384: 766–81- Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis for the Global Burden of Disease Study 2013. 2014.

30 Kiribati Ministry of Health and Medical Services; Overview of NCD STEPS Survey Presentation; 2017.

31 Kiribati Ministry of Health and Medical Services; Ministry Strategic Plan 2016-2019; 2015.

32 Kiribati Ministry of Health and Medical Services; Overview of NCD STEPS Survey Presentation; 2017

33 Targets are for 2019 and from the MHMS Ministry Strategic Plan 2016-2019 unless otherwise noted.

Stunting in children < 5 years of age			Reduce by 40% (from 2010) by 2025 (SDG & CIPMIYCN) [34]	40% Reduction by 2025
Prevalence of malnutrition (wasting)[35]			Reduce to less than 5% by 2025 (SDG & CIPMIYCN)	Reduce or maintain to less than 5% by 2025
Neonatal mortality rate (per 1,000 live births)	25.6 for 2005-2009 (DHS) 25 (IGME)	23 (2016) (IGME)	<12 by 2030 (SDG) <10 by 2020 (Every Newborn Action Plan – WRPO)	
MMR (per 100,000 live births)	109 (MMEIG)	90 (IAGE)	< 70 by 2030 (SDG)	
# of Maternal Deaths per year	3 (MMEIG)	3 (IAGE)		< 2 by 2019
Antenatal care coverage (%)	88.4% (ANC1-2009) (DHS) 70% (ANC4-2009) (DHS)		At least 4 ANC visits: Core coverage indicator for EPMM36 and Global Strategy for Women's Children's and Adolescent's Health	ANC ≥ 2 visits = 100%
Skilled attendants at birth (%)	79.8% (2009) (DHS)		SDG indicator & Core Indicator for Global Strategy for Women's Children's and Adolescent's Health and EPMM	> 95%
Early Postnatal Care coverage (first check ≤ 2 days after birth)	48% (2009) (DHS)		90% coverage by 2025 (Every Newborn Action Plan)	
% of infants less than 6 mo. old who are exclusively breastfed	23% (2009) (DHS)		≥ 50% by 2025 (CIPMIYCN)	50% increase by 2025
% of children (12-23 mo.) who are fully immunized	28.7% (2009) (DHS)		Every Woman Every Child indicator	

34 WHO, Comprehensive Implementation Plan for Maternal, Infant and Young Child Nutrition, 2014.

35 Weight for height <-2 standard deviation from the median of the WHO Child Growth Standards) among children under 5 years of age

36 Ending Preventable Maternal Mortality

% of children (12-23 mo.) who received 3 doses of DPT	61.4% (2009) (DHS) 91% (WHO and UNICEF estimates)	81% (WHO and UNICEF estimates)	90% by 2020 (GVAP) ≥95% by 2020 (WRPO framework for GVAP)	
Vitamin A coverage (amongst children 6-59 mo.)	65.6% (2009) (DHS)			
% of children with diarrhea given ORT/ORS	61.5% (ORS - 2009) (DHS)		ORT: 90% by 2025 (GAPPD) ORS: Core Indicator for Global Strategy for Women's Children's and Adolescent's Health	
% of children with suspected pneumonia taken to an appropriate health provider	81.1% (2009) (DHS)		90% by 2025 (GAPPD) Core Indicator for Global Strategy for Women's Children's and Adolescent's Health	

1.23 The Expanded Programme on Immunisation in Kiribati

- The Expanded Programme on Immunization (EPI) was introduced in Kiribati in the early 1980s to protect the nation's children against measles, rubella, poliomyelitis, diphtheria, pertussis, tetanus, pneumonia, Hepatitis B, Hib and tuberculosis, and its women against maternal tetanus. Immunization of infants against hepatitis B was added in the early 1990s and conjugate Hib vaccine was introduced in August 2008. Kiribati was declared polio free in 1999. Following nationwide wide-age group measles campaigns in 1997, 2001 and 2006, almost no measles cases have been reported in recent years.
- The Ministry of Health and Medical Services (MHMS) National Health Strategic Plan 2016-2019 is an extension of the 2013 -2015 plan which was an outcome of collaborative discussion and engagement with stakeholders based on a health system needs assessment with the WHO and other partners. The keys areas addressed in the NHSP 2016 -2019 includes; Non-communicable diseases (NCDs) Population growth, Maternal morbidity and mortality, Child morbidity and mortality, Health service delivery, Gender-based violence (GBV) and youth health[37]. The main goal of the Kiribati NHSP 2016 -2019 is *to improve population health and health equity through continuous improvement in the quality and responsiveness of health*

[37] National Health Strategic Plan 2016-2019, Ministry of Health and Medical Services

services, and by making the most effective and efficient use of available resources. Improving immunization coverage and preventing disease outbreaks falls under strategic action 4 in the NHSP 2016 -2019.

- Kiribati was declared polio free since 1999 in conjunction with the other countries in the Western Pacific Region in 2000 and as remained polio-free since then.
- Endemic measles transmission has been interrupted in the Pacific Islands, following coordinated measles supplementary immunization activities since 1997.
- Rotavirus vaccine was introduced nationwide in 2015 to reduce diarrhea border. The Rota introduction was a package with other diarrhea prevention or management strategies. IPV was introduced in 2015 followed the switch from tOPV to bOPV in April 2016 in line with the End Game Strategy for Polio Eradication.
- There are plans or considerations to introduce HPV vaccines for girls to protect against cervical cancer in 2019.
- A number of new vaccines have been introduced and include Pentavalent, PCV, IPV and rotavirus vaccines thus widening the scope of child protection.
- Immunization coverage is moderate to high, and, for most antigens, appears to have increased between 2005 and 2010, and then decreased between 2010 and 2016, which is a concern.[38] The 2009 Kiribati Demographic and Health Survey found that the proportion of children 12-23 months who received at least 3 doses of Diphtheria, Pertussis and Tetanus (DPT) containing vaccine was 61.4%, and the proportion vaccinated against measles was 69.1%.[39] International estimates show these figures to be considerably higher, and show that DPT3 coverage increased from 79% in 2005, to 91% in 2010, and then decreased to 81% in 2016, and that measles coverage increased from 85% in 2005, to 89% in 2010, and then decreased to 80% in 2016.[40] Despite these higher figures, estimated 2016 coverage rates are still below the Western Pacific regional target of ≥ 95% coverage for all routine vaccines by 2020.

▪ EPI and national cold chain policy documents were updated in 2016 and finalized in 2017. EPI data collection tools for monthly consolidated statistical reporting were updated. A revised immunization schedule and updated training materials were completed and put into use.

1.23.1 National EPI Schedule for Kiribati

▪ AGE	VACCINE	DOSE	ROUTE	SITE
BIRTH	BCG	0.05ml	Intradermal	Lt upper arm
	Hep B	0.5ml	Intramuscular	anterolateral thigh
6 weeks	bOPV	2 drops	Oral	
	Pentavalent vaccine 1	0.5ml	intramuscular	anterolateral thigh
	PCV1	0.5ml	intramuscular	anterolateral thigh
	Rotavirus vaccine 1	1.5ml	oral	
10 weeks	bOPV 2	2 drops	oral	
	Pentavalent vaccine 2	0.5ml	intramuscular	anterolateral thigh
	PCV2	0.5ml	intramuscular	anterolateral thigh
	Rotavirus vaccine 2	1.5ml	oral	

38 WHO and UNICEF; WHO and UNICEF estimates of immunization coverage: 2016 revision- Kiribati; 2017.

39 Kiribati National Statistics Office and the Secretariat of the Pacific Community; Kiribati Demographic and Health Survey 2009; 2010.

40 WHO and UNICEF; WHO and UNICEF estimates of immunization coverage: 2016 revision- Kiribati; 2017.

14 weeks	bOPV 3	2 drops	oral	
	IPV	0.5ml	intramuscular	anterolateral thigh
	Pentavalent 3	0.5ml	intramuscular	anterolateral thigh
	PCV 3	0.5ml	intramuscular	anterolateral thigh
12 months	MR 1	0.5ml	Subcutaneous	upper arm
6 years	MR	0.5ml	intramuscular	upper arm
6 years	DPT4	0.5ml	intramuscular	upper arm
15 yr Girls	Td	0.5ml	intramuscular	upper arm
WOCBA	Td see full schedule	0.5ml	intramuscular	upper arm

1.23.2 Organizational structure of National Immunization Program

The National Immunization Program (NIP) is a structural unit of the Department of Public health of the Ministry of Health. The NIP is directly supervised by the child health manger (who also functions as National EPI Manager) and performs its routine operations under the management of the RMNCAH national coordinator and Director of public health.

Implementation of the National Immunization Program is responsibility of the dedicated program staff, who in close collaboration with the in-country development partners implement the program activities and is responsible for overall management of immunization program under the overall direction and leadership of the Ministry of Health.

1.23.3 Cold Chain and Vaccine management

The Kiribati National cold chain policy has been finalized and endorsed. The document contains guidelines and tools for proper vaccines and cold chain management.

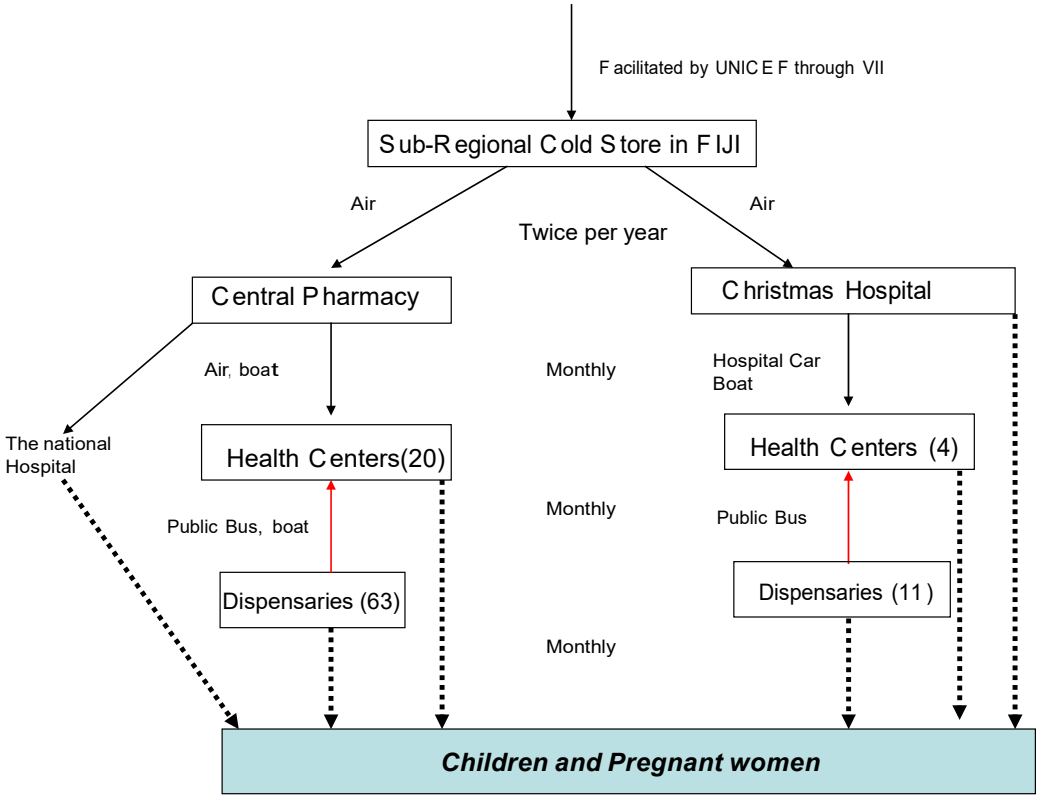
Cold Chain Status

Cold chain equipment (CCE): In 2017, UNICEF provided cold chain tools for repair and preventative maintenance of CCE. In 2016, UNICEF procured and installed 20 SDD refrigerators, 50 fridge tags, 100 freeze tags, 39 cold boxes, 50 vaccine carriers, CCE maintenance tools and spare parts for SDD refrigerators. UNICEF completed the installation of 20 SDD refrigerators in 2016, which, effectively, created routine vaccination services on outer islands, where previously only yearly mop-up campaigns had been conducted. Transport to several Kiribati outer islands is infrequent and unpredictable, often with gaps of as many as four months between boats, which are very small. Therefore, extensive logistical coordination and organization was required to transport SDD refrigerators, given their weight and volume, to outer islands by sea along with solar panels, installation materials and equipment. Moreover, other maintenance works were performed for health care facilities (i.e. servicing high frequency radio devices and their solar panels) by a cold chain consultant and his team. An inventory

template was simplified for the Kiribati context. Capacity-building on the use of the simplified tool and updating the national cold chain inventory quarterly was provided to a national cold chain officer.
The national cold chain technician position is currently vacant with the retired staff overseeing the activities. UNICEF funds two volunteers in addition to the retired cold chain technician to manage the country's vaccines and supplies; therefore, recruiting a substantive cold chain technician remains critical for the success of the EPI program. Gaps still exist in stock management and proper forecasting at the subnational level resulting stocks outs, and in some cases oversupply of vaccines with VVM change or expiry. Immunization supply chain training has been conducted for public health nurses in south Tarawa and plans exist to extend the training to other islands as well. An MOU has been drafted between MHMS and Air Kiribati to prioritize vaccine distribution to outer islands, which was coupled with a vaccine handling training for airport staff. However, the MOU is awaiting endorsement. The country also needs to develop a costed cold chain maintenance plan, and regular updates of the cold chain inventory. The central cold room needs an RTMD with an alarm system to help monitor cold room temperature fluctuations and quick response to emergencies.

Vaccine management

Kiribati has two first-level receiving stations-Central Pharmacy at MOH and Hospital at Kirimati Island, for vaccines delivered from the sub-regional vaccine cold store in Nadi, Fiji. The central pharmacy of the Ministry of Health receives, stores, and distributes vaccines to the Gilbert Islands Group. The hospital at Kirimati Island also directly receives vaccines from National Pharmacy in Tarawa and is responsible for distributing vaccines to the Line Islands and Phoenix Island Groups. Vaccines are delivered to health centres by air, sea or road transport on monthly basis.
Dispensary nurses pick up vaccines from health centres before running a vaccination session. In some situations, the health centres distribute the vaccines to dispensaries the day of, or the day before, a planned immunization session



The vaccines wastage guidelines in the national cold chain policy draft, however due to data constraint exact vaccine wastage estimates are yet to be calculated. The Island councils' control where health works conducts burn and bury of the filled-up safety boxes. There is not functional incinerator in the whole country which could contribute to improper waste disposal at some facilities.
UNICEF assisted the central pharmacy in developing a vaccine distribution/forecasting tool based on health facility microplans, vaccine coverage and estimated wastage rates.

Analysis of positive volume requirement and cold chain capacity at different level

Wastage of EPI vaccines in multi-dose vial presentation (BCG, measles, OPV) is high in Kiribati. The scattered population and low number of births in many islands, means that often only a few doses of vaccine are used from a 10 doses vial. The introduction of single dose pentavalent vaccine substantially reduced the wastage of both DTP and Hep B vaccine. It is estimated that with good management that wastage of the pentavalent vaccine could be reduced to as low as 5%.

Effective Vaccine Management Assessment (EVMA)

The last EVMA was conducted in 2014 and a new EVMA will be conducted in 2019.

As 2014 when the EVMA was conducted, only storage capacity-E3 criteria had a score of at least 80% (86%), but all other criteria were below 80% at the national and subnational levels. AT the national level, none of the nine criteria at the national level had a score of 80% or more. Kiribati's vaccine supply chain has reported the following EVM criteria scores: 59% at central level (Pharmacy), 50% at lowest distribution (or delivery) level (health centers) and 38% at service point level (clinics). Findings consistently showed a pattern observed where the vaccine supply chain quality decreases from central level to periphery. By criteria (refer to table below), E1 (Vaccine arrival) achieved 65%, E2 (Temperature monitoring) 54%, E3 (Storage capacity) 86%, E4 (Buildings, Equipment and Transport) 66%, E5 policies) 70% and E9 (Management information system and supportive functions) only 32%. (Maintenance) 39%, E6 (Stock management) 40%, E7 (Distribution) 55%, E8 (Vaccine management).

Summary of 2014 EVMA Scorecard

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Status of EVM-IP implementation

About 87% of the EVM-IP recommendations were implemented, with only 13% not achieved41. Funding remains a challenge in achieving full implementation of all EVMA recommendations. Below is a list of the specific recommendations that needed to be implemented by 2019.

Recommendation	Status
Vaccine arrival procedures: **Sign a MoU between MHMS and Customs Office to formalize relationships regarding vaccine handling upon arrival.**	MoU drafted between Air Kiribati, customs and MHMS awaiting signature. Airport staff trained on vaccine handling.
Temperature monitoring: **Equip the new cold room at the national vaccine store with continuous temperature monitoring devices with dial-out alert function and provide continuous temperature monitoring devices for all refrigerators at all levels.**	30 Day Temperature Readings provided to all clinics but the national cold room is yet to be equipped with a Remote Temperature Monitoring Device (RMTD).
Buildings, equipment, and transport: **Provide for all facilities (Pharmacy, health centres, clinics) with fire extinguishers and ensure annual maintenance checks and training are systematically implemented.**	Fire extinguishers not procured yet due to limited funding availability from MHMS.
Maintenance: **Provide the MHMS Biomedical Department with adequate training and equipment for carrying out cold chain maintenance throughout the country and/or managing outsourcing contracts effectively (for instance with the private "Solar Company").**	Biomedical staff trained on cold chain maintenance but there is limited staffing at Biomed. To focus only on cold chain. No action however on outsourced model of cold chain maintenance.
Stock Management: **Strengthen computerized stock management at the national vaccine store by modifying the software to include proper recording of VVM status stock, diluents and safe injection equipment at the lower levels; modify the "Monthly Consolidated Statistical Report" to include in its information necessary for calculation of vaccine utilization and wastage.**	MHMS could not contact m-Supply company to review and include VVM indicator report and diluents in the system. MS-1 has been updated on vaccine information.
Distribution: **Implement the systematic use of freeze indicators for packing freeze-sensitive vaccines.**	Freeze indicators being used for vaccine distribution.
Management Information System and Supportive Functions: **Analyse, adapt and adopt EVM-proposed model SOPs to complement the existing national SOPs and "Drug Management Guideline", and include vaccine management in the**	SOPs adapted to complement existing national guidelines.

[41] Status report of 2014 EVM-IP implementation

checklists of all supervisory visits.	

The pending activities that were not implemented include; procurement and installation of fire extinguishers, including EVM status in M-Supply system, adapting imprest for vaccine requisition (the imprest form is used by health centres to obtain their orders for drugs), and to improve the quality of electrical and solar installations in the accommodating health clinic buildings and repair existing ones.

1.23.4 IMMUNIZATION SERVICE DELIVERY

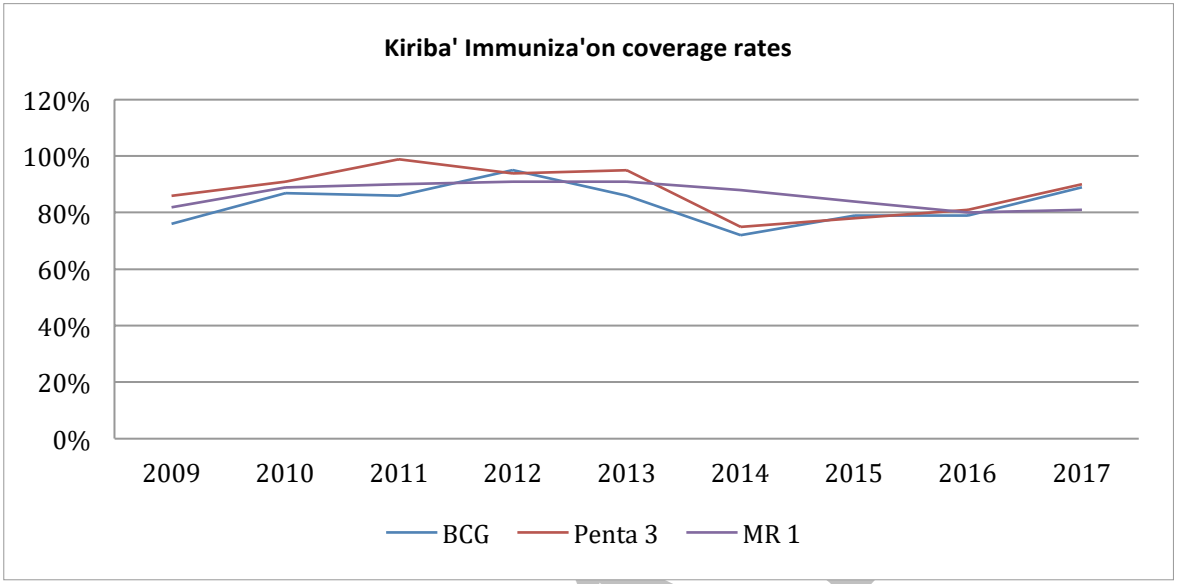
Immunization services along with other primary health care services are delivered by health centres and dispensaries either through special immunization sessions organized at health facilities on specific days or "on demand" in the health facilities. "On demand" immunization is limited to health facilities with functioning refrigerators. It is estimated that 40% of all children immunized are vaccinated "on demand" in health facilities but in general "demand' is low. Opportunistic vaccination prompted by nursing staff is limited.

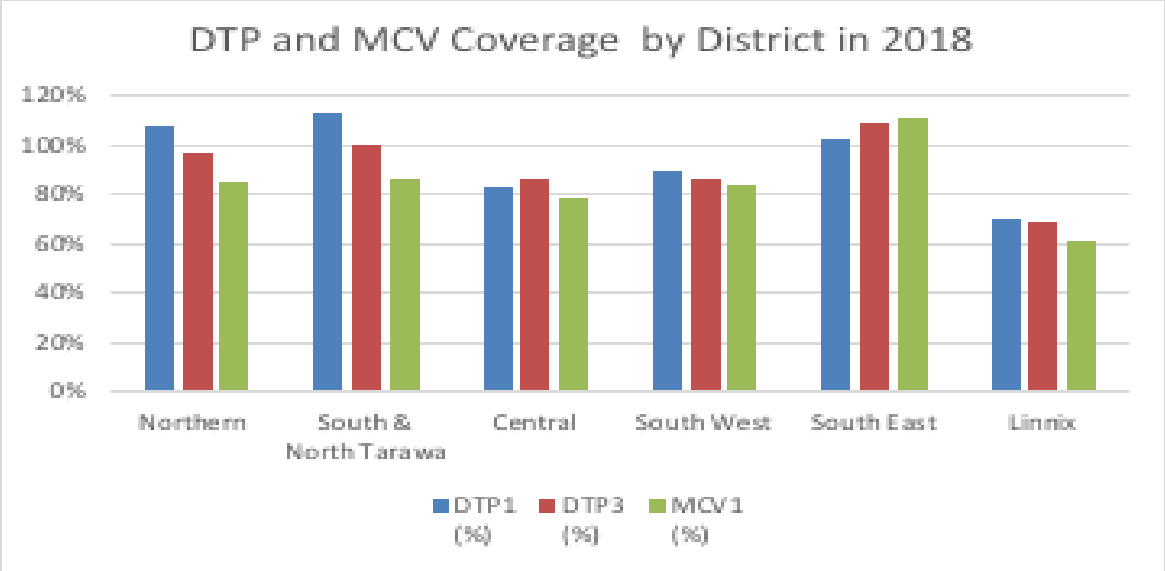
Special immunization sessions are organized 3 to 4 days each month. These sessions are organized flexibly at health centre and community level. Each health centre and dispensary schedules its own session schedule depending on the availability of vaccines. Because there are no fixed dates for immunization, communities often do not receive any advanced notice of immunization scheduled dates.

The National EPI policy was revised in 2017 to update and include rotavirus, revise the EPI schedule, epidemiological disease definition and emphasizing collaboration between biomedical services and cold chain. This has however not been disseminated to the frontline heath workers for implementation. Immunization coverage has increased in the last few years and currently put at 90% for DPT3 (WUENIC 2017). While the national coverage has fluctuated over the years, there has been a consistent increase in district level immunization coverage with all districts having >=80% DPT3 immunization coverage by 2017 (Refer to Figure below). About 50% of districts have high immunization drop-out rates >10% due to gaps in micro planning, logistics issues (funding or transport), or even poor planning and management of the program.

Insufficiently qualified service providers, particularly the lack of capacity in basics of general management and immunization services including insufficient skills in development of micro-plans for service provision are few of the major challenges contributing in sub-standard performance of immunization system. These problems are aggravated by the local context, where the front-line service providers are assigned with multiple tasks and complex of responsibilities within the framework of integrated outreach strategy.

Kiribati Immunization Coverage Data (WUENIC 2009 to 2017) [42]



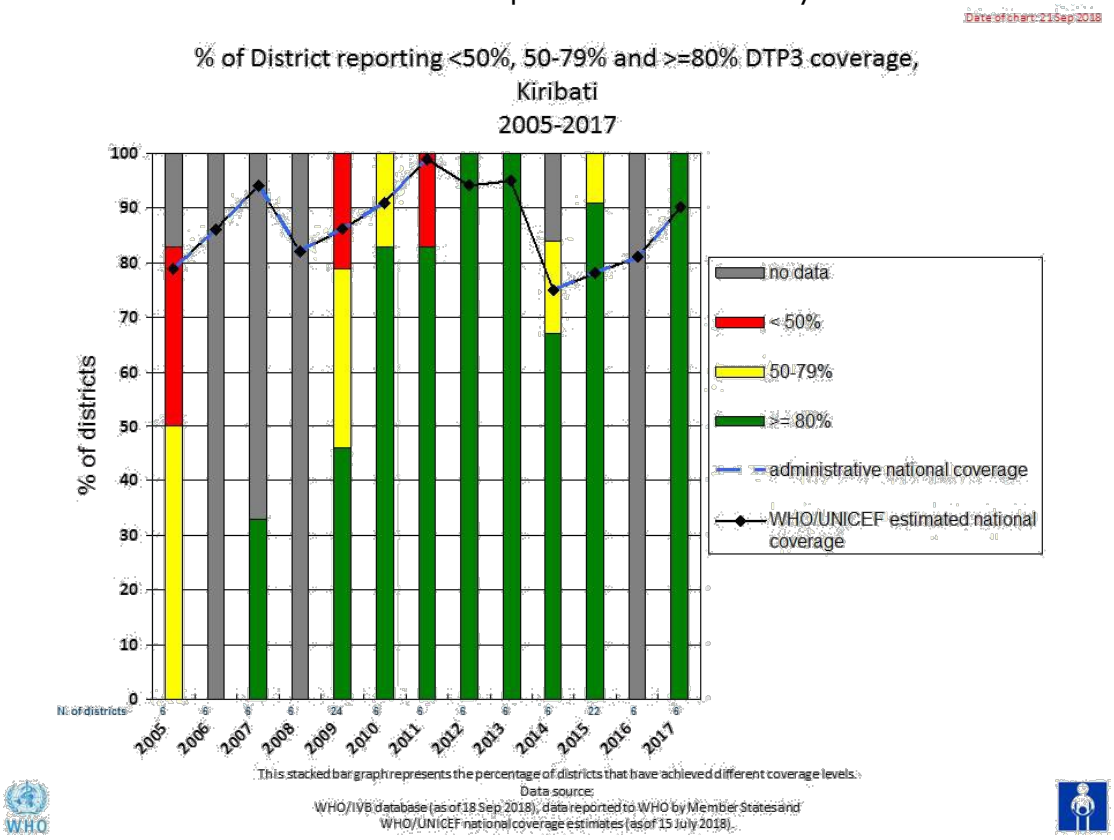


1.23.5 SURVEILLANCE AND REPORTING

42 WHO Global Health Observatory data for Kiribati accessed in September 2018

Routine Data systems

Staff turnover remains a challenge, which increases the need for more regular trainings and refreshers for new health workers. The country uses under 1yr target population derived from the 2015 national population census with projections.
Immunization data from clinics in Kiribati is reported through the Kiribati uses MS-1 data collection system for its routine immunization program at the health centers and clinics. Opportunistic vaccination reports are also captured through the KHIS at the main hospital. Reporting rates from the clinics has increased and now over 90%. There is opportunity to improve in completeness and quality of data reported. The 2015 figure of under 1yrs target population is used as official denominator till date. This may be resulting in higher than expected immunization coverage rates. There is asynchrony between the currently used MS1 forms and the child health registers-needing updates. No data quality audits/assessments have yet been conducted in Kiribati. There were plans to conduct an EPI coverage survey in the previous years that was postponed and yet to be conducted [43] ; as such coverage survey relies on DHS data that was conducted last in 2009. Kiribati completes and submits the annual WHO/UNICEF Joint Reporting Form with the relevant information. Every year Kiribati publishes its annual health bulletin that summarizes the performance for the year.



Vaccine Preventable Disease Surveillance

The country has a syndromic surveillance system, which reports on four key syndromes namely Influenza-like Illness (ILI), Dengue-like Illness (DLI), Acute Fever and Rash (AFR) and Diarrhea. Currently, Kiribati does not routinely report on AFP and Neonatal Tetanus. In view of the existing threats of re-emerging diseases in the Pacific, strengthening the HBAS through health worker capacity building, regular follow up and equipping the lab will ensure functionality of the HBAS system. The CDSRC works to review relevant surveillance data and recommend action. The EPI program manager needs to be looped into the surveillance committee and should have access to the surveillance reports.

All staff should be able to apply the surveillance case definitions and know how to make a notification. If a health worker sees a patient / number of patients that meets specific reporting requirements for a list of dangerous or outbreak-prone diseases the health worker is required to report it immediately. Health workers should make a report by calling the REPORTING HOTLINE on 28100 by phone or 194 by mobile. Reports can be made 24 hours a day / 7 days a week.
If an outbreak is detected the Health Information Unit will alert relevant sections of government. They will also liaise with the health workers and the health facilities involved in the outbreak and provide advice on what they should do to prevent the spread of disease.

Pacific-wide Surveillance
Every week the Health Information Unit provides a summary of suspected infectious diseases cases in Kiribati to the WHO. This information is used to monitor infectious disease trends across the whole of the Pacific.

Global Reporting
On 15 June 2007, Kiribati signed a global agreement called the International Health Regulations (2005) (or IHR (2005). The IHR (2005) requires all countries (including Kiribati) to be able to identify, assess, respond and report events that may be of international public health concern.
When outbreaks occur in Kiribati a designated IHR National Focal Point (in MHMS) will assess the event and determine if it is of international public health concern.
If an event is determined to be of potential international public health concern it must be reported to WHO within 24 hours.

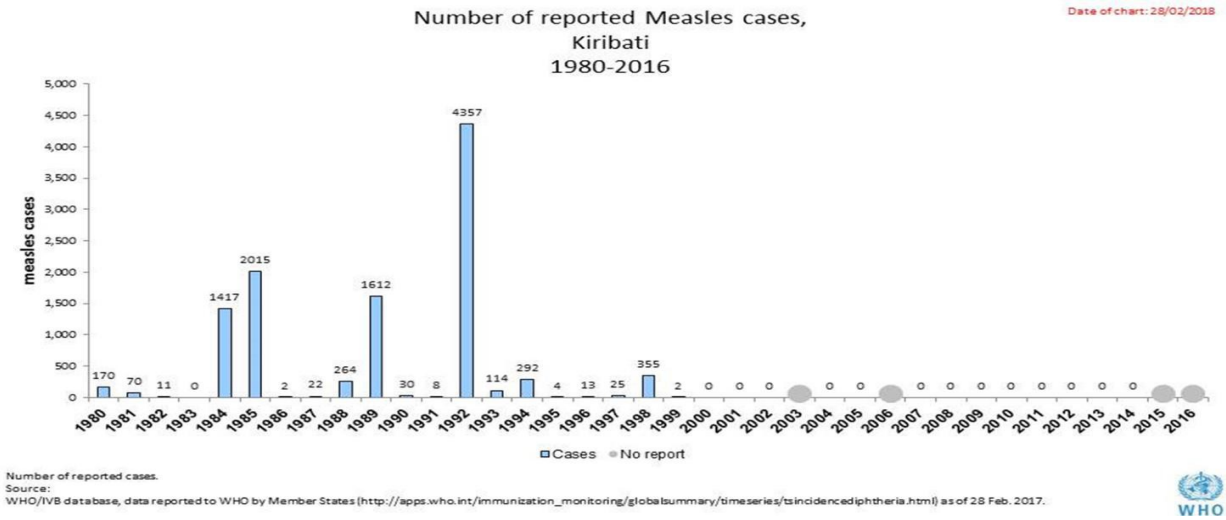
Case-based surveillance performance for Measles, 2010-2017

Indicators	***Target***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	***2016***	***2017***
Rate of discarded non-measles cases	>2 / 100,000	0	0	0	0	0	0	0	0
% of second level with discarded non-measles cases >2/100,000	>80%	0	0	0	0	0	0	0	0
% of suspected cases with adequate blood specimens	>80%	0	0	0	0	0	0	0	0

% of outbreaks with virological specimens	>80%	0	0	0	0	0	0	0	0

Measles and Rubella outbreak (s) in the past

No measles cases have been reported in Kiribati since 2000.



Supplementary Immunization Activity

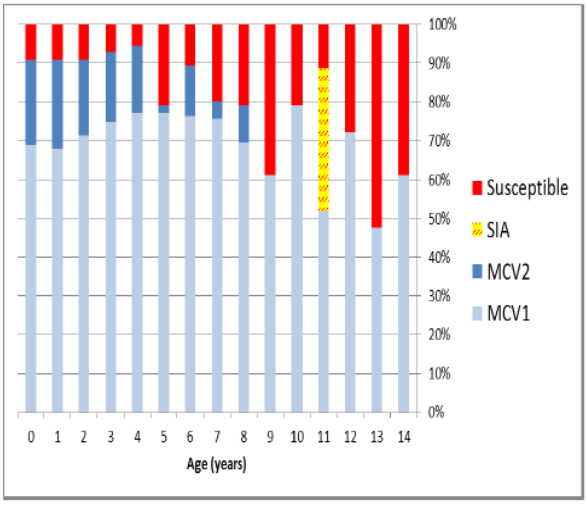
MRCV-SIAs campaign in the past

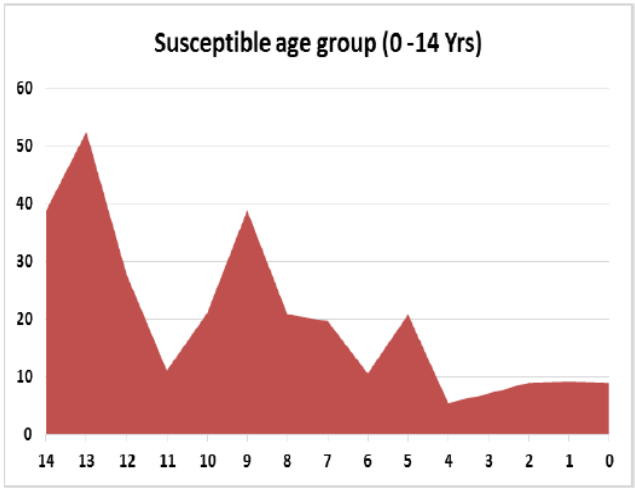
Year	Intervention	Activity	Extent	Start Date	End Date	Age Group	Implementation Status	Target	Reached	% Reached
2002	Measles	FollowUp	National	10/1/2002	11/1/2002	12-59 M	done	1 376	1 270	92
2006	MR	CatchUp	Sub-nation	3/13/2006	4/4/2006	1-19 Y	done	42 704	40 568	95
2009	MR	CatchUp	National	6/15/2009	6/30/2009	12-59 M	done	9 230	9 865	106.7

Measles Susceptibility Profile – Kiribati

Measles Susceptibility Profile is the way to reduce the program emergencies. Coverage does not equal population immunity. One dose is not enough to achieve 95% immunity, even at high (>90%) coverage, RI and SIA reaches those vaccinated who did not seroconvert based on the vaccine efficacy = 85%.

Ministry of Health with support from UNICEF and WHO, analyzed MR data from 1983 to 2017 to determine the areas and groups at risk for measles, Lead the SIAs and to help in ideal allocation and use of resources.





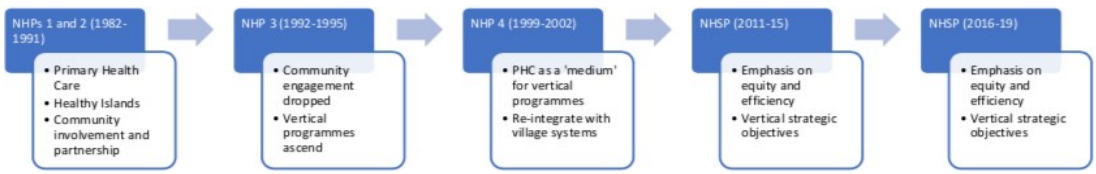
As part of the Measles and Rubella strategies, MHMS proposed for nationwide MR campaign in 2019, to vaccinate all children under 14 years based on (The susceptibility profile, Low coverage of MCV1 and 2, WHO recommendation and Weak surveillance system) to reduce the program emergencies.

1.23.6 DEMAND GENERATION, COMMUNICATION AND ADVOCACY.

Demand generation activities are being implemented to boost immunization covered. During the new vaccine's introduction including rotavirus vaccine, mass mobilization was conducted coupled with high-level advocacy for increased investment on immunization. The MHMS plans to finalize and implement a communication strategy to assist in advocacy social mobilization and behavior change communication. A community engagement strategy was developed with support from UNICEF from which a counseling toolkit to help behavior change communication for child health and nutrition.

A review of consecutive Kiribati national health plans (NHPs) and National Health Strategic Plans (NHSPs) suggests vision and mission drift from PHC, and the community. Whereas in early plans (1980s, post Alma-Ata), there was a strong emphasis on community engagement, te toronib'ai (self-reliance) and PHC, this emphasis was diluted over time. A lack of community involvement is perceived to have resulted from lack of contact and follow-up from the central level.

Figure below provides a timeline showing key policy trends.



With the implementation of the communication strategy and community engagement, better understanding of roles and responsibilities for both parents and caregivers is envisaged. Also, communication within and across programs in the MHMS would assist in better EPI program delivery.

Health worker trainings and refreshers have been conducted annually especially targeting the Medical Assistants (MAs) who manage the Island councils' facility. There still exist gaps in training for public health nurses who are the frontline health workers. Funding for supportive supervision remains inadequate to meet the needs of the program. Currently the MHMS is implementing an integrated supportive supervision strategy to help maximize resource use and efficiency. Data collection and analysis continues to improve, however quality issues still remain. Kiribati has neither conducted data quality assessments (DQA) nor immunization coverage survey, which could assist the country in validating its coverage estimates and improve data quality. The country relies rather on DHS data with the last one conducted in 2009. There has been a steady increase in the quality of immunization data collection and analysis, with more than 90% of health facilities reporting data, although completeness remains an issue. The country submits WHO/UNICEF Joint Reporting Form but sometimes late. The country is exploring how to further use digital technology to improve data quality and accuracy. Some micro plans still yet to be updated in the outer islands, and health workers do not refer to updated or developed micro plans sometimes.

1.23.7 PROGRAMME MANAGEMENT

The country has a RMNCAH committee, which could serve as its Interagency Coordinating Committee on Immunization (ICC), however this needs to be captured in the revised Terms of reference and strengthened. The National Program Manager provides technical and managerial guidance for implementation of the immunization program. An annual operational plan for immunization is developed and implementation was estimated at 60% for 2017 due to challenges with funding flow. No international EPI program review has been conducted in the Kiribati as yet. An international EPI review is recommended after every five years to help strengthen program delivery.

Implementation of community engagement as a component of the RED strategy remains a challenge, despite the opportunities that exist with using the *Maneaba*. DPNOs oversee the six districts in terms of program monitoring and supervision. Supervision has been rather adhoc and limited due to resource constraint. More recently, a supportive supervision gap analysis was conducted, with the development of an integrated supervision checklist. The pre-service curriculum needs to be revised to better up skill nurses in EPI training.

The public health act is obsolete, has not been revised since 1979. Revising the public health act will provide useful opportunity to include the relevant immunization legislation as deemed fit. A budget line for vaccines or EPI needs to be created to secure funding for the program and its supplies in a sustainable fashion. Kiribati has fully transitioned from Gavi support since 2017 and the country is also facing a decline in other donor health assistance. However, Gavi has developed a post-transition engagement strategy for countries as such Kiribati could benefit from this time-limited support from Gavi, the Vaccine Alliance. Gavi engagement with Kiribati started in 2008 with support to introduce pentavalent vaccines. This was followed by introduction of

PCV by 2013. Kiribati is the first country to introduce IPV in the WHO Western Pacific Region in June 2015, with Gavi support[44].

1.23.8 HUMAN RESOURCE MANAGEMENT

The MHMS has a defined human resource for health (HRH) staff establishment. This is comprised of 830 permanent staff and includes approximately 405 professional/technical roles, including 311 nursing officers and 48 medical assistants (MAs).18 From this establishment, it is difficult to determine how many professionals are working at PHC level or on public health programmes. However, the gap analysis was able to establish that Kiribati has 38.3 health workers per 10,000 population. This is above the WHO established minimum threshold of 23 doctors/nurses/midwives per 10,000 (it does not include allied health or other cadres such as pharmacists, dentists, laboratory technicians etc).

The Medical Assistants, Public Health Nurses and Nurse Aids are the backbone of the EPI program in the country. Although there seems to be a high number of these health workers in the system, their distribution is mostly skewed to the center with limited staffing at the outer islands. For instance, the population per medical assistants is around 1per 2,686 people in the country[45]. A single health worker wears many hearts, which limits his/her ability to effectively conduct outreaches in the communities in the outer Islands. The country has an outreach package developed in 2016 with retired midwives, but implementation is still a challenge. The retirement age is 55 years, coupled with high turnover of staff. The posting policy needs to be updated to ensure fair distribution of health workers especially to the remote outer islands. There are no clear terms of reference for health workers
Curriculum updates for the school of nursing to ensure adequate pre-service training on immunization and child health. Health workers benefit from ongoing trainings on immunization and vaccine supply chain.

1.23.9 COSTING AND FINANCING

Kiribati continues to fund its immunization program and other services. The country fully transitioned from Gavi support in 2017. While funding from other donors continue to assist the government in immunization services, there is decline in the amount of resources been made available for health on a yearly basis. The country procures its vaccines through the UNICEF Vaccines Independence Initiative (VII), and has not defaulted in payment to date. The health share of the total national expenditure remains a little above 5%[46]. With the heavy reliance on donor support, resources will need to be reallocated to increase the health share as a percentage of national expenditure to reach 15% or more.

44 Kiribati Joint Appraisal Report 2016, submitted to Gavi, the Vaccine Alliance

45 Kiribati Annual Health Bulletin 2017

46 Kiribati Health Financing Assessment report, April 2018

Comprehensive Multiyear Plan on Immunization (2013 -2018)

There was progress made in terms of implementing the previous cMYP, which had nine objectives. Table below summarizes the performance of each objective and activity.

Achieved	97%
Partially Achieved	2 %
Not achieved	1%

Table 1 Summary Status of cMYP 2013 - 2018 Implementation (culled from MHMS evaluation of last cMYP performance)

#	Strategies and activities plan	Progress	Remark
Maintain cold chain system and delivery safe and secured immunization services			
1	EPI Cold Chain Maintenance exist within MHMS	Achieved	**Continues follow up with MHMS**
2	Update Cold Chain inventory	Achieved	**Continues follow up with MHMS**
3	Cold chain policy exists and distributed to all H/C and cold chain replacement action plan completed	Achieved	**The policy was developed, printing on October 2018**
4	Replace un-functioning cold chain equipment's	Achieved	**Continues follow up with MHMS**
5	Procure EPI Vaccines(BCG, OPV, Hep B, MR, DTP, TT/Td) including pentavalent	Achieved	**Based on 2017 forecast**

6	Procure pneumococcal vaccine(PCV 13)		
7	Procure AD syringes, reconstitution syringes and safety boxes (Except DTP-HepB+Hib),		
8	Procure AD syringes, reconstitution syringes and safety boxes (DTP-HepB+Hib, Pneumococcal and Hepatitis B single)		
9	Fence off burning and waste burial sites (Outer Islands)	Achieved	**Continues follow up with MHMS**
10	Timely delivery vaccines to health facilitates	Achieved	**Based on pharmacy monthly reports**
Improve routine immunization coverage			
1	Conduct Comprehensive EPI training including Micro-planning tools	Achieved	
2	Annual refresher EPI training	Achieved	
3	Monitor coverage through quarterly EPI data analysis	Achieved	
4	Supervision visits to health facilities to evaluate performance of EPI providers and identify issues	Achieved	
5	Develop evidence-based strategy and materials	Not achieved	
6	Introduce mass media and community awareness campaign	Achieved	**2016 EPI Campaign in South Tarawa, Immunization week 2018 also during outer Islands mission (Tab North, Beru)**
Strengthen surveillance on EPI target diseases			
1	Monthly Active surveillance for any AFP, AFR and NT	Practically achieved	**Continues follow up with MHMS and WHO, it should be reflected in MS1**
2	Case investigation for any AFP, AFR and NT and specimen's collection and shipping	Practically achieved	**Continues follow up with MHMS and WHO, Kiribati polio free**
3	Monthly data reporting of MS-1 form	Achieved	

Maintain polio-free status			
1	Routine activities on maintaining polio-free status will be integrated into strengthening routine immunization services and improving quality of EPI surveillance.	Achieved	**Continues follow up with MHMS, Kiribati polio free**
Achieve measles elimination by 2012			
1	Introduce 2nd dose of MR in routine Immunization services all-primary schools class1(6 years)	**Already achieved**	
2	Public awareness dangers and prevention of measles conduct Active Surveillance on AFR and case investigation on monthly basis	Practically achieved	
3	Prepare and implement MR Supplemental Immunization Activity- When needed	Ongoing	
Reduce disease burden of Hepatitis B through vaccination			
1	Monitoring Hep B first dose coverage and address potential issues	Achieved	**Supported by WHO**
2	Mass media /importance of 1st dose Hep B	Achieved	**Supported by WHO**
3	Ongoing vaccination new 'high risk' health staff	Achieved	**Supported by DFAT, WHO and UNICEF**
4	Information pamphlet on keeping healthy with and preventing the spread of Hepatitis B	Achieved	
Reduce disease burden of Hib diseases			
1	Procure pantevalent vaccine (DTP+Hep-Hib)	Achieved	
2	Procure AD syringes, reconstitution syringes and safety boxes (DTP-HepB+Hib)	Achieved	
3	Conduct training on introduction of Hib including all vaccines Vaccine/Annual refreshment	Achieved	

4	Prepare and conducted public awareness campaign Hib and all antigens	Achieved	
5	Monitor implementation of new vaccine introduction-Hib and Pneumococcal	Achieved	**Continues follow up with MHMS**
Improve management capacity on EPI and strengthen health system			
1	Monitor vaccine wastage	Achieved	**Continues follow up with MHMS**
2	Quarterly consolidate Immunization data by district	Achieved	**Continues follow up with MHMS and WHO**
3	Monitor coverage quarterly, Provide feedback to responsible PNOs and health facilities	Achieved	
4	Support EPI coordinator attending annual workshop	Achieved	**Supported by UNICEF on July 2018**
5	Support EPI staff/cold chain staff attending annual regional EPI trainings	Achieved	**Supported by UNICEF on July 2018**
6	**Access annual progress toward GAVI support and annual progress report**	**Achieved**	

EPI Plus-- Integrated Service delivery with Vitamin A and Albendazole

The new cMYP (2019 – 2023) is Integrated with other services to strengthen the integrated Vitamin A supplementation and deworming for children.
The country has an existing Vitamin A supplementation and deworming protocol for children under-five years of age.

Vitamin A and Deworming

Vitamin A supplementation for children 6–59 months of age living in developing countries is associated with a reduced risk of all-cause mortality and a reduced incidence of diarrhoea.
WHO recommends that in settings where vitamin A deficiency (VAD) is a public health problem, high dose [preventive] vitamin A supplementation should be provided to infants and children 6–59 months of age every 4-6 months, as a public health intervention to reduce child morbidity and mortality[47] [48].
Vitamin A contributes to healthy growth and development, prevents blindness and provides defence against diarrhoea and measles.
Vitamin A deficiency can be prevented by administering vitamin A supplements to all children aged 6-59 months. It is also very important to consume foods rich in vitamin A, such as breast milk, whole milk, liver, kapenta (sardine), green vegetables, carrots and other foods of yellow, orange or red colour, e.g. pawpaws, mangoes, sweet potatoes, pumpkins, palm oil and yellow maize.
A lack of vitamin A can cause night blindness and other eye problems.
Only 64 per cent of children in need are receiving the life-saving benefits of vitamin A supplementation. And more than 140 million children are being left behind.
The coverage of VAS programmes dropped by more than half in countries with the highest under-five mortality rates in 2016 – the same countries where VAS is needed the most.
The number of children left unprotected in high-mortality countries more than tripled between 2015 and 2016, jumping from 19 million to 62 million.
For children living in countries where under-five mortality is high and vitamin A deficiency is a public health problem, vitamin A supplementation (VAS) provides vital protection from blindness and decreases their risk of dying from preventable causes such as measles and diarrhoea.49 During much of early childhood – from 6 months to 5 years of age – two high-dose supplements of vitamin A per year,

47 Essential nutrition actions: improving maternal, newborn, infant and young child health and nutrition WHO 2013
48 Guideline: Vitamin A supplementation in infants and children 6–59 months of age. 2011. Geneva, World Health Organization.

spaced four to six months apart, can strengthen the immune systems and improve chances of survival.

WHO recommendation: All children diagnosed with measles should receive one dose of an age-appropriate vitamin A supplement. Children from populations with known VAD or where measles case fatality is likely to be more than 1% should receive 2 age-appropriate doses of vitamin A supplements, given 24 hours apart.

Deworming

Soil-transmitted helminth infections are among the most common infections in humans, caused by a group of parasites commonly referred to as worms, including roundworms, whipworms and hookworms. Evidence shows that preventive chemotherapy, or the periodic large-scale administration of anthelminthic medicines to populations at risk, can dramatically reduce the burden of worms caused by soil-transmitted helminth infections. Those living in poverty are most vulnerable to infection which can impair nutritional status by causing:

- internal bleeding which can lead to loss of iron and anaemia;
- intestinal inflammation and obstruction;
- diarrhoea; and
- impairment of nutrient intake, digestion and absorption.
- Preventive chemotherapy is an important part of a comprehensive package to eliminate morbidity due to soil-transmitted helminths in at-risk populations. However, long-term solutions to soil-transmitted helminth infections will need to address many factors, including improvements in water, sanitation and hygiene.

Preventive chemotherapy - using biannual single-dose albendazole (400 mg)a or mebendazole (500 mg), is recommended as a public health intervention for all young children (12-23 months of age), preschool (24-59 months of age) and school-age children living in areas where the baseline prevalence of any soil-transmitted infection is 50% or higher among children, in order to reduce the worm burden of soil-transmitted helminth infections[50].

Distribution

Distribution of the vitamin A and deworming is twice a year in March and September supply is from pharmacy and it distributed to every clinic from Nutrition Unit.
Then at clinic level nurse at each clinic distributed to each household on their own scheduled date

50 Guideline: preventive chemotherapy to control soil-transmitted helminth infections in at-risk population groups. Geneva: World Health Organization; 2017.

Current situation

According to HIU record and it shows that every island has cases being reported for night blindness showing that still there is a gap with the Vitamin A distribution is due to the issues listed below that maybe the cause of the recorded cases

- Delay of supply
- Delay of transportation to outer island and to the Line and Phoenix and Banaba island
- At clinic they distributed the vitamin A and deworming late because deworming target age group also cover age from 59 months up to 45 age for female and from 59 months up to 14 ages for male.
- Interfering with other new tablets such as trachoma tablets for eye that is also distributed to every household that they cannot go together.

2. Significance of SWOT analysis and the focus of MOH/NIP in the cMYP 2016-2020

Strengths	Weaknesses
• 100% of the public health facilities in Kiribati are providing child health services • Annual forecasting for vaccines and its related materials at national level • There exists a National Health Policy & Plan • Development of Role Delineation Policy • Recognition of immunization programme as the most successful public health programs in the country • Strong working relationships between NIP and development partners • Development of supportive supervision and community engagement guideline Integration of immunization activities into MCH package and decision to expand the outreach package to the community level • Increase in immunization coverage over last five years • Maintain Kiribati Polio-free. • Introduction of new vaccines	• High turnover of MHMS frontline staff, specifically 1/3 of public health nurses are newly appointed to PHC services since 2016. • Infrequent supervisory visits by district principle nursing officers (DPNOs) limit opportunities for on the job orientation and training of frontline health workers • Capacity gaps in planning, budgeting and financial reporting for sustainability of the vaccination program • Inadequate budgetary allocation for Nutrition and Immunization Programme in the National health Budget. • In-effective vaccine management at the districts and HF level. • Inadequate logistics for surveillance and monitoring activities. • Gaps between reported and assessed coverage rates • Insufficient coordination and communication between NIP and DPNO. • Communication gaps between providers and rural communities, especially in ethnic population and hard-to-reach communities; • Complexity of tasks assigned to the health workers and immunization service providers

Opportunities	Threats
• Technical and financial support from GAVI, UNICEF, WHO, MFAT, World bank and DFAT and other partners • Existence of community health committees (VWGs) and general community health volunteers (gCHVs). • Immunization becoming a high-profile issue on political and party agenda; involvement of Prime Minister and other ministries • Government commitment to achieve the unfinished agenda of health related MDGs and to invest in improved service provision and increase the allocation of domestic funding towards achievement of Universal Health Coverage and SDGs • Availability of technical assistance and readiness of implementing partners to support	• Continuous reliance on donor supports for the procurement of all vaccines. • Internal migration of population who are not registered with the villages and health care facilities and thus they are out of the service delivery provision • Insufficient funding of NIP and nutrition due to financial/budget • Shortage in human resource at the program level

The Comprehensive Multi-Year Plan 2019 – 2023

2.1.1 MISSION

To provide every child and mother high-quality, safe and affordable vaccines, immunization and nutrition services from the Child Health Programme in an equitable manner.

2.1.2 GOAL

Reduction of morbidity, mortality and disability associated with vaccine preventable diseases and high impact nutrition interventions.

2.1.3 STRATEGIC OBJECTIVES AND MILESTONES

The overall goal of the Kiribati Immunization program for the period 2019 – 2023 is ensure further reduction in vaccine preventable diseases morbidity and mortality by equitably reaching every child.

- Reach every child for full immunization.
- Accelerate, achieve and sustain vaccine preventable disease control, elimination and eradication.
- Strengthen immunization and nutrition supply chain and vaccine management system for quality immunization and nutrition services.
- Ensure financial sustainability for child health program.
- Promote innovation, research and social mobilization activities to enhance best practices.

2.1.4 GOAL, OBJECTIVES

National Plan for Immunization Objectives and Milestones

National Priority or Key Issues	Current Performance	Objectives	Milestones
Immunization and nutrition services delivery.	• Health workforce providing EPI and nutrition include public health nurses, nurses' Aid and medical assistants. There is high staff turnover necessitating refresher trainings.	• Build knowledge base and capacity of health workers for equitable vaccine delivery and high impact nutrition interventions	• 2020: Refresher training for frontline health workers conducted
	• Increasing immunization coverage. • Increasing VitA and Deworming coverage. Limited outreaches being conducted.	• Improve program efficiency thereby increasing immunization, VitA and Deworming coverage and impact	• 2020: Penta 3 coverage >=90%, VitA and Deworming coverage >=80%, • • 2023: Penta 3 coverage >=95% • VitA and Deworming coverage >=85%, •
	• Medical Assistants and DPNOs serving as supervisors of frontline health workers, yet to receive management training in EPI and high impact nutrition interventions	• Strengthen capacity of managers and frontline health workers	• 2021: MLM training conducted for DPNOs and MAs
Programme management.	• Public Health Ordinance	• Influence the review and	• 2022: Public health ordinance

	Needs Revision to update relevant EPI legislation needs.	update on the public health ordinance for better EPI program legislation	revised/updated with relevant EPI content
	• Outdated EPI and nutrition content in Nursing Curriculum	• Facilitate EPI content of nursing curriculum review to update pre-service and post-service training	• 2020: Revised nursing curriculum for pre-service and post-service training
	• Low supportive supervision being conducted (due to insufficient funding)	• Advocate and mobilize more resources for supportive supervision	• 2020: More funds made available for supportive supervision
Human resource management.	• High health worker turnover, outdated posting policy with unequal distribution of health workers, early retirement and human resource gap in critical areas eg Cold chain.	• Strengthen health worker capacity and distribution	• 2020; more than 60% of health works have received EPI and nutrition training. • • 2021: posting policy revised and updated
Costing and financing.	• Country funds the immunization program and pays for the cost of vaccines and supplies.	• Advocate for increased investment and creating a budget line item for immunization	• 2022: budget line for immunization
Vaccine, cold-chain and logistics.	• Currently cold chain coverage is about 70%. Low EVMA criteria scores in 8 components except in cold chain capacity • National vaccine cold chain policy not disseminated, and	• Strengthen immunization supply chain capacity and waste management for effective program delivery	• 2022: National cold chain capacity >85%

	vaccine stock outs at the health facility levels		
Surveillance and reporting.	• Challenges with timeliness, completeness and data quality (under and over reporting) through MS-1 & KHIS.Data quality assessment not conducted. •	• Improve the quality of all immunization administrative data and promote its analysis and use at all administrative levels to improve programme performances.	• 2020: Data Quality Assessment completed
	• Paper base and Excel sheet MS1 for HIU. No internet access in remote islands. • M-supply (Tupaia) apps being used for supply data. •	• Develop and promote the use of new technologies for collection, transmission and analysis of immunization data.	• 2020: Explore development of HIU mobile app solution
	• Syndromic surveillance existing for ILI, DLI, AFR and diarrhea. HBAS needs strengthening. Surveillance reports not shared with the CH program. Gaps in laboratory testing of VDP cases. AEFI reporting needs improvement.	• Further strengthen and expand disease surveillance systems to generate information based on laboratory-confirmed cases for decision-making	• 2021: Health workers receive AEFI training ad tools
	• Immunization policy existing but not disseminated yet. • Outbreak manual exist but not available in all health	• Ensure capacity for vaccine safety activities, including capacity to collect and interpret	• 2022: immunization policy book and outbreak manual delivered to all clinics

	facilities.	safety data	
Demand generation, communication and advocacy.	• Limited demand generation activities are being conducted, more in an adhoc manner.	• Build Individual and community understanding of the value of vaccines and to demand immunization as both their right and responsibility	• 2020: Communication plan and materials developed • • 2020: community engagement toolkit rolled out •

2.1.5 National Objectives, Strategies, Key Activities and Timeline

This section constitutes the actual cMYP work Plan for the period 2019-2023 and describes appropriate key activities for each strategy that contributes to achieving the set Objectives by EPI Program Component; a related implementation timeline is also included.

Table; showing the National Immunization Objectives, Strategies, key activities and timelines for 2019-2023

Objectives	**Strategies**	**Key activities**	**Year**					
			2019	**2020**	**2021**	**2022**	**2023**	
1. Build knowledge base and capacity of health workers for	1.1 On the job training and using the RED strategy approach to	1.1.1 Conduct (refresher) RED strategy micro planning training for all frontline health workers	X	X	X	X	X	

equitable vaccine and nutrition delivery	build health capacity							
2. Improve program efficiency thereby increasing immunization and nutrition coverage and impact	2.1 Updating micro plans and implementing more outreaches	2.1.1 regularly revise or develop routine immunization and nutrition micro plans with focus on low performing islands	X	X	X	X	X	
		2.1.2 Perform periodic EPI reviews	X	X	X	X	X	
		2.1.2 Conduct more routine integrated outreaches (with EPI)	X	X	X	X	X	
	2.2 Explore innovative strategies at increasing and improving service deliveries	2.2.1 Identify innovative strategies for improving immunization coverage	X	X				
		1.3.2 Implement new strategies to improve vaccination and nutrition		X	X	X	X	
	2.3 Integrated delivery with Vitamin A supplementation and Albendazole	2.3.1 Include Vitamin A and Albendazole as part of EPI service delivery	X	X	X	X	X	
	2.4 New vaccines introduction and supplementary immunization activities	2.4.1 Introduce HPV vaccines to protect girls against cervical cancer	X	X				
		2.4.2 Conduct Supplementary Immunization Activities (SIA) for MR (plus other interventions)	X					
3. Strengthen capacity of managers and frontline health workers	3.1 Mid-Level Management (MLM) Training	3.1.1 Conduct MLM training for all EPI program supervisors and managers (including MAs and DPNOs)		X		X		

4. Influence the review and update on the public health ordinance for better EPI program legislation	4.1 Public Health Ordinance Review	4.1.1 Develop a policy brief to justify need for revision of the public health ordinance	X	X				
		4.1.2 Conduct an advocacy workshop targeting the high level executives and MPs on the need to revise the public health ordinance	X	X	X			
5. Facilitate EPI content of nursing curriculum review to update pre-service and post-service training	5.1 curriculum review to include/update immunization components	5.1.1 Conduct curriculum review workshop	X	X	X			
		5.1.2 Training of Nursing school lecturers on revised curriculum			X	X		
6. Advocate and mobilize more resources for supportive supervision	6.1 Engage Islands councils to increase investment in immunization and nutrition	6.1.1 Develop a costed supportive supervision plan	X	X	X	X	X	
		6.1.2 Develop discussion brief and conduct advocacy sessions with Islands councils	X	X	X	X	X	
	6.2 mobilize more resources from development partners	6.2.1 Explore and utilize relevant partner support for supportive supervision	X	X	X	X	X	
7. Strengthen health worker capacity and distribution	7.1 Updates and implementation of relevant HR plans and policies	7.1.1 Advocate for the revision of the health worker positing policy	X	X				
		7.1.2 Follow up on the implementation of the revised posting policy to ensure equitable health workforce			X	X	X	

		distribution						
		7.1.3 Make relevant EPI inputs into the HR plan being developed with donor support	X	X				
		7.1.4 Conduct training and retraining of health workers on EPI plus	X	X	X	X	X	
8. Advocate for increased investment and creating a budget line item for immunization and nutrition	8.1 Budget Line for Immunization	8.1.1 Advocate for the creation of an immunization budget line to earmark resources for vaccines and the EPI program	X	X				
	8.2 Increased domestic funding for EPI and nutrition	8.2.1 Mobilize Islands councils to increase budgetary support for immunization program	X	X	X	X	X	
9. Strengthen immunization supply chain capacity and waste management for effective program delivery	9.1 Strengthened HR capacity for improved supply chain delivery	9.1.1 Follow up and ensure recruitment of substantive national cold chain technician	X	X	X			
		9.1.2 Advocate for the MHMS to absorb cold chain volunteers in the scheme of service	X	X	X			
	9.2 Effective Vaccine Management	9.2.1 Conduct EVMA in 2019/2020	X	X				
		9.2.2 Develop and implement a costed continuous EVM-IP		X	X	X	X	
	9.3 Additional cold chain infrastructure and maintenance	9.3.1 Develop and implement a costed logistics and maintenance of broken refrigerators (this might be the opportunity to train the appointed Cold Chain	x	x				

		Technician to use UNICEF procured refrigeration tools						
		9.3.1 procure and install additional cold chain equipment (including backup cooling unit for the Cold rooms and an RTMD for the central cold room)	X	X		X	X	
		9.3.2 Develop and implement a costed distribution of newly procured cold chain equipment and maintenance plan for the country	X	X	X	X	X	
		9.3.3 Include temperature monitoring reports in the MS1 form and explore ways to ensure use of temperature monitoring date for action and decision making (HF radios with data transmission capabilities may enable timely submission of the MS1 which contains the CC efficiency report)	X	X				
	9.4 Improved stock management and guarantee vaccine security	9.4.1 Compute annual vaccine forecast and distribution plans	X	X	X	X	X	
		9.4.2 Finalize MOU with Air Kiribati on vaccine distribution to outer Islands	X	X				
		9.4.3 Review vaccine and supplies stock management	X	X	X	X	X	

		practices, including strategies of reducing wastages						
	9.5 Improved waste management practices	9.5.1 Facilitate implementation of immunization waste management guidelines	X	X	X	X	X	
		9.5.2 Procure and install additional waste management equipment (incinerators and other waste disposal units)	X	X	X	X	X	
10. Improve the quality of all immunization and nutrition administrative data and promote its analysis and use at all administrative levels to improve programme performances.	10.1 Data quality improvement methodologies	10.1.1 Conduct a Data quality assessment (DQA) or periodic data audits	X	X	X	X	X	
		10.1.2 Develop and implement a data quality improvement (complete, timely and better-quality data)	X	X	X	X	X	
		10.1.3 Explore the conduct of specific immunization coverage survey				X	X	
11. Develop and promote the use of new technologies for collection, transmission and analysis of immunization data.	11.1 Mapping and utilization of digital platforms to improve EPI and nutrition data quality	11.1.1 Conduct a mapping of existing digital platforms supporting EPI and nutrition data reporting and analysis	X	X	X	X	X	
		11.1.2 Explore the option of developing and using the HIU digital mobile app	X	X	X	X	X	
12. Further strengthen and expand disease surveillance systems to generate information	12.1 Strengthen Hospital Based Active Surveillance (HBAS) systems	12.1.1 Train health workers (surveillance focal points) on HBAS and provide reporting tools	X	X	X	X	X	

based on laboratory-confirmed cases for decision-making		12.1.2 EPI Manager should be part of the CDSRC	X	X	X	X	X	
		12.1.3 Provide lab tools to support investigation and testing of cases	X	X	X	X	X	
13. Ensure capacity for vaccine safety activities, including capacity to collect and interpret safety data	13.1 Strengthen AEFI Monitoring and Reporting	13.1.1 Conduct health worker training on AEFI monitoring and reporting	X	X	X	X	X	
		13.1.2 Include AEFI reporting in the MS1 forms	X	X				
	13.2 Vaccine safety policy and guidelines	13.2.1 finalize and disseminate EPI policy books and outbreak manuals	X	X	X	X		
		13.2.2 Conduct health worker training on immunization safety guidelines and tools	X	X	X	X	X	
14. Build Individual and community understanding of the value of vaccines and to demand immunization and nutrition as both their right and responsibility	14.1 Operational research	14.1.1 Conduct Knowledge Attitudes and Practice (KAP) around behavior patterns towards immunization and nutrition by caregivers and communities			X	X	X	
	14.2 Community Engagement	14.2.1 Develop community engagement toolkits for integrated child health and EPI	X	X				
		14.2.2 Finalize communication plan and materials	X	X	X	X	X	
		14.2.3 Conduct IPC trainings for health workers on immunization service delivery	X	X	X	X	X	

	14.3 High level advocacy	14.3.1 Prepare advocacy materials targeting parliamentarians and executives at the national and Islands council levels to increase investment on immunization	X	X	X	X	X	

2.1.6 MONITORING AND EVALUATION FRAMEWORK

Table; Monitoring and Evaluation Framework

Priority Areas	Indicators	Source of Data	Baseline	Targets				
			2015	**2019**	**2020**	**2021**	**2022**	**2023**
Immunization services delivery.	Penta 3 vaccine coverage	Administrative Data & WUENIC	78%	90%	90%	92%	94%	95%
	MR 2 vaccine coverage	Administrative Data & WUENIC	42%	60%	70%	75%	80%	85%
	Proportion of health workers who received comprehensive EPI training	Administrative reports	30%	40%	60%	70%	75%	80%

	Percentage of DPNOs and MAs who received MLM training	Training/Administrative reports	0%	0%	80%	80%	100%	100%
	MR Supplementary Immunization Activity (SIA) completed		No	Yes	Yes	Yes	Yes	Yes
Programme management.	Revised Public Health Ordinance to include EPI	Administrative report	No	No	No	Yes	Yes	Yes
	Revised Nursing Curriculum with updated EPI content for pre-service and post-service training	Administrative report	No	No	Yes	Yes	Yes	Yes
	DPNOs conducting regular quarterly supportive supervision	Supportive supervision reports	No	No	Yes	Yes	Yes	Yes
Human resource management.	Nurses Posting Policy revised	Administrative reports	No	No	No	Yes	Yes	Yes
Costing and financing.	Existence of a budget line for vaccines and EPI	Finance and Administrative reports	No	No	Yes	Yes	Yes	Yes
	Gavi post-transition engagement finalized		No	Yes	Yes	Yes	Yes	Yes
Vaccine, cold-chain and logistics.	National cold chain capacity	Cold chain inventory reports	78%	82%	85%	85%	90%	90%
	New EVMA conducted with cEVM-IP developed	EVMA Reports	No	No	Yes	Yes	Yes	Yes
	Vaccine distribution MOU with Air Kiribati Operational	Supply chain reports	No	Yes	Yes	Yes	Yes	Yes
	Quarterly Vaccine cold chain temperature	Temperature monitoring reports	No	Yes	Yes	Yes	Yes	Yes

	monitoring report available							
	Substantive National Cold Chain Technician Appointed by Government	Administrative reports	No	No	Yes	Yes	Yes	Yes
Surveillance and reporting.	Data Quality Improvement Plan Developed and being implemented	Administrative reports	No	No	Yes	Yes	Yes	Yes
	Mapping of digital platforms available	Administrative reports	No	Yes	Yes	Yes	Yes	Yes
	National AEFI summary reports available	Administrative reports	No	No	No	Yes	Yes	Yes
	Proportion of health facilities with copies of immunization policy guidelines	Administrative reports	0%	40%	70%	90%	100%	100%
Demand generation, communication and advocacy.	Community Engagement Toolkit Rolled out	Administrative reports	No	No	Yes	Yes	Yes	Yes
	KAP report available	KAP report	No	No	Yes	Yes	Yes	Yes
	EPI communication plan updated or finalized	EPI communication plan	No	No	No	Yes	Yes	Yes

COSTING AND FINANCING OF THE IMMUNIZATION PROGRAM

The calculation figures of total population, size of birth cohort and target groups reflected in this report is based on the projected MHMS estimates from the available 2015 census data (even though the provisional population data is available, the same has not being endorsed to be used by the MHMS at the time of drafting this document). The population growth rate for baseline year is 1.75%. Estimations for the period 2019-2023 were based on the flat population growth rate 1.75%. Infant mortality rate is estimated at 46 (per 1,000 live births)51 and the childbearing age woman rate (CBA) is estimated at 20% of total population.

The procurement of all vaccines and injection supplies in Lao PDR is carried out through the UNICEF supply division

Using the cMYP costing tool, the projected costs for the immunization program for the period 2019 to 2023 is ***AUD 3,448,123.*** Breakdown of the cost projections can be seen in the chart below:

2.1.7 RESOURCE REQUIREMENTS BY PROGRAM COMPONENTS AND YEAR

cMYP Component	Costs	Future cost projections				
	AUD	AUD	AUD	AUD	AUD	AUD
	2019	2020	2021	2022	2023	Total 2019 - 2023
Vaccine supply and logistics (routine only)	$294,545	$347,582	$346,373	$347,039	$347,579	$1,683,118
Service delivery	$85,091	$86,792	$88,528	$90,299	$147,750	$498,460
Advocacy and Communication	$14,280	$560,000	$14,857	$15,154	$15,457	$619,748
Monitoring and disease surveillance	$37,425	$73,174	$47,337	$48,116	$48,910	$254,961
Program management	$42,840	$43,697	$44,571	$45,462	$46,371	$222,941
Nutrition interventions	$1,026	$1,044	$1,063	$1,081	$1,100	$5,315
Supplemental immunization activities (SIAs)	$163,580	$0	$0	$0	$0	$163,580
Grand Total	$638,786	$1,112,289	$542,729	$547,151	$607,168	$3,448,123

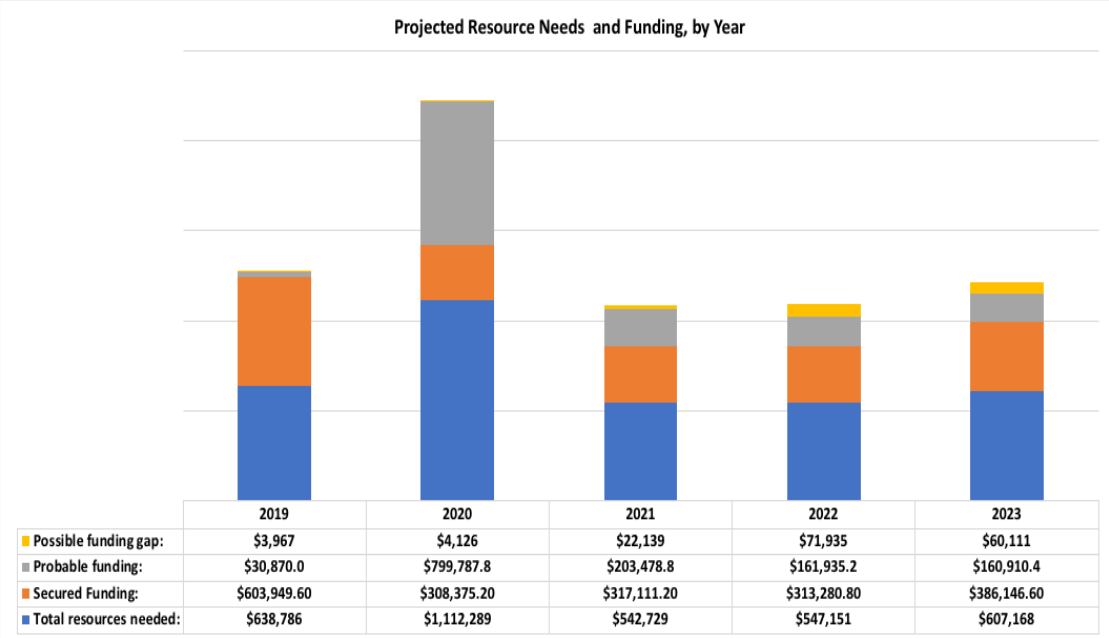
One of the most significant aspects of the resource requirement is a modest increase in the immunization program costs in the first and second year of projection due to planned EVMA and introduction of HPV vaccine which will have substantial increase in program costs.

A comparative analysis of the baseline expenditures and resource requirements for the first year of projection shows rapid and asymmetric change in program component costs. Particularly the cost component "vaccine supply and logistics" incraesed in the second projection year from $294,545 AUD in 2019 to $347,582 AUD in 2020 as well as "advocacy and communication" increased by 545720 AUD for introduction of HPV vaccine,

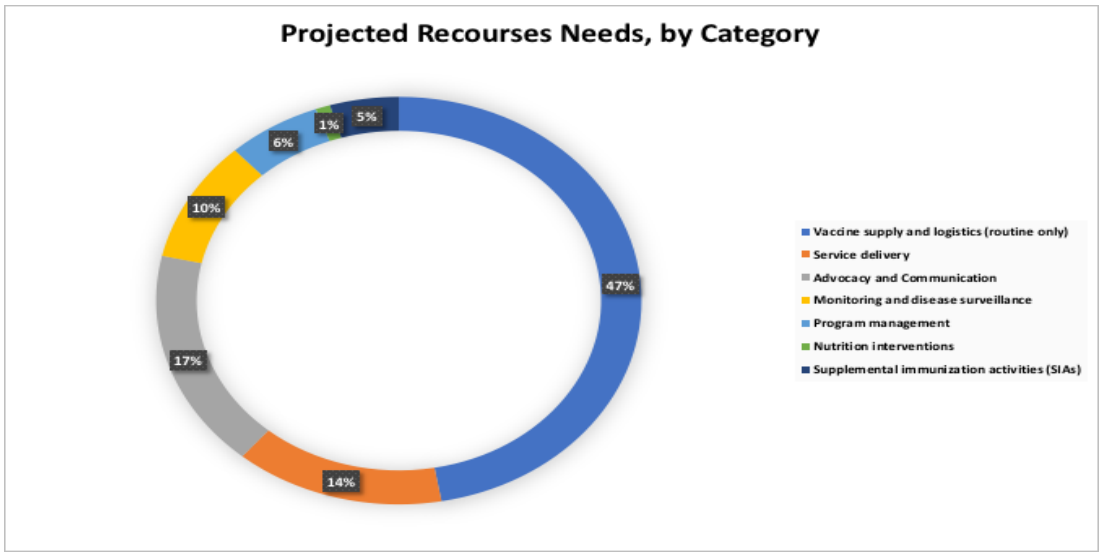
51 Data provided by EPI

while other components of the program, such as "service delivery", "advocacy and communication", "monitoring and disease surveillance" and "program management" significantly increases from 2021 to 2023. This is attributed to the strategic decision EPI to put more emphasis to the districts level and thereby increased funding on improvement of program management, service delivery, monitoring and surveillance.

The estimated annual program budgetary need ranges between AUD 638,786 in 2019 to AUD 607,168 in 2023. The breakdown shows that routine vaccines supplies and logistics will consume 47% of the total projected budget while service delivery will account for 14 % of the projected EPI program budget over 5 years.



	2019	2020	2021	2022	2023
Possible funding gap:	$3,967	$4,126	$22,139	$71,935	$60,111
Probable funding:	$30,870.0	$799,787.8	$203,478.8	$161,935.2	$160,910.4
Secured Funding:	$603,949.60	$308,375.20	$317,111.20	$313,280.80	$386,146.60
Total resources needed:	$638,786	$1,112,289	$542,729	$547,151	$607,168



2.1.8 FINANCING THE MULTI YEAR PLAN

2019

Cost category	Total resource requirements	Available Financing	Total probable funding	Unfunded	Government	Risk type	UNICEF	Risk type	WHO	Risk type	DFAT	Risk type
Routine recurrent costs	AUD											
Vaccines (routine vaccines only)												
Traditional	$140,000	$140,000	$0	$0	$59,360	Available	$80,640	Available	$0		$0	
New	$70,000	$70,000	$0	$0	$70,000	Available			$0		$0	
Injection supplies	$10,275	$10,275	$0	$0	$4,675	Available	$5,600	Available	$0		$0	
Personnel	-	-	-	-								
Salaries of full-time EPI health workers (immunization specific)	$31,489	$31,489	$0	$0	$31,489	Available	$0		$0		$0	
Per-diems for outreach vaccinators/mobile teams	$36,465	$36,466	$0	($0)	$36,466	Available	$0		$0		$0	
Per-diems for supervision and monitoring	$37,425	$37,425	$0	$0	$0	Available	$37,425	Available	$0		$0	
Transportation	-	-	-	-	-		-		-		-	
Fixed Site Strategy (Incl. Vaccine Distribution)	$5,712	$5,712	$0	$0	$5,712	Available	$0		$0		$0	
Outreach strategy + Mobile strategy	$11,424	$11,424	$0	$0	$11,424	Available	$0		$0		$0	
Maintenance and overhead	-	-	-	-	-		-		-		-	
Cold chain maintenance and overhead	$56,000	$56,000	$0	$0	$0		$0		$0		$0	
Maintenance of other capital equipment					-		-		-		-	
Building Overheads (Electricity, Water...)	$0	$0	$0	$0	$0		$0		$0		$0	
Short-term training	$35,700	$35,700	$0	$0	$35,700	Available	$0		$0		$0	
IEC/Social Mobilization	$14,280	$1,680	$12,600	$0	$1,680	Available	$12,600	Available	$0		$0	
Disease Surveillance	$0	$0	$0	$0	$0		$0		$0		$0	
Program management	$7,140	$4,200	$0	$2,940	$4,200	Available	$0	Available	$0		$0	
Other routine recurrent costs	$0	$0	$0	$0	$0		$0		$0		$0	
Subtotal	$455,910	$440,370	$12,600	$2,940	$260,705	$0	$136,265	$0	$0	$0	$0	$0
Supplemental immunization activities (SIAs)												
Measles Rubella (SIA) 1-14yrs age	$0	$0	$0	$0	$0		$0		$0		$0	
Vaccines & injection supplies	$55,928	$55,929	$0	($0)	$0	Available	$55,929	Available	$0		$0	
Operational costs	$107,652	$107,651	$0	$1	$7,651	Available	$0	Available	$50,000	Available	$50,000	Available
Subtotal	$163,580	$163,580	$0	$0	$7,651		$55,929	$0	$50,000	$0	$50,000	$0
Nutrition interventions	$1,026	$1,026	$0	$0	$15,302							
Grand Total	$638,786	$603,950	$30,870	$2,940	$286,626		$179,593		$50,000		$50,000	
Routine Immunization and Nutrition	$474,180	$440,370	$30,870	$2,940	$278,975		$123,665		$0		$0	
Supplemental immunization activities	$163,580	$163,580	$0	$0	$7,651		$55,929		$50,000		$50,000	

2020

Cost category Routine recurrent costs	Total resource requirements	Available Financing	Total probable funding	Unfunded	Government	Risk type	UNICEF	Risk type	WHO	Risk type
Vaccines (routine vaccines only)										
Traditional	$140,000	$140,000	$0	$0	$59,360	Available	$80,640	Available	$0	
New	$168,000	$70,000	$98,000	$0	$70,000	Available	$98,000	probable	$0	
Injection supplies	$11,582	$11,582	$0	($0)	$4,582	Available	$7,000	Available	$0	
Personnel										
Salaries of full-time EPI health workers (immunization specific)	$32,119	$32,119	$0	$0	$32,119	Available	$0		$0	
Per-diems for outreach vaccinators/mobile teams	$37,195	$37,195	$0	($0)	$37,195	Available	$0		$0	
Per-diems for supervision and monitoring	$38,174	$0	$38,174	($0)	$0		$38,174	probable	$0	
Transportation										
Fixed Site Strategy (Incl. Vaccine Distribution)	$5,826	$5,827	$0	($1)	$5,827	Available	$0		$0	
Outreach strategy + Mobile strategy	$11,652	$11,652	$0	$0	$11,652	Available	$0		$0	
Maintenance and overhead										
Cold chain maintenance and overhead	$28,000	$0	$28,000	$0	$0		$28,000	probable	$0	
Maintenance of other capital equipment	$0	$0	$0	$0	$0		$0		$0	
Building Overheads (Electricity, Water...)	$0	$0	$0	$0	$0		$0		$0	
Short-term training	$36,414	$0	$36,414	$0	$36,414	probable	$0		$0	
IEC/Social Mobilization	$560,000	$0	$560,000	$0	$0		$560,000	probable	$0	
Disease Surveillance	$35,000	$0	$35,000	$0	$0		$0		$35,000	probable
Program management	$7,283	$0	$4,200	$3,083	$4,200	probable	$0		$0	
Nutrition interventions	$1,044	$0	$0	$0	$0	$0	$0	$0	$0	$0
Grand Total	$1,112,288	$308,375	$799,788	$3,081	$261,349		$811,814		$35,000	

2021

Cost category Routine recurrent costs	Total resource requirements	Available Financing	Total probable funding	Unfunded	Government	Risk type	UNICEF	Risk type	WHO	Risk type
Vaccines (routine vaccines only)										
Traditional	$140,000	$140,000	$0	$0	$59,360	Available	$80,640	Available		
New	$168,000	$70,000	$98,000	$0	$70,000	Available	$98,000	probable		
Injection supplies	$11,611	$11,582	$0	$28	$4,582	Available	$7,000	Available		
Personnel	-	-	-	-						
Salaries of full-time EPI health workers (immunization specific)	$32,761	$32,761	$0	($0)	$32,761	Available				
Per-diems for outreach vaccinators/mobile teams	$37,939	$37,939	$0	$0	$37,939	Available				
Per-diems for supervision and monitoring	$38,937	$0	$38,937	$0	$10,937	probable	$28,000	probable		
Transportation										
Fixed Site Strategy (Incl. Vaccine Distribution)	$5,943	$5,943	$0	($0)	$5,943	Available				
Outreach strategy + Mobile strategy	$11,886	$11,886	$0	($0)	$11,886	Available				
Maintenance and overhead										
Cold chain maintenance and overhead	$14,000	$0	$14,000	$0			$14,000	probable		
Maintenance of other capital equipment	$0	$0	$0	$0						
Building Overheads (Electricity, Water…)	$0	$0	$0	$0						
Short-term training	$37,142	$0	$37,142	$0					$37,142	probable
IEC/Social Mobilization	$14,857	$5,600	$7,000	$2,257	$5,600	Available	$7,000	probable	$0	
Disease Surveillance	$8,400	$0	$8,400	$0					$8,400	probable
Program management	$7,428	$1,400	$0	$6,028	$1,400	Available				
Other routine recurrent costs	$0	$0	$0	$0						
Subtotal	$528,903	$317,111	$203,479	$8,313	$240,408		$234,640		$45,542	
Cold chain equipment	$12,762	$0	$0	$12,762						
Nutrition interventions	$1,063	$1,063	$0	$0	$1,063	Available				
Grand Total	$542,729	$318,174	$203,479	$21,076	$241,471		$234,640		$45,542	

2022

Cost category	Total resource requirements	Available Financing	Total probable funding	Unfunded	Government	Risk type	UNICEF	Risk type	WHO	Risk type
Routine recurrent costs										
Vaccines (routine vaccines only)										
Traditional	$140,000	$140,000	$0	$0	$59,360	Available	$80,640	Available		
New	$168,000	$70,000	$98,000	$0	$70,000	Available	$98,000	probable		
Injection supplies	$12,021	$11,582	$0	$439	$4,582	Available	$7,000	Available		
Personnel										
Salaries of full-time EPI health workers (immunization specific)	$33,416	$33,417	$0	$0	$33,417	Available	$0			
Per-diems for outreach vaccinators/mobile teams	$38,697	$38,697	$0	$0	$38,697	Available	$0			
Per-diems for supervision and monitoring	$39,716	$0	$39,716	$0	$14,517	probable	$25,200	probable		
Transportation							$0			
Fixed Site Strategy (Incl. Vaccine Distribution)	$6,062	$6,062	$0	$0	$6,062	Available	$0			
Outreach strategy + Mobile strategy	$12,123	$12,123	$0	$0	$12,123	Available	$0			
Maintenance and overhead							$0			
Cold chain maintenance and overhead	$14,000	$6,164	$0	$7,836	$0		$0		$6,164	Available
Maintenance of other capital equipment	$0	$0	$0	$0	$0		$0		$0	
Building Overheads (Electricity, Water…)	$0	$0	$0	$0	$0		$0		$0	
Short-term training	$37,885	$0	$0	$37,885	$0		$0		$0	
IEC/Social Mobilization	$15,154	$1,400	$0	$13,754	$1,400	Available	$0		$0	
Disease Surveillance	$8,400	$0	$8,400	$0	$0		$0		$8,400	probable
Program management	$7,577	$0	$2,800	$4,777	$2,800	probable	$0		$0	
Cold chain equipment	$13,018	$0	$13,019	$0	$0		$13,019	probable	$0	
Nutrition interventions	$ 1,081	$ 1,081	$0	$0	$1,081	Available	$13,019		$0	
Grand Total	$547,151	$320,526	$161,934	$64,691	$244,038		$236,877		$14,564	

2023

Cost category Routine recurrent costs	Total resource requirements	Available Financing	Total probable funding	Unfunded	Government	Risk type	UNICEF	Risk type	WHO	Risk type
Vaccines (routine vaccines only)										
Traditional	$140,000	$140,000	$0	$0	$59,360	Available	$80,640	Available		
New	$168,000	$70,000	$98,000	$0	$70,000	Available	$98,000	probable		
Injection supplies	$12,301	$11,582	$0	$718	$4,582	Available	$7,000	Available		
Personnel										
Salaries of full-time EPI health workers (immuniz	$34,085	$34,085	$0	$0	$34,085	Available				
Per-diems for outreach vaccinators/mobile team	$39,471	$39,472	$0	($0)	$39,472	Available				
Per-diems for supervision and monitoring	$40,510	$0	$40,510	($0)	$26,510	probable	$14,000	probable		
Transportation										
Fixed Site Strategy (Incl. Vaccine Distribution)	$24,731	$24,731	$0	$0	$24,731	Available				
Outreach strategy + Mobile strategy	$49,463	$49,463	$0	$0	$49,463	Available				
Maintenance and overhead										
Cold chain maintenance and overhead	$14,000	$14,000	$0	$0			$14,000	Available		
Short-term training	$38,643	$0	$14,000	$24,643	$14,000	probable				
IEC/Social Mobilization	$15,457	$2,800	$0	$12,657	$2,800	Available				
Disease Surveillance	$8,400	$0	$8,400	$0					$8,400	probable
Program management	$7,729	$0	$0	$7,729						
Cold chain equipment	$13,278	$0	$0	$13,278						
Nutrition interventions	$1,100	$1,100	$0	$0	$1,100	Available	$0		$0	
Grand Total	$607,168	$387,233	$160,910	$59,025	$326,103		$213,640		$8,400	

2.1.9 GAVI SUPPORT TO KIRIBATI

Kiribati has fully transitioned from Gavi support in 2017, and is a now a fully self-financing country. With Gavi support, Kiribati was able to introduce Pentavalent vaccine in 2008, PCV in 2011 and IPV vaccines in 2015. (See breakdown in table below)

Table Gavi support to Kiribati

Gavi support for Kiribati

Type of support	Approvals 2001-2023 (US$) (26 Sep 2018)	Commitments 2001-2023 (US$) (26 Sep 2018)	Disbursements 2000-2018 (US$) (26 Sep 2018)	% Disbursed (26 Sep 2018)	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Injection Safety Devices (NVS)	$1,000	$1,000	$2,559	256%										■	■
IPV (NVS)	$35,727	$35,727	$36,724	103%								■	■	■	■
Penta (NVS)	$136,638	$136,638	$152,829	112%	■	■	■	■	■	■	■	■			
Pneumo (NVS)	$131,436	$131,436	$148,218	113%						■	■	■	■		
Vaccine Introduction Grant (VIG)	$300,000	$300,000	$300,000	100%	■				■			■			
Total	**$604,801**	**$604,801**	**$640,330**												

Total Gavi support amounted to USD640,330 under the categories of Vaccine Introduction grant (VIG), New vaccine support for PCV, IPV, Penta and injection devices.

Kiribati will be benefiting for Gavi post-transition engagement support, which is mainly technical assistance and catalytic investments in the EPI program to ensure a robust and sustainable immunization program beyond Gavi transition. This support will start in 2018 for an initial period of two years.

2.1.10 FINANCIAL SUSTAINABILITY

In Kiribati Immunization funding is supported by government, donors and development partners. Government resources are sustainable albeit inadequate. Resources from development partners, especially to support vaccines, cold chain, and essential logistic and program management improvements are significant. Hence, the system of immunization financing in its current state, is not particularly sustainable to achieve and maintain high coverage rates through routine immunization, especially with the transitioning of the country from some donor support.

The proposed cMYP 2019-2023 explores innovative and more sustainable ways of financing the program especially with the involvement of the Islands councils and national government; through specific budgetary line items for vaccines and EPI programs, while Islands councils invest more in operational support for outreaches and supportive supervision. Some of the areas for consideration for generating additional resources include (but are not limited to): additional resources from the government budget for the health sector; additional resources from the Ministry of Health budget for immunization;

increased resource input from decentralized Island councils; and additional external resources from current and new partners (including the private sector). Increasing the reliability of available resources requires commitment from the different funding sources (government and development partners).

In line with the cMYP, detailed rolling annual plans that cover the key priorities/activities for the different actors will be developed, costed, and show funding from the different sources by having each funder reflect what they will be supporting in the annual plan.

2.1.11 Mobilizing Resources

- The EPI will pursue several strategies to secure additional resources locally to support and sustain the immunisation program performance, these include:
- Creation of a budget line item for Immunization in the government budget for the health sector;
- Additional resources from the Ministry of Health budget for immunization;
- Increased resource input from Island councils;
- Resources from donors, partners, civil society organizations and other non-governmental sources;
- Explore any potential that may exist in the private for profit sector.

The program shall seek to mobilize additional resources from these donors that have shown willingness to support immunization activities in the past, and identify and advocate among potential new donors for more resources.

2.1.12 Program Efficiency

Improved efficiency of the program shall also be pursued. Maintaining low levels of vaccine wastage offers significant efficiency gains for the program, more so with the use of the high cost vaccines. It is envisioned that vaccine wastage needs to be minimized especially for the more costly new and under-utilized vaccines to make cost savings. Mapping the vaccines and supplies wastages and more integrated service delivery could make available more resources for the program. In addition, better stock management practices with improved cold chain capacity and reliability; increased accountability at the district and Island council levels could be very beneficial.

PUTTING THE cMYP INTO ACTION

- To ensure diligent implementation of the cMYP, the following measures could be of great value;

- Incorporating the specific activities and milestones into the annual operational plans of the MHMS
- Keeping track of activity implementation by making use of the monitoring and evaluation framework in the cMYP and the key milestones for each of the developed objectives
- Ensuring the recruitment of a substantive cold chain technician to manage the immunization supplies and logistics
- Establishing a budget line item for vaccines and immunization program financing
- Strengthening immunization coordination and governance though the use of an RMNCAH committee/ICC-like body in the country
- High-level advocacy and engagement and increasing accountability