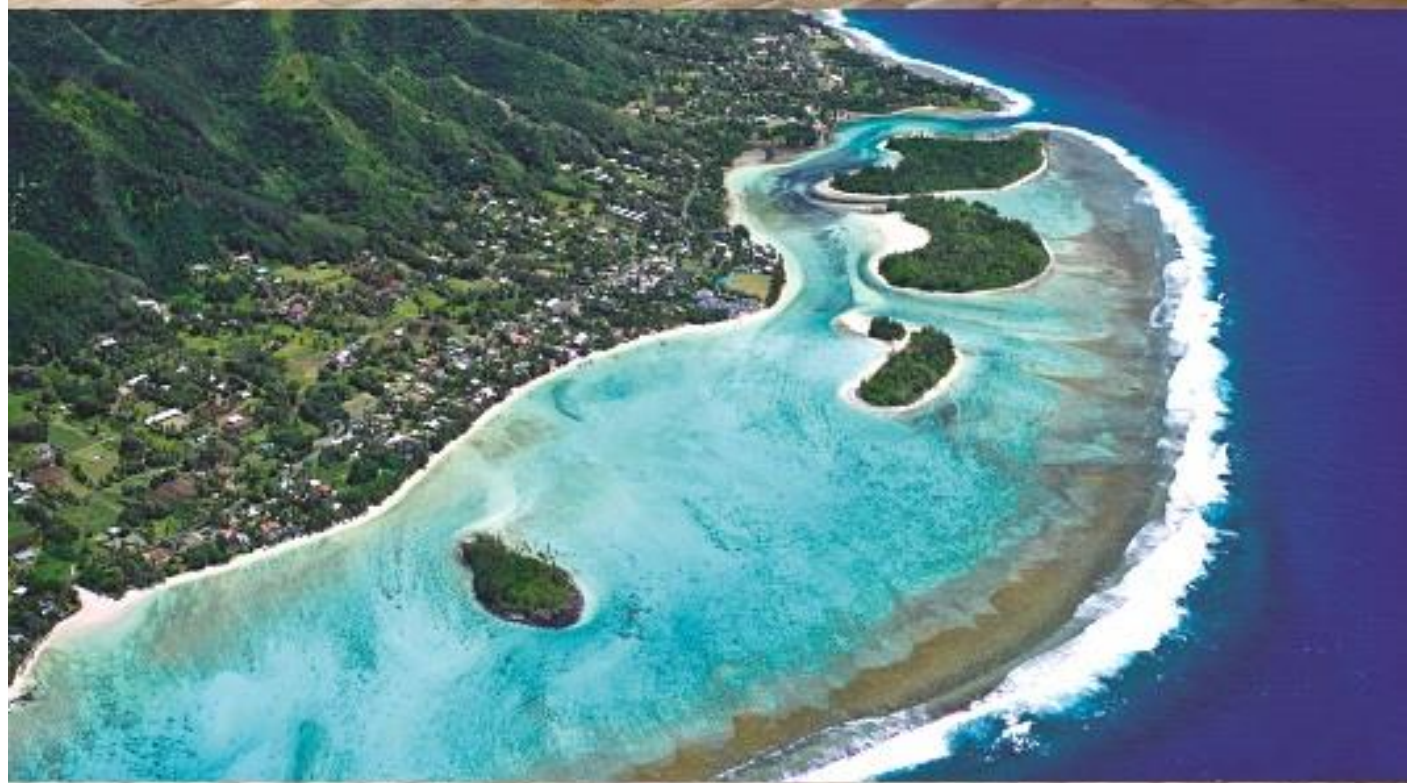




Te Rito O Te Papa'anga Ora
National Health Information Strategy
COOK ISLANDS: 2015 - 2019



Foreword and acknowledgements

Ministers's Message

Kia Orana,

Te Rito o te Papa'anga Ora - Health Information Strategic Plan 2015-2019 came into being when the Pacific Health Ministers prioritised Health information systems including Civil Registration and Vital Statistics (CRVS). Why? The importance of reliable and timely health, mortality, and cause of death data as well as monitoring health outcomes contributes to informed policy decisions.



Health is everyone's business! It is important that we must understand the health and wellbeing of Cook Islanders, all partners working in health must share their data and information and their Vision, on what HIS for a country should look like.

Service planning, management and evaluation are highly dependent on the availability of good health information which is essential in the identification of health priorities, and is invaluable when developing new health policies. Good quality health information collected, analysed and used on an ongoing basis will provide support to the Ministry of Health in providing quality services into the future.

I acknowledge the various organisations and individuals who have supported Te Marae Ora in delivering health services in our communities. Through team work, leadership, and commitment to delivering quality healthcare services I am confident that we will achieve our goals and objectives and ultimately our vision of "All people living in the Cook Islands living healthier lives and achieving their aspirations"

Kia Rangatira

A handwritten signature in blue ink, appearing to read 'N. Glassie', on a light blue background.

Honourable Nandi Glassie
Minister of Health
Cook Islands

Secretary's Message

Kia Orana,

Strengthening health information systems (HIS) and civil registration and vital statistics (CRVS) was recognised by Pacific Health Ministers as a priority issue. The importance of reliable and timely health, mortality, and cause of death data as well as monitoring health outcomes can contribute to informed policy decisions.



As with many health information systems in the region, previous investments in the Cook Island's Health Information System have focused on data collection processes, with limited emphasis on data integration or information use. This has led to a system which is not effective.

Service planning, management and evaluation are highly dependent on the availability of good health information which is essential in the identification of health priorities, and is invaluable when developing new health policies. Good quality health information collected, analysed and used on an ongoing basis will provide support to the Ministry of Health in providing quality services into the future.

Te Rito o te Papa'anga Ora -Health Information Strategic Plan 2015-2019 has been developed through a participative and consultative process involving substantial contribution and support from various individuals.

I therefore wish to extend my appreciation to all those who have contributed to the process of developing this plan for their significant input and commitment to the process.

I believe with the appropriate level of commitment and support the success of this Strategy will be guaranteed.

I encourage all those involved in the implementation of this plan to fully commit themselves to this important task so that ultimately we can contribute to better health outcomes for our people.

Kia Manuia

A handwritten signature in purple ink, appearing to be 'Elizabeth Iro'.

Mrs. Elizabeth Iro
Secretary of Health

Message from the Health Information Unit

Kia Orana,

The Health Information Unit (HIU) of Te Marae Ora - Ministry of Health, expresses its sincere gratitude to all those individuals who contributed to the development of this Health Information Strategy (2015-2019).



To achieve a complete understanding of the health and wellbeing of Cook Islanders, all partners working in health must share their data and information and their Vision, on what HIS for a country should look like. This Strategy provides such a vision for health information and that is, *“to foster an integrated health information system that supports the health system of the Cook Islands as it works to support and empower individuals, families, and communities to achieve their full health potential”*.

At its core, this Strategy is about fostering a change of culture with respect to the development and application of health information at all levels.

In the hands of people with the expertise and incentive to use it, data which is defined and understood in a shared way is transformed into information. This information, set in the context of previous actions, becomes evidence; and evidence that is analyzed and researched, becomes knowledge.

The potential of applied health information to transform all aspects of healthcare delivery and to effect major improvements in population health is clear and, with consistent effort, attainable. The implementation of this Health Information Strategy will contribute in a very significant and fundamental way towards achieving that goal.

Meitaki Maata

A handwritten signature in dark ink, appearing to read 'Tearoa', written over a horizontal line.

Mr Tearoa M. C. Iorangi
Health Information Unit Manager

Acronyms and abbreviations

CRVS	Civil registration and vital statistics
DHS	Demographic and Health Survey
HIS	Health information system
HIU	Health information unit
HMN	Health Metrics Network
ICT	Information Communication Technology
IT	Information technology
M&E	Monitoring and evaluation
MOH	Ministry of Health
MOJ	Ministry of Justice
NCDs	Non-communicable diseases
NSO	National Statistics Office
PHIN	Pacific Health Information Network
PICTs	Pacific Island Countries and Territories
SPC	Secretariat of the Pacific Community
UNFPA	United Nations Population Fund
WHO	World Health Organization

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1 Introduction

1.1 What is a health information system?

A health information system (HIS) refers to any system that captures, stores, manages or transmits information related to the health of individuals, or activities of organizations that work in the health sector. This definition includes things such as district-level routine information systems, disease surveillance systems, and also includes laboratory information systems, hospital patient administration systems and human resource management information systems. It must be remembered that a HIS is much more than a computer database or IT system: it also includes the resources (human and financial) required to collect data; the policies and procedures surrounding data analysis; the quality of reports produced; the use of information by planners and decision makers; and so on.

Overall, a well-functioning HIS is an *integrated effort to collect, process, report and use health information and knowledge to influence policy and decision-making, program action, individual public health outcomes, and research.*¹ Good decision-making at all levels of a health system requires reliable health information that is disaggregated by key variables (such as gender, age and socioeconomic characteristics). At a policy level, decisions informed by evidence contribute to more efficient resource allocation and, at the service delivery level, information about the quality and effectiveness of services can contribute to better health outcomes.

The Health Metrics Network, in their Framework and Standards for Country Health Information Systems,² has defined six components of a HIS (Figure 1).

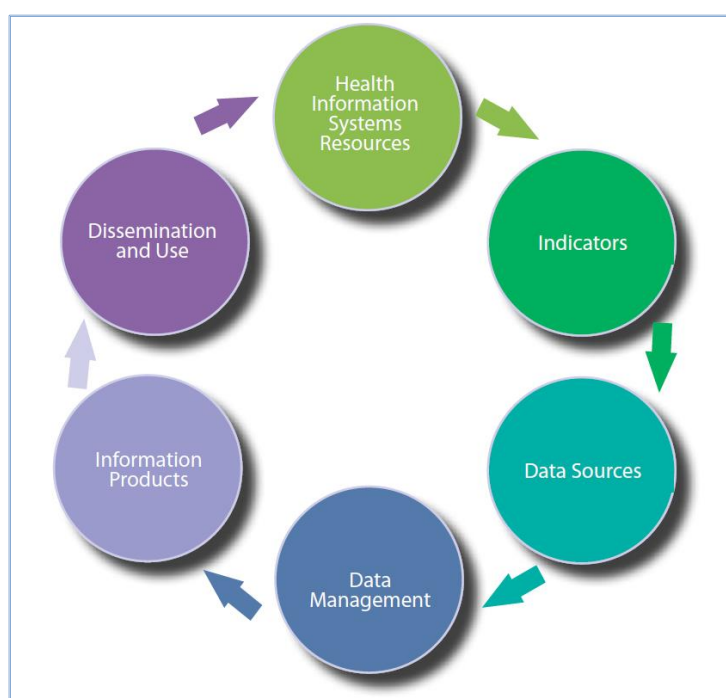


FIGURE 1: COMPONENTS AND STANDARDS OF A HIS

¹Adapted from the PHIN Regional Health Information Systems Strategic Plan, available at www.phinnetwork.org

²Health Metrics Network (2008). *Framework and Standards for Country Health Information Systems, Second Edition*. Geneva: World Health Organization.

1.2 Information needed by the public and the health system

Within the health system, health workers need a wide range of information about their patients to be immediately available. This information is often held in many different locations (laboratories, primary care clinics, hospitals) and reliance on traditional paper records limits the extent to which health workers can share information in a useful, timely and seamless way. Health professionals also need to be quickly informed about urgent health matters such as major changes in practice guidelines, an infectious disease outbreak or a natural disaster.

Service planning, management and evaluation are highly dependent on the availability of good health information. Service managers need information for planning and evaluation, assessments, and human resource management. Information on the quality and accessibility of services, as well as their cost, are also vital in making decisions on resource allocation. Senior decision-makers need information on the performance of health services, on health determinants and on the needs of the population when developing policies to influence the future direction of health services. This information is essential for the identification of health priorities, and is invaluable when developing new health policies. Good quality health information is also essential on an ongoing basis to provide support to the Ministry of Health in providing quality services in the Cook Islands.

Furthermore, members of the community have an interest in accessing their own personal health information, and understanding health issues that relate to where they live or work; such as rates of diseases in certain areas and health services available.

1.3 The six strategic priorities

In line with the Components and Standards of a health information system and the results of the HIS Rapid Assessment conducted in March 2014, the six strategic priorities and key outcomes of this strategic plan are to:

1. **Strengthen HIS resources:** policies and regulations are developed; institutional capacity and workforce development are enhanced; sustainable HIS infrastructure is supported.
2. **Develop national minimum core indicators:** a clear and explicit official strategy for measurement and analysis is developed.
3. **Improve HIS data sources:** core dimensions are defined; capacity and practices are enhanced; dissemination, integration and use are improved.
4. **Enhance data management:** procedures are written and implemented; a metadata dictionary is developed; unique identifier codes are developed and implemented; MedTech32 is reviewed; a system for data archiving is implemented.
5. **Improve the quality of information products:** data is compiled, managed and analysed to produce information; information is integrated and used as evidence; information is packaged in a variety of formats.
6. **Increase dissemination and use:** senior managers and policy-makers demand HIS information; HIS summary reports are distributed regularly; health information is used in planning and resource allocation processes.

2 Vision, mission, aim and key principles of this strategy

2.1 Vision

An integrated health information system that supports the health system of the Cook Islands as it works to support and empower individuals, families, and communities to achieve their full health potential.

2.2 Mission

To provide excellence in information solutions and services that will facilitate the vision, objectives and goals of the Ministry of Health.

2.3 Aim

The overall aim of this strategy is to provide a single, harmonised and comprehensive health information strategy that recognises the importance of:

- Health information in setting health priorities and the effective use of resources to address these health priorities
- Health information in evaluating health system responses and performance (including broader community responses)
- Cause-of-death and mortality-level data in monitoring health outcomes from NCDs
- Encouraging a culture of information use and planning based on evidence
- A multi-sectorial approach to strengthening the health information system.

In response to the recommendations from the Tenth Pacific Health Minister's Meeting, the strategy will also commit to:

- Establishing a multi-sectorial coordination mechanism for improving health information
- Undertaking assessments of the key challenges and issues in generating reliable and timely data
- Developing and sharing detailed improvement plans for health information
- Including locally agreed targets for improving health information that are measurable and provide accountability for progress
- Integrating data from surveillance systems into the broader health information system.

In working towards achieving these aims, the strategy acknowledges the:

- Complexities of improving health information
- Importance of training doctors, nurses, allied health professionals, non-health professionals and broader community structures in the process of data collection
- Opportunities presented by IT to improve systems, when used to support sound reporting structures and practices.

With this in mind, the successful implementation of the strategy will be dependent upon:

- Greater support in data analysis and data interpretation
- Ongoing support for improvement activities and capacity building.

2.4 Key Founding Principles

Te Marae Ora - Cook Islands Ministry of Health will have a culture of information by:

- Collecting high quality, relevant, reliable and timely information
- Sharing this information with our colleagues
- Making decisions based on evidence
- Ensuring the protection and security of this information.

All data collected by the health sector partner entities will be freely available within the health sector and also available to the public when relevant. Data that includes personally identifiable information will be protected from disclosure. Personal data will be stripped of identifiers and aggregated to a point where it is not possible to identify individuals.

3 Problem statement and challenges

As with many health information systems in the region, previous investments in the Cook Island's HIS have focused on data collection processes, with limited emphasis on data integration or information use. A common misconception is the belief that MedTech32 (a patient management information system) is *the* health information system. This has resulted in a narrow understanding of the components and functions of a HIS, resulting in limited processes for collecting information on behavioral risk factors, social determinants of health, or population estimates of need. Other challenges facing the system include:

- Difficulties in extracting data from MedTech32
- Limited integration between MedTech32 and other non-clinical health services data (such as services provided through outreach)
- Limited workforce capacity
- The lack of formalized processes and protocols relating to data management
- The analysis and appropriate packaging and presentation of information for dissemination to various audiences
- Limited use of information by managers and senior decision-makers.

While these challenges are not unique to the Cook Islands, they highlight the need to move away from a culture of 'data collection' to one of 'information use'. In looking at the results from the HMN Rapid HIS Assessment that was conducted in 2014 (Figure 2)³ the Cook Islands scored well (above 50%) for resources, indicators, data sources, and dissemination and use. Information products were the highest scored component, receiving a score above 75%. The lowest ranked component was data management, which scored below 25%.

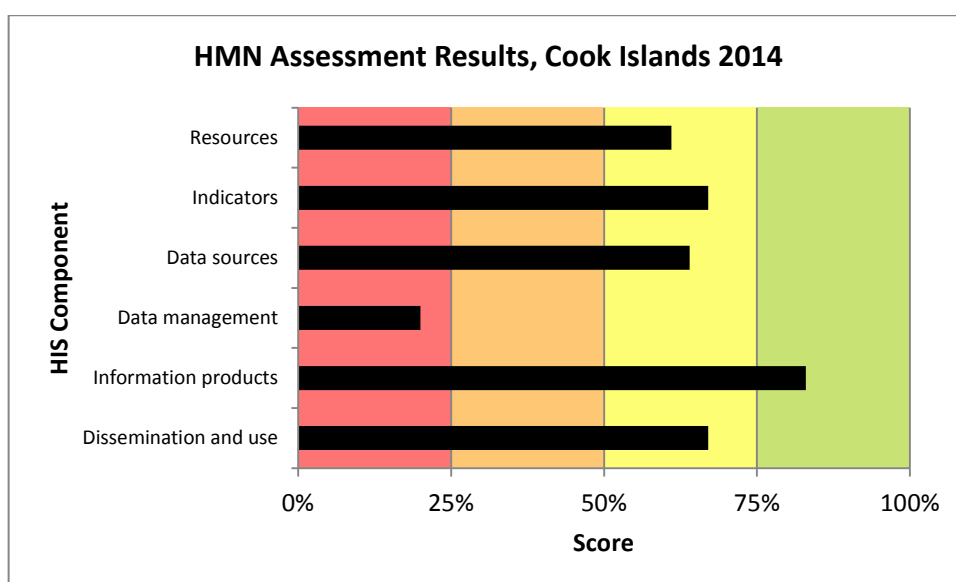


FIGURE 2: RESULTS FROM THE HMN RAPID HIS ASSESSMENT

³Te Marae Ora, Ministry of Health, Cook Islands Health Information System: Rapid Assessment Results (March 2014)

4 Situational analysis

4.1 Structural, policy and legislative context

The Cook Islands has a good legislative foundation with the **Ministry of Health Act of 2013**, which outlines the functions of the Ministry, including its role in developing health management systems and in promoting capacity building in relation to health planning, health resourcing, health information and health research.

The **National Health Strategy 2012-16** highlights the priorities of Government for people to fulfill their potential through access to quality and affordable health care. One of the priority focus areas mentions the need to strengthen health sector policy, planning and regulation, improve data collection, and monitoring and evaluation.

4.2 Requirement of a national HIS strategy

There are various international and national health agreements, treaties, plans and strategies that the Cook Islands has endorsed, which all require the collection, analysis and dissemination of information in a coordinated manner. These include:

- **Cook Islands National Strategy and Action Plan for Non Communicable Diseases (2015-2019)**
Sets out the country's overall strategy in addressing NCDs, including a number of indicators for use in monitoring and evaluation, ranging from behavioural risk factors, to incidence and prevalence rates, and to NCD-related mortality data.
- **Tenth Pacific Health Ministers Meeting (2013).** Recommends countries to commit to strengthen and improve data quality from HIS and CRVS systems by:
 - Establishing a multi-sectorial coordination mechanism(s) for improving HIS and CRVS systems
 - Undertaking an assessment of key challenges and issues in generating reliable, timely data
 - Developing and sharing detailed improvement plans for HIS and CRVS that include locally agreed targets
 - Investing in building human resource capacity for HIS and CRVS in areas such as data analysis and interpretation to inform policy development and planning.
- **Cook Islands National Health Strategy (2012-2016).** Along with delivering better health services and improved health outcomes, quality of life and healthy lifestyles for all people in the Cook Islands, the Strategy aims to:
 - Enhance the infrastructure of the health system
 - Strengthen health sector policy, planning and regulations, and improve data collection, monitoring and evaluation
 - Improve information, communication and technology systems and strategies to provide accessible and accurate health information.

The need for improved information is also seen in a number of objectives within the Strategy, which call for:

- Individuals to have '*the right information at the right time*'

- Information for '*prevention and early detection of risk factors and treatment of CDs and NCDs*'
- '*Improved health for all through evidence based data and information*'
- The '*MedTech32 patient information system in place of all the Pa Enuu*'
- '*Improved health outcomes through efficient and appropriate use of ICT*'
- '*Health priorities based on decisions informed by research*'.
- **Cook Islands National Sustainable Development Plan (2010-2015).** Principle six of the development plan has an implicit focus on information, with the agreement to:
 - Good governance promoted through participatory decision-making processes at all levels involving key stakeholders, including community, non-government organizations and Government agencies. In effect, this means that decisions made and actions taken, by all levels of Government and community are transparent and accountable.
- **Fifty-eighth session of the World Health Assembly (2005), Resolution 58.28 on eHealth.** Urges member states to:
 - Develop long-term strategic plans for developing and implementing eHealth services
 - Develop the infrastructure for ICTs for health
 - Strive for closer collaboration with the private and non-profit sectors in ICT
 - Mobilise multi-sector collaboration for determining evidence-based eHealth standards and norms
 - Consider establishing and implementing national public health information systems
 - Improve, by means of information, the capacity for the surveillance of, and rapid response to, disease and public health emergencies.

4.3 HIS funding and expenditure

In order for Health Information System to function, there must be adequate financial resources. Funding for the HIS are provided through the government of the Cook Islands and overseas development partners. There currently is not an itemized budget line in the health budget for health information.

4.4 The Cook Islands National Health Information System

The Cook Islands has an established health information system (HIS), which is producing an adequate amount of information for use in decision-making in planning. The primary health management information system, MedTech32, offers a relatively user-friendly platform for health workers to enter and access patient information from all islands. The system allows for basic information for many hospital activities including in-patient admission, transfer and discharge; out-patient case registration; surgery details; special clinical services, oral health; laboratory services; prescription records; radiology reports; discharge planning; pregnancy and birth records; post natal follow ups; immunization records and death registration.

Health facilities on the outer islands are able to connect to MedTech32 via the Internet providing, an important information 'bridge' back to the central Ministry of Health on Rarotonga.

All of the remaining information systems are paper-based. This includes data from the communicable disease program, and community health nursing. Information from recent surveys and on-field services is also paper-based and not integrated into MedTech32.

4.5 Notable current initiatives impacting HIS

Pacific Vital Statistics Action Plan

Representatives from the MOH, Statistics Office, and Civil Registration Office are currently involved in the Pacific Vital Statistics Action Plan (2011-2014). The Plan is part of the Secretariat of the Pacific Community's Ten Year Pacific Statistics Strategy (2011-2020), and has five priority areas:

1. Improving data integration and sharing
2. Increasing data analytical skills
3. Strengthening advocacies to advocate for HIS
4. Increasing analytical capacity to analyze CRVS data to better support policy decisions
5. Making better use of institution-based data.

The overarching aim of the plan is to assist Pacific countries to understand the critical importance of vital statistics on births, deaths and causes of deaths and to improve their availability, accuracy and use. The basic premise of the plan is to work with countries to undertake an assessment of their collection and reporting systems for births, deaths and causes of death by assisting countries to work through a self-assessment using the Vital Statistics Comprehensive Assessment tool developed by the University of Queensland HIS Hub and WHO in targeted workshops, followed by in-country visits. This information is then used by countries to develop a country-specific Vital Statistics Improvement Plan.

Non Communicable Diseases (NCDs) Global Action Plan for the Prevention and Control of NCDs

NCDs are increasingly recognized as a global issue which threaten economic development and impose heavy financial costs on households. Pacific health leaders have aptly described the NCD situation in the region as a 'crisis' and have issued a regional declaration of health emergency. Recent estimates suggest that NCDs are leading causes of death in the Pacific Island Countries and Territories (PICTs).

Importance of improved health information system for PICTs demands urgent and deliberative action in relation to the Pacific NCD crisis due to the following reasons;

1. Data and Information gathered will place PICTs in a stronger position to manage and control NCDs
2. Improved information on mortality by cause, risk factor prevalence as well as the upstream factors like trade regulation
3. National policies will provide researchers and ministries alike with a better understanding of what measures work and what actions need to be taken to help keep populations healthy
4. Limit the burden experienced from NCDs.

5 HIS contributions to MOH's strategic objectives

5.1 Core principles and goals of the health system

The Cook Islands has now reached a critical stage in the requirement for a health information system that will produce valid, reliable, timely, and reasonably accurate information for use by the Ministry of Health as well as providers of healthcare services for a variety of reasons centered on improving health outcomes. In the 2012 National Health Strategy, three health goals were identified:

1. A health service that supports and empowers individuals, family and communities to achieve their **full health potential**
 - a. The promotion of health and wellbeing and healthy lifestyles is intensified
 - b. To support families and communities to live healthier lives.
2. Improve and protect the health of Cook Islanders through responsive **quality health services**
 - a. To reduce the overall impact of the burden of disease
 - b. To improve access to quality, safe, accessible, affordable and appropriate healthcare services.
3. Strengthen **infrastructure and healthcare systems** to encourage healthier lifestyles and safer environments
 - a. Strengthen healthcare systems and services through improved coordination, collaboration and partnerships with community groups, national, regional and global institutions
 - b. To strengthen institutional arrangements, procedures, processes and financial resources to purchase and distribute medical products and technologies
 - c. Promote a healthier environment, intensify primary prevention and influence public policies in all sectors to address the socioeconomic and environmental determinants of health.

The vision of the health sector is for *'all people living in the Cook Islands living healthier lives and achieving their aspirations'*. This vision is linked to the mission of the health sector, which is to provide accessible, affordable health care and equitable health services of the highest quality, by and for all, in order to improve the health status of people living in the Cook Islands. In achieving the mission, Te Marae Ora - Ministry of Health is guided by their values of respect, being people-focused, equity, quality, integrity and accountability.

This Strategy seeks to address the three health goals as stated in the National Health Strategy (2012-2016). The goals from the Strategy are adopted below as a framework to show how a functioning HIS will contribute to realizing the Ministry's priorities (Table 1).

TABLE 1: POTENTIAL HIS CONTRIBUTIONS TO MOH STRATEGIC GOALS

MOH Strategic Goals	Opportunity for HIS to enable and support interventions
A health service that supports and empowers individuals, family and communities to achieve their full health potential	<ul style="list-style-type: none"> • Collect, analyze and disseminate information on environmental health issues • Enable community members to access their personal information so they are informed and able to make positive decisions for their health. • Develop a strong evidence-base on the benefits of healthy choices and also capture the negative impact of poor health choices.. • Monitor the impact of Ministry of Health policies on health status.
Improve and protect the health of Cook Islanders through responsive quality health services	<ul style="list-style-type: none"> • Enable community members to access their personal information so they are informed and able to make positive decisions for their health. • Provide evidence on the effectiveness and impact of changes made to the delivery of health services • Develop a strong evidence-base on communicable and non-communicable diseases to facilitate their control and management • Provide up-to-date and quality data on reproductive, maternal and child health • Maintain records of physical infrastructure and equipment to ensure facilities are adequately resourced • Collect, analyze and disseminate information on the accessibility and affordability of health care services and supplies • Collect, analyze and disseminate information on clinical and diagnostic services provided
Strengthen infrastructure and healthcare systems to encourage healthier lifestyles and safer environments	<ul style="list-style-type: none"> • Provide information on effective healthy public policies • Collect, analyze and disseminate information on environmental health issues • Develop a strong evidence-base on the benefits of healthy choices and prevalence of current risk factors • Develop a strong evidence-base on communicable and non-communicable diseases to facilitate their control and management • Monitor implementation of professional and service standards • Maintain records of human resources to ensure the health system is adequately resourced • Regular reporting and feedback as part of increased accountability and transparency of the health sector • Collect, analyze and disseminate information on performance measurement indicators • Increase dissemination of information products as part of strengthening communication links and collaboration • Develop an evidence-base on the provision of equitable and quality health care service delivery • Collect, analyze and disseminate information on indicators relating to the equitable allocation of resources • Monitor the impact of economic sector policies on health outcomes.

5.2 The ICT context

Information and Communication technologies have a potentially major role to play in health information systems. Technology in healthcare can improve access for geographically isolated communities; provide support for healthcare workers; aid in data sharing; provide visual tools linking population and environmental information with disease outbreaks and is an electronic means for data capture, storage, interpretations and management. These possibilities are especially important for a country like the Cook Islands, which is characterized by remoteness, dispersed and small total populations and limited human resource capacity.

Telecommunications infrastructure remains a major limiting factor in the success of many ICT initiatives. It is vital that aspects such as electricity systems, phone lines and internet connectivity are taken into consideration before implementing any new technology. Furthermore, human capacity and training are fundamental aspects of any ICT initiative.

Judgments must be made on the appropriateness of the technology itself. The tropical climate is damaging to equipment, such as computer hard drives that require climate controlled and dust free environments. There are also important hidden costs associated with technology, including maintenance, upgrades and replacing broken equipment, which need to be assessed. Therefore, while ICT initiatives have the potential to support health information systems, any project or new policy must have an appreciation of the context and challenges of the implementation environment.

6 HIS roadmap and delivery on HIS Strategy

6.1 Priority areas

Strategic Priority 1: Strengthen HIS resources

HIS resources include the legislative, regulatory and planning frameworks required for a fully functioning system, and the resources required to ensure it remains functional. This includes personnel, financing, logistics support, information and communications technology, and coordinating mechanisms within the system. Key short-term activities and outputs for this priority include:

- Establishment of an effective governance mechanism (representative national HIS committee)
- Enhanced capacity in core health information sciences among MOH staff
- Creation of a central HIS unit in the MOH
- Sustainable financing for ongoing maintenance and operation of the system (including IT infrastructure and human resourcing)
- Development of up-to-date regulations and procedures on health information.

Strategic Priority 2: Develop national minimum core indicators

A minimum set of core indicators is a set of data elements that are used, usually at the national level, for collection and reporting on key aspects of health system delivery. A minimum indicator set can support comparisons or 'benchmarking' across organizations, systems or countries. There are several indicator sets in use in the Cook Islands, and many are not completely compatible due to differences in indicator definitions. The core indicator set will ideally consist of around 20 indicators that will give a broad picture of health, and the operation of MOH activities.

Strategic Priority 3: Improve HIS data sources

Health information systems often rely on a range of data sources. These can generally be divided into two main categories: (1) population-based data (censuses, civil registration and population surveys) and (2) institution-based data (individual, service and resource records). While a number of activities are planned for the medium- to long-term, activities for immediate implementation include:

- Capacity-building activities with certifiers and coders, to reduce the proportion of deaths coded to ill-defined causes
- Mechanisms are in place for supervision and feedback on information practices from different sources
- Managers use findings of health information from a range of data sources.

Strategic Priority 4: Enhance data management

Data management covers all aspects of data handling from collection, storage, quality-assurance and flow; to processing, compilation and analysis. Two main short-term activities are related to this priority:

- Development of written procedures for data management

- Development of a metadata dictionary that provides a comprehensive definition of all data elements including collection methods, periodicity, geographical designations, analysis techniques, use in indicators and possible limitations and biases.

Strategic Priority 5: Improve the quality of information products

A key aspect of any HIS is the integration, synthesis, analysis and interpretation of information from multiple sources, examining inconsistencies, identifying and accounting for biases, and summarizing health situations and trends. This information can then be made available through user dashboards, reports, queries and alerts.⁴ Ensuring that information is packaged in a variety of formats is a key activity for this strategic priority.

Strategic Priority 6: Increase dissemination and use

As the value of health information is enhanced by making it readily accessible and through providing incentives for, or otherwise facilitating, information use, the HIS will be enhanced by:

- Ensuring senior managers demand health information
- Increasing access for community members to their personal information.
- Developing the MOH website as a valuable resource for disseminating health information.

6.2 Risks of not implementing

As with any national strategy, there are a number of risks to the Cook Islands if the activities outlined above are not implemented. These are summarized in Table 2 below.

TABLE 2: POTENTIAL RISKS OF NOT IMPLEMENTING STRATEGIC PLAN

Strategic action point	Risk to the Cook Islands if not implemented
Strengthen HIS resources	<ul style="list-style-type: none"> • Wide-spread levels of statistical illiteracy is incompatible with making informed choices and decisions throughout society • Human resources are wasted as staff are not employed to their full professional capacity • High turnover rates undermine capacity building investments and forces the health system to repeatedly suffer from the consequences of rebuilding HIS capacity • Current investments will fail without sustained funding • Information systems will continue to develop in an uncoordinated manner without overarching policy documents to guide their development
Develop national minimum core indicators	<ul style="list-style-type: none"> • Continue to have large data gaps across key sectors • Data cannot be compared due to the lack of common definitions and measurement
Improve HIS data sources	<ul style="list-style-type: none"> • Continue to rely on chronically outdated statistics • Continued reliance on very expensive household surveys to generate basic statistics

⁴Health Metrics Network (2008). *Framework and Standards for Country Health Information Systems, Second Edition*. Geneva: World Health Organization.

Enhance data management	<ul style="list-style-type: none"> • Perpetuation of current situation of collecting data for the sake of collecting (rather than being collected to meet a demand for regular, ongoing and specific information needs) • Longitudinal patient monitoring will not be achievable for improving the prevention, care and treatment of NCDs and tracking patients through the continuity of care • Information is shared on an ad-hoc basis
Improve the quality of information products	<ul style="list-style-type: none"> • Limited political commitment to consider HIS as a priority area and take forward HIS interventions in a sustainable manner • Important performance indicators will continue to be reported on an insufficient basis • Poor quality data will hinder ability to conduct effective M&E
Increase dissemination and use	<ul style="list-style-type: none"> • Government and development partners will not have access to reliable and timely information for making decisions • Decisions made arbitrarily, based on vested interests and political pressure

6.3 Implementation schedule

As activities will change during the course of implementation of the Strategy, the detailed implementation schedule is available in the separate document – *Health Information Strategy Implementation Plan*.

6.4 Monitoring and Evaluation

Specific Monitoring and Evaluation (M&E) indicators are included in the activity tables within the Implementation Plan. This HIS Strategy will also be guided by eight overall indicators of success, which will be reported on annually:

	HIS Dimension	HIS Indicator	2014 Status	Comments
1	Governance	There is a representative, multi-sectoral and functioning national committee in charge of HIS coordination	On-track	HIS Committee has been established with meetings occurring on an ad-hoc basis
2	Policy	The country has up-to-date legislation and policy framework for health information	On-track	HIS Strategy is in development
3	Planning	HIS assessment completed and a costed HIS strategic plan is completed, used, and integrated with health sector strategies	On-track	Rapid HIS assessment carried-out in early 2014. Strategic plan is to be completed and currently not costed.
4	Indicators	There is a clear and explicit strategy for measuring each of the indicators as included in the HIS Strategy and Core Indicators	On-track	Core Indicators (with meta-data dictionary) currently in development
5	Births/Deaths	Percent of births and deaths registered in the civil registration system	On-track	Births and deaths in country are all registered and collated

				with MOJ and MFEM – Statistics Office
6	Cause of death	ICD-10 used in district and central hospitals and causes of death reported to national level	On-track	Currently using ICD-10 and is awaiting confirmation with MOJ in regards to death certificate form changes to capture ICD-10 requirements
7	Integration	The HIS unit at the national level is running an integrated 'data warehouse' containing data from all data sources	Work not started yet	Future activity
8	Dissemination	Year last annual summary of health service statistics was published with disaggregated statistics	On-track	Statistical Bulletin has not been published recently (waiting to see outcomes of the core indicators). This is to be published annually with improvements to presentations within the first half of the coming year

ANNEXES

A: National Health Indicators

No.	INDICATOR	PURPOSE (Definition)	Domain of measurement	MOH vision	Cross-cutting theme
1	Total fertility rate(TFR)	The average number of children that would be born alive to a woman during their lifetime, if they were to pass through their childbearing years conforming to (current) age-specific fertility rates of a given year. The TFR sums up, in a single number, the fertility of all women at a given point in time	Determinant of health	Build resilient societies	Gender
2	Number of births	The number of live births in a given year by island of usual residence of the mother	Determinant of health	Build resilient societies	
3	Immunization coverage (overall)	Percent of targeted population immunized in a given year (for children under five). Summary measure of total immunization coverage for: BCG, DTP3, Polio3, Measles/rubella, Tetanus	Health system outcome: coverage	Increase access and coverage	Children
4	Crude death rate (CDR)	The number of deaths per 1,000 population in a given year	Health status: mortality	Decrease morbidity & premature mortality	
5	Top 10 causes of death	The top ten causes of death (calculated as a percent of all deaths) by sex and age group (five-year age groups)	Health status: mortality	Decrease morbidity & premature mortality	
6	Infant mortality	Indicator refers to number of infant deaths (babies/children less than 1 year of age) per 1,000 live birth during specific time period	Health status: mortality	Decrease morbidity and premature mortality	Children
7	Life expectancy at birth (Male/Female)	Describes number of years person can expect to live (at time of birth), if they experienced	Health status: well-being	Improved health	

		mortality conditions prevailing at the time.			
8	Top 10 causes of morbidity	The top ten causes of morbidity (calculated as a percent of all morbid cases registered) by sex and age group (five-year age groups)	Health status: morbidity	Decrease morbidity and premature mortality	
9	Top 5 Notifiable diseases	Indicates burden of the Notifiable diseases– anthrax, asthma, bronchitis, cholera, chickenpox, conjunctivitis, dengue, diarrhea, fish poisoning (ciguatera), food poisoning, otitis media, influenza, pneumonia, rheumatic fever, scabies, skin sepsis. Expressed as a percentage of all notifiable diseases in a given year.	Health status: morbidity	Decrease morbidity and premature mortality	
10	Vaccine preventable conditions (incidence)	Indicates burden of these conditions – Diphtheria, Hepatitis B, Measles, Mumps, Poliomyelitis, Tetanus, Tuberculosis (TB), Whooping cough (Pertussis)	Health status: morbidity	Decrease morbidity and premature mortality	
11	Maternal deaths	The number of maternal deaths (complications of pregnancy & childbirth) related to childbearing divided by the number of live births in that year	Health status: mortality	Decrease morbidity and premature mortality	Gender
12	Number of positive tests for HIV/AIDS and STIs	Proportion (%) of tests that are positive for HIV/AIDS and certain STIs (Chlamydia, Gonorrhoea, Syphilis, Trichomonas, Candidiasis), by sex and age group (five-year age groups)	Health status: morbidity	Decrease morbidity and premature mortality	
13	Domestic patient referrals	Number of cases referred from the Pa Enua to Rarotonga (by sex and age groups)	Health system: outcome	Universal health coverage	
14	International patient referrals	Number of cases referred from Rarotonga to New Zealand (by sex and age groups)	Health system: outcome	Universal health coverage	
15	Number of health professionals per 1,000 population (by island)	Indication of service coverage by various types of health providers. Health professionals to include: doctors, nurses and allied health.	Health system: input	Increase access and coverage	

16	Number of inpatients	Number of patients admitted in the Cook Islands in a given year by sex (male/female), age group (five-year age groups) and island.	Health system: output	Increase access and coverage	
17	Number of consultations using outpatients services	Number of outpatient consultations in the Cook Islands in a given year by sex (male/female) and age group (five-year age groups)	Health system: output	Increase access and coverage	
18	Total health budget as a percent of GDP	Indicator of the amount of money allocated to health	Health system: input	Strengthen health systems	
19	Number of Mental Disorders	Number of mental disorder patients in the Cook Islands in a given year by sex (male/female), age group (five-year age groups) and island	Health status: morbidity	Decrease morbidity and premature mortality	Vulnerable groups Mental health
20	Top 5 causes for dental consultation	The top five causes of dental consultations (calculated as a percent of all cases registered) by sex (male/female) and age group (five-year age groups)	Health system: Output	Increase access and coverage	

B: Meta-data Dictionary

Introduction and background

This meta-data dictionary is to be used in conjunction with the National Core Indicators. It outlines important information about each indicator including definitions, key terms, data needed in calculations, preferred data sources, and limitations. It is important that all health staff involved in the collection, management, analysis and use of health information is aware of the information contained in this dictionary, so that the validity and reliability of national information is improved.

1. Total fertility rate

Indicator ID	Core Indicator #1
Indicator name	Total fertility rate (per woman)
Name abbreviated	Total fertility rate
Data Type Representation	Rate
Disaggregation	Nil
Indicator group	Determinant of health
Rationale	
Definition	The average number of children of a hypothetical cohort of women would have at the end of their reproductive period if they were subject during their whole lives to the fertility rates of a given period and if they were not subject to mortality. It is expressed as children per woman.
Associated terms <i>Age-specific fertility rate</i>	The number of births occurring during a given year or reference period per 1,000 women of reproductive age classified in single or five-year age groups.
Preferred data sources	Civil registration Population census
Other possible data sources	Hospital records
Method of measurement	Total fertility rate is directly calculated as the sum of age-specific fertility rates (usually referring to women aged 15 to 49 years), or five times the sum if data are given in five-year age groups. An age- or age-group-specific fertility rate is calculated as the ratio of annual births to women at a given age or age-group to the population of women at the same age or age-group, in the same year, for a given country, territory, or geographic area. Population data from the United Nations correspond to mid-year estimated values obtained by linear interpolation from the corresponding United Nations fertility medium-variant quinquennial population projections.

	<p>The ASFR is calculated as:</p> $ASFR_a = (B_a/E_a) \times 1000$ <p>Where:</p> <p>B_a = number of births to women in age group a in a given year or reference period; and</p> <p>E_a = number of person-years of exposure in age group a during the specified reference period.</p>
M&E Framework	Determinant
Other disaggregation variables	
Unit of Measure	Children per woman
Unit Multiplier	
Limitations	
Comments	
Contact person/partners	Civil registration

2. Annual number of births

Indicator ID	Core Indicator #2
Indicator name	Total number of births per year, by island
Name abbreviated	Annual number of births
Data Type Representation	Count
Disaggregation	Location (island of usual residence of mother)
Indicator group	Demographic and socio-economic status
Rationale	
Definition	The number of live births during a given year
Associated terms <i>Island of usual residence of mother</i>	This is the location where the mother usually resides, and may be a different location to where the birth occurs
Preferred data sources	Civil registration Population census
Other possible data sources	Hospital records Health facility reporting system
Method of measurement	
M&E Framework	Determinant
Other disaggregation variables	Age (of mother)
Unit of Measure	Live births
Unit Multiplier	
Limitations	
Comments	
Contact person/partners	Civil registration

3. Immunisation coverage

Indicator ID	Core Indicator #3
Indicator name	Immunisation coverage for children under-five (BCG, DTP3, Polio3, Measles/Rubella and Tetanus)
Name abbreviated	Immunisation coverage
Data Type Representation	Percentage
Disaggregation	Nil
Indicator group	Health service coverage
Rationale	Immunization is an essential component for reducing under-five mortality. Immunization coverage estimates are used to monitor coverage of immunization services and to guide disease eradication and elimination efforts. It is a good indicator of health system performance.
Definition	<p>The percentage of children under five years of age who have received at least one dose of the following vaccinations in a given year:</p> <ul style="list-style-type: none"> - BCG (tuberculosis) - DPT3 (diphtheria, pertussis and tetanus) - Polio3 - Measles/Rubella - Tetanus
Associated terms	
<i>Measles</i>	A highly contagious, serious disease caused by a virus. It remains a leading cause of death among young children globally, despite the availability of a safe and effective vaccine. Measles is transmitted via droplets from the nose, mouth or throat of infected persons. Initial symptoms, which usually appear 10–12 days after infection, include high fever, runny nose, bloodshot eyes, and tiny white spots on the inside of the mouth. Several days later, a rash develops, starting on the face and upper neck and gradually spreading downwards
<i>Diphtheria</i>	A disease caused by the bacterium <i>Corynebacterium diphtheria</i> . This germ produces a toxin that can harm or destroy human body tissues and organs. One type of diphtheria affects the throat and sometimes the tonsils. Another type, more common in the tropics, causes ulcers on the skin.
<i>Pertussis</i>	A disease of the respiratory tract caused by bacteria that live in the mouth, nose, and throat. Also known as whooping cough. Many children who contract pertussis have coughing spells that last four to eight weeks. The disease is most dangerous in infants.
<i>Tetanus</i>	A disease that is acquired when the spores of the bacterium <i>Clostridium Tetani</i> infect a wound or the umbilical stump. Spores are universally present in the soil. People of all ages can get tetanus but the disease is particularly common and serious in newborn babies ("neonatal tetanus"). It requires treatment in a medical facility, often in a referral hospital. Neonatal tetanus, which is mostly fatal, is particularly common in rural areas where deliveries are at home

	without adequate sterile procedures.
Preferred data sources	Health facility reporting system Household surveys
Other possible data sources	Hospital records
Method of measurement	<p>Service/facility reporting system ("administrative data"): Reports of vaccinations performed by service providers (e.g. district health centers, vaccination teams, physicians) are used for estimates based on service/facility records. The estimate of immunization coverage is derived by dividing the total number of vaccinations given by the number of children in the target population, often based on census projections.</p> <p>Household surveys: Survey items correspond to children's history in coverage surveys. The principle types of surveys are the Expanded Programme on Immunization (EPI) 30-cluster survey, the UNICEF Multiple Indicator Cluster Survey (MICS), and the Demographic and Health Survey (DHS). The indicator is estimated as the percentage of children ages 12–23 months who received three doses of hepatitis B vaccine either any time before the survey.</p> <p>Numerator – total number of children under five who have received at least one dose of all six vaccines in a given year.</p> <p>Denominator – total number of children under five in the same time period.</p>
M&E Framework	Outcome
Other disaggregation variables	
Unit of Measure	
Unit Multiplier	
Limitations	
Comments	<p>The quality of estimates is determined by the quality and availability of empirical data. Vaccination is relatively easy to measure and two methods - facility reports and surveys - have been developed, each of which, when properly designed and implemented, provides accurate and reliable direct measures of coverage levels. Implemented jointly, they provide a validation of coverage levels. However, both methods are subject to biases. In some instances, these biases may be identified and corrected and we have attempted to do so.</p> <p>These data are supplemented with local consultations that often explain inconsistencies and anomalies in the data and provide insight into forces that influence coverage levels. WHO and UNICEF are working closely with countries to improve the quality and usefulness of coverage monitoring data systems.</p>
Contact person/partners	Community Health Nurse

4. Crude death rate

Indicator ID	Core Indicator #4
Indicator name	Crude death rate (per 1,000 population)
Name abbreviated	Crude death rate
Data Type Representation	Rate
Disaggregation	Nil
Indicator group	Health status: mortality
Rationale	Mortality rates measure the frequency of occurrence of death in a defined population during a specified interval. The crude death rate is one of the most basic to calculate and is the mortality from all causes of death for a population during a specified time period.
Definition	Crude death rate indicates the number of deaths occurring during a given year, per 1,000 population
Associated terms	
Preferred data sources	Civil registration
Other possible data sources	Population census Hospital records Health facility reporting system
Method of measurement	Population data from the United Nations correspond to mid-year estimated values obtained by linear interpolation from the corresponding United Nations fertility medium-variant quinquennial population projections. Numerator – total number of deaths in a given year. Denominator – total (mid-point) population in the same time period.
M&E Framework	Impact
Other disaggregation variables	
Unit of Measure	Per 1,000 population
Unit Multiplier	
Limitations	
Comments	
Contact person/partners	Civil registration

5. Distribution of causes of death

Indicator ID	Core Indicator #5
Indicator name	Distribution of causes of death, top ten causes
Name abbreviated	Distribution of causes of death
Data Type Representation	Percentage
Disaggregation	Age group (five-year groups) Sex
Indicator group	Health status: mortality
Rationale	
Definition	Distribution of main causes of death, expressed as a percentage of total deaths. The cause of death refers to the concept of the 'underlying cause of death' as defined by ICD-10 (WHO, 1992).
Associated terms <i>Underlying cause of death</i>	The disease or injury which initiated the train of morbid events leading directly to death. Or the circumstances of the accident of violence which produced the fatal injury.
Preferred data sources	Civil registration with complete coverage Medical certification of cause of death
Other possible data sources	Special studies Hospital records Health facility reporting system
Method of measurement	Data from civil registration with complete coverage (80% or over) and medical certification of cause of death. Numerator – total number of deaths from a specific cause (using broad ICD chapter-level headings). Denominator – total number of deaths from all causes.
M&E Framework	Impact
Other disaggregation variables	Island
Unit of Measure	
Unit Multiplier	
Limitations	
Comments	
Contact person/partner	Civil registration

6. Infant mortality rate

Indicator ID	Core Indicator #6
Indicator name	Infant mortality rate (probability of dying between birth and age 1 per 1000 live births)
Name abbreviated	Infant mortality rate (IMR)
Data Type Representation	Rate
Disaggregation	Nil
Indicator group	Health status: mortality
Rationale	Infant mortality represents an important component of under-five mortality. Like under-five mortality, infant mortality rates measure child survival. They also reflect the social, economic and environmental conditions in which children (and others in society) live, including their health care. Since data on the incidence and prevalence of diseases (morbidity data) frequently are unavailable, mortality rates are often used to identify vulnerable populations. Infant mortality rate is an MDG indicator.
Definition	<p>Infant mortality rate is the probability of a child born in a specific year or period dying before reaching the age of one, if subject to age-specific mortality rates of that period.</p> <p>Infant mortality rate is strictly speaking not a rate (i.e. the number of deaths divided by the number of population at risk during a certain period of time) but a probability of death derived from a life table and expressed as rate per 1000 live births.</p>
Associated terms <i>Live birth</i>	The complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached (ICD-10).
Preferred data sources	Civil registration with complete coverage
Other possible data sources	Special studies Hospital records Health facility reporting system
Method of measurement	<p>Most frequently used methods using the above-mentioned data sources are as follows:</p> <ul style="list-style-type: none"> • Civil registration: Number of deaths at age 0 and population for the same age are used to calculate death rate which are then converted into age-specific probability of dying • Census and surveys: An indirect method is used based on questions to each woman of reproductive age as to how many children she has ever born and how many are still alive. The Brass method and model life tables are then used to obtain an estimate of infant mortality

	<ul style="list-style-type: none"> Surveys: A direct method is used based on birth history – a series of detailed questions on each child a woman has given birth to during her lifetime. To reduce sampling errors, the estimates are generally presented as period rates, for five or 10 years preceding the survey. <p>Numerator – number of infant deaths in a specific year.</p> <p>Denominator – number of live births in the same time period.</p>
M&E Framework	Impact
Other disaggregation variables	<p>Age: 0-27 days</p> <p>Age: 28 days - <1 year</p>
Unit of Measure	Deaths per 1000 births
Unit Multiplier	
Limitations	<p>Civil registration systems are the preferred source of data on infant mortality. However, many developing countries lack fully functioning registration systems that accurately record all births and deaths. Thus, household surveys, such as Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS), have become the primary source of data on child mortality in developing countries, but there are some limits to their quality</p> <p>Estimates obtained from household surveys have attached confidence intervals that need to be considered when comparing values along time or across countries. Similarly, these estimates are often affected by non-sampling errors</p> <p>Like census data, survey data on child mortality may omit births and deaths, include stillbirths along with live births, and suffer from survivor selection bias and age truncation. Direct estimates of child mortality based on survey data may also suffer from mothers misreporting their children's birth dates, current age or age at death — perhaps more so if the child has died. The heaping of deaths at age 12 months is especially common. Age heaping may transfer deaths across the one year boundary and lead to underestimates of infant mortality rates. However, it has little effect on under-five mortality rates; making the U5MR a more robust estimate than the infant mortality rate if the information is drawn from household surveys (http://mdgs.un.org/unsd/mdg/Metadata.aspx)</p>
Comments	<p>Even though many countries have collected information on child mortality in recent years, the high demand for very recent child mortality trend information is difficult to meet through household surveys. High quality of civil registration systems (completeness of registration) and high quality of survey or census data collection are crucial - WHO does estimate the level of underestimation of civil registration systems and there clearly is substantial variation in data quality and consistency across countries.</p>

	<p>Censuses and surveys can provide detailed disaggregation. Often disaggregated under-five mortality rates from household surveys are presented for 10-year periods because of the rapid increase in sampling error if multiple categories are used. Civil registration data usually does not include socio-economic variables but can provide the other disaggregation. Even though many countries have collected information on child mortality in recent years, the high demand for very recent child mortality trend information is difficult to meet through household surveys. High quality of civil registration systems (completeness of registration) and high quality of survey or census data collection are crucial - WHO does estimate the level of underestimation of civil registration systems and there clearly is substantial variation in data quality and consistency across countries.</p>
Contact person/partner	Civil registration

7. Life expectancy at birth

Indicator ID	Core Indicator #7
Indicator name	Life expectancy at birth (years) (Male/Female)
Name abbreviated	Life expectancy at birth
Data Type Representation	Statistic
Disaggregation	Sex
Indicator group	Health status: mortality
Rationale	Life expectancy at birth reflects the overall mortality level of a population. It summarizes the mortality pattern that prevails across all age groups – children and adolescents, adults and the elderly.
Definition	The average number of years that a newborn could expect to live, if he or she were to pass through life exposed to the sex- and age-specific death rates prevailing at the time of his or her birth, for a specific year, in a given country, territory, or geographic area.
Associated terms <i>Life table</i>	A set of tabulations that describe the probability of dying, the death rate and the number of survivors for each age or age group. Accordingly, life expectancy at birth and adult mortality rates are outputs of a life table.
Preferred data sources	Civil registration with complete coverage
Other possible data sources	Household surveys Population census Hospital records Health facility reporting system
Method of measurement	Life expectancy at birth is derived from life tables and is based on sex- and age-specific death rates. Life expectancy at birth values from the United Nations correspond to mid-year estimates, consistent with the corresponding United Nations fertility medium-variant quinquennial population projections.
M&E Framework	Impact
Other disaggregation variables	
Unit of Measure	Years
Unit Multiplier	
Limitations	
Comments	The lack of complete and reliable mortality data, especially for low income countries and particularly on mortality among adults and the elderly, necessitates the application of modeling (based on data from other populations) to estimate life expectancy. WHO uses a standard method as explained above to estimate and project life tables for all Member States using comparable data. This may lead to minor differences compared with official life tables prepared by Member States.
Contact person/partner	Civil registration

8. Distribution of morbidity

Indicator ID	Core Indicator #8
Indicator name	Distribution of morbidity, top ten causes
Name abbreviated	Distribution of morbidity
Data Type Representation	Percentage
Disaggregation	Age group (five-year groups) Sex
Indicator group	Health status: morbidity
Rationale	
Definition	Distribution of main causes of morbidity, expressed as a percentage of total coded morbid presentations. Causes of morbidity are to be coded according to the WHO International Classification of Diseases (ICD-10).
Associated terms	
Preferred data sources	Hospital records Health facility reporting system
Other possible data sources	Special studies
Method of measurement	Numerator – total number of morbid cases from a specific cause (using broad ICD chapter-level headings). Denominator – total number of morbid cases from all causes.
M&E Framework	Impact
Other disaggregation variables	Island
Unit of Measure	
Unit Multiplier	
Limitations	
Comments	
Contact person/partner	Outpatient and Ward In-charges

9. Notifiable diseases

Indicator ID	Core Indicator #9
Indicator name	Notifiable diseases, top five
Name abbreviated	Notifiable diseases
Data Type Representation	Percentage
Disaggregation	Nil
Indicator group	Health status: morbidity
Rationale	Indicates the burden from notifiable diseases
Definition	<p>Top five most common notifiable diseases in a given year. Notifiable diseases include:</p> <ul style="list-style-type: none"> - anthrax - asthma - bronchitis - cholera - chickenpox - conjunctivitis - dengue - diarrhoea - fish poisoning (ciguatera) - food poisoning - otitis media - influenza - pneumonia - leprosy - rheumatic fever - scabies - typhoid - skin sepsis <p>Causes of morbidity are to be coded according to the International Classification of Diseases (ICD-10).</p>
Associated terms <i>Notifiable disease</i>	A notifiable disease is any disease that is required by law to be reported to government authorities. The collation of information allows the authorities to monitor the disease, and provides early warnings of possible outbreaks.
Preferred data sources	Hospital records Health facility reporting system Surveillance system
Other possible data sources	
Method of measurement	<p>Numerator – total number of cases of a specific notifiable disease in a given year.</p> <p>Denominator – total number of cases of all notifiable diseases in the same time period.</p>

M&E Framework	Impact
Other disaggregation variables	Age group (five-year groups) Sex Island
Unit of Measure	
Unit Multiplier	
Limitations	
Comments	
Contact person/partner	Outpatient In-charge

10. Vaccine preventable conditions

Indicator ID	Core Indicator #10
Indicator name	Vaccine preventable conditions, incidence (per 1,000 population)
Name abbreviated	Vaccine preventable conditions
Data Type Representation	Rate
Disaggregation	Nil
Indicator group	Health status: morbidity
Rationale	Indicates the burden from vaccine preventable diseases
Definition	<p>Incidence rate of the following vaccine preventable conditions:</p> <ul style="list-style-type: none"> - Diphtheria - Hepatitis B - Measles - Mumps - Poliomyelitis - Tetanus - Tuberculosis (TB) - Whooping cough (Pertussis) <p>Causes of morbidity are to be coded according to the International Classification of Diseases (ICD-10).</p>
<p>Associated terms</p> <p><i>Incidence</i></p> <p><i>Population at risk</i></p>	<p>The occurrence, rate, or frequency of a disease (usually expressed as a rate over one year, per 1,000 Population).</p> <p>The total population at risk of developing the disease during the time period covered.</p>
Preferred data sources	<p>Hospital records</p> <p>Health facility reporting system</p> <p>Surveillance system</p>
Other possible data sources	
Method of measurement	<p>Numerator – total number of new cases of all eight notifiable diseases during a given time period.</p> <p>Denominator – population at risk during the same time period.</p>
M&E Framework	Impact
Other disaggregation variables	<p>Age group (five-year bands)</p> <p>Sex</p>
Unit of Measure	
Unit Multiplier	
Limitations	
Comments	
Contact person/partner	Outpatient In-charge

11. Maternal mortality

Indicator ID	Core Indicator #11
Indicator name	Maternal mortality, absolute number
Name abbreviated	Maternal mortality
Data Type Representation	Count
Disaggregation	Nil
Indicator group	Health status: mortality
Rationale	Complications during pregnancy and childbirth are a leading cause of death and disability among women of reproductive age in developing countries. Maternal mortality is a Millennium Development Goal Indicator for monitoring Goal 5, improving maternal health. The indicator monitors deaths related to pregnancy and childbirth. It reflects the capacity of the health systems to provide effective health care in preventing and addressing the complications occurring during pregnancy and childbirth.
Definition	Maternal mortality is the annual number of female deaths from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, for a specified year.
Associated terms <i>Late maternal death</i> <i>Live birth</i> <i>Maternal death</i>	<p>Death from any obstetric cause (direct or indirect) occurring more than 42 days but less than one year after delivery</p> <p>The complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached. (ICD-10)</p> <p>The death of a woman while pregnant or within 42 days after termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. To facilitate the identification of maternal deaths in circumstances in which cause-of-death attribution is inadequate, ICD 10 introduced an additional category, pregnancy- related death, which is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of cause of death</p>
Preferred data sources	Civil registration with complete coverage Medical certification of cause of death
Other possible data sources	Hospital records Health facility reporting system Household surveys Population census Sample or sentinel registration systems Special studies

Method of measurement	Measurement requires information on pregnancy status, timing of death (during pregnancy, childbirth, or within 42 days of termination of pregnancy), and cause of death.
M&E Framework	Impact
Other disaggregation variables	Age Island Education level Wealth : Wealth quintile
Unit of measure	
Unit multiplier	
Limitations	<p>Maternal mortality is difficult to measure. Vital registration and health information systems in most developing countries are weak, and thus, cannot provide an accurate assessment of maternal mortality. Even estimates derived from complete vital registration systems, such as those in developed countries; suffer from misclassification and underreporting of maternal deaths.</p> <p>The country estimates are not suitable for assessing trends over time or for making comparisons between countries. As a result, it is recommended that process indicators, such as attendance by skilled health personnel at delivery and use of health facilities for delivery, be used to assess progress towards the reduction in maternal mortality.</p>
Comments	<p>The ability to generate country, regional, and global estimates with higher precision and accuracy would be greatly facilitated if country civil registration systems were further improved. This improvement would reduce the need to conduct special maternal mortality studies (which are time-consuming, expensive, and of limited use in monitoring trends).</p> <p>The maternal mortality ratio should not be confused with the maternal mortality rate (whose denominator is the number of women of reproductive age), which reflects not only the risk of maternal death per pregnancy or birth but also the level of fertility in the population. The maternal mortality ratio (whose denominator is the number of live births) indicates the risk once a woman becomes pregnant, thus does not take fertility levels in a population into consideration.</p>
Contact person/partner	Civil registration

12. HIV/AIDS and STIs

Indicator ID	Core Indicator #12
Indicator name	HIV/AIDS and STIs, number of positive cases
Name abbreviated	HIV/AIDS and STIs
Data Type Representation	Percentage
Disaggregation	Age group (five-year groups) Sex
Indicator group	Health status: morbidity
Rationale	HIV and AIDS has become a major public health problem in many countries and monitoring the course of the epidemic and impact of interventions is crucial. Both the Millennium Development Goals (MDG) and the United Nations General Assembly Special Session on HIV and AIDS (UNGASS) have set goals of reducing HIV prevalence.
Definition	Laboratory confirmed HIV/AIDS and STI cases, expressed as a percentage of the total number of confirmed (positive tests) and unconfirmed cases (negative tests).
Associated terms <i>Human Immunodeficiency Virus (HIV)</i> <i>Laboratory confirmed case</i>	A virus that weakens the immune system, ultimately leading to AIDS, the Acquired Immunodeficiency Syndrome. HIV destroys the body's ability to fight off infection and disease, which can ultimately lead to death. A case that meets the clinical case definition and is confirmed by laboratory investigation.
Preferred data sources	Surveillance systems
Other possible data sources	Laboratory system
Method of measurement	Numerator – total number of confirmed (positive tests) for HIV/AIDS and STIs in a given year. Denominator – total number of tests for HIV/AIDS and STIs performed in the same time period.
M&E Framework	Impact
Other disaggregation variables	Age (<15 years) Age (15-49 years)
Unit of Measure	Cases
Unit Multiplier	
Limitations	Case numbers are generally a poor indication of the true burden of disease. To interpret these numbers, one needs to consider both epidemiological patterns and data collection efforts in specific countries. Despite ongoing efforts to enhance disease surveillance and response, many countries face challenges in accurately identifying, diagnosing and reporting infectious diseases due to the remoteness of communities, lack of transport and a communication infrastructure, and shortage of skilled health-care workers and laboratory facilities to ensure accurate diagnosis. No inference can be drawn from these figures about a country's effort or progress in controlling particular diseases.
Comments	
Contact person/partner	Laboratory In-charge

13. Patient referrals, domestic

Indicator ID	Core Indicator #13
Indicator name	Total annual number of outer island patient referrals
Name abbreviated	Patient referrals, domestic
Data Type Representation	Count
Disaggregation	Age group (five-year groups) Sex
Indicator group	Health system: outcome
Rationale	
Definition	The total number of cases referred from the outer islands to the Rarotonga hospital in a given year
Associated terms	
Preferred data sources	Hospital records Patient referral system
Other possible data sources	Health facility reporting system
Method of measurement	
M&E Framework	
Other disaggregation variables	Island
Unit of Measure	
Unit Multiplier	
Limitations	
Comments	
Contact person/partner	Patient referral coordinator

14. Patient referrals, international

Indicator ID	Core Indicator #14
Indicator name	Total annual number of international patient referrals by sex and age group
Name abbreviated	Patient referrals, international
Data Type Representation	Count
Disaggregation	Age group (five-year groups) Sex
Indicator group	Health system: outcome
Rationale	
Definition	The total number of cases referred from the Rarotonga hospital to New Zealand in a given year
Associated terms	
Preferred data sources	Hospital records Patient referral system
Other possible data sources	
Method of measurement	
M&E Framework	
Other disaggregation variables	
Unit of Measure	
Unit Multiplier	
Limitations	
Comments	
Contact person/partner	Patient referral coordinator

15. Density of physicians

Indicator ID	Core Indicator #15
Indicator name	Density of physicians (per 10,000 population)
Name abbreviated	Density of physicians
Data Type Representation	Ratio
Disaggregation	Location (island)
Indicator group	Health system: inputs
Rationale	Preparing the health workforce to work towards the attainment of a country's health objectives represents one of the most important challenges for its health system. Methodologically, there are no gold standards for assessing the sufficiency of the health workforce to address the health care needs of a given population. It has been estimated however, in the World Health Report 2006, that countries with fewer than 23 physicians, nurses and midwives per 10 000 population generally fail to achieve adequate coverage rates for selected primary health care interventions as prioritized by the Millennium Development Goals framework.
Definition	Number of medical doctors (physicians), including generalist and specialist medical practitioners, per 10,000 Population.
Associated terms <i>Health workers</i>	The WHO framework for classifying healthworkers draws on the latest revisions of international classifications for social and economic statistics, including the International Standard Classification of Occupations (2008 revision), the International Standard Classification of Education (1997 revision) and the International Standard Industrial Classification of All Economic Activities (fourth revision).
Preferred data sources	Administrative reporting system Household surveys Population census
Other possible data sources	Health facility assessments
Method of measurement	<p>The method of estimation for density of physicians depends on the nature of the original data source. Estimating the number of physicians using population census data is a count of the number of people reporting 'physician' as their current occupation (as classified according to the tasks and duties of their job).</p> <p>A similar method is used for counting physicians from labour force survey data, with the additional application of a sampling weight to calibrate for national representation. Data from health facility assessments and administrative reporting systems may be based on head counts of employees, duty rosters, staffing records, payroll records, registries of health professional regulatory bodies, or tallies from other types of routine administrative records on human resources. Ideally, information on the stock of health workers should be assessed through administrative records compiled, updated and reported at least annually, and periodically validated and adjusted against data from a population census or other nationally</p>

	representative source.
M&E Framework	Input
Disaggregation options	Age Sex Location (Island) Occupational specialisation Main work activity Provider type (public/private)
Unit of measure	Persons per 10,000 population
Unit multiplier	
Limitations	<p>The classification of health workers used here is based on criteria for vocational education and training, regulation of health professions, and the activities and tasks involved in carrying out a job, i.e. a framework for categorizing key workforce variables according to shared characteristics. The WHO framework draws on the latest revisions to the internationally standardized classification systems of the International Labour Organization (International Standard Classification of Occupations), the United Nations Educational, Scientific and Cultural Organization (International Standard Classification of Education) and the United Nations Statistics Division (International Standard Industrial Classification of All Economic Activities).</p> <p>While much effort has been made to harmonize the data to enhance cross-national comparability, the diversity of sources means that considerable variability remains across countries in the coverage, quality and reference year of the original data. In particular, for some countries the available information from official sources does not make it clear whether both the public and private sectors are included. Data derived from population censuses, and on physicians and nursing and midwifery personnel, are generally the most complete and comparable information on human resources in health systems; data on health management and support workers tend to be the least complete.</p> <p>Some figures may be under-estimated or over-estimated when it is not possible to distinguish whether the data include health workers in the private sector, double counts of health workers holding two or more jobs at different locations, health service providers working outside the health care sector (e.g. nurses working in a school or large private company), workers who are unpaid or unregulated but performing health care tasks (e.g. volunteer community health workers) or people with health vocational training who are not currently engaged in the national health labour market (e.g. unemployed, migrated, retired or withdrawn from the labour force for personal reasons).</p>
Comments	
Contact person/partner	Human Resources

16. Annual inpatients

Indicator ID	Core Indicator #16
Indicator name	Number of inpatients by gender and age group
Name abbreviated	Annual admissions
Data Type Representation	Count
Disaggregation	Age group (five-year groups) Sex
Indicator group	Health system: outputs
Rationale	
Definition	The total number of patients admitted in the Cook Islands hospitals in a given year
Associated terms	
Preferred data sources	Hospital records Health facility reporting system
Other possible data sources	Special studies
Method of measurement	
M&E Framework	
Other disaggregation variables	Island
Unit of Measure	Admissions and discharges
Unit Multiplier	
Limitations	
Comments	
Contact person/partner	Wards and Health Center In-charges

17. Annual outpatients

Indicator ID	Core Indicator #17
Indicator name	Number of consultations using outpatient services by sex and age group
Name abbreviated	Rarotonga Hospital, annual outpatients
Data Type Representation	Count
Disaggregation	Age group (five-year groups) Sex
Indicator group	Health system: outputs
Rationale	
Definition	The total number of outpatient consultations in the Cook Islands in a given year
Associated terms	
Preferred data sources	Hospital records Health facility reporting system
Other possible data sources	Special studies
Method of measurement	
M&E Framework	
Other disaggregation variables	Island
Unit of Measure	Outpatient consultations
Unit Multiplier	
Limitations	
Comments	
Contact person/partner	Outpatient and Health center In-charges

18. Total expenditure on health as a percentage of GDP

Indicator ID	Core Indicator #18
Indicator name	Total expenditure on health as a percentage of gross domestic product
Name abbreviated	Total expenditure on health as a percentage of GDP
Data Type Representation	Percent
Disaggregation	Nil
Indicator group	Health system: inputs
Rationale	This is a core indicator of health financing systems. It provides information on the level of resources channeled to health relative to a country's wealth
Definition	Level of total expenditure on health (THE) expressed as a percentage of gross domestic product (GDP)
Associated terms	
<i>General government expenditure on health (GGHE)</i>	The sum of health outlays paid for in cash or supplied in kind by government entities, such as the Ministry of Health, other ministries, parastatal organizations or social security agencies (without double counting government transfers to social security and extra budgetary funds). It includes all expenditure made by these entities, regardless of the source, so includes any donor funding passing through them. It includes transfer payments to households to offset medical care costs and extra budgetary funds to finance health services and goods. It includes current and capital expenditure.
<i>Gross domestic product (GDP)</i>	The value of all goods and services provided in a country without regard to their allocation among domestic and foreign claims.
<i>Private expenditure on health</i>	The sum of outlays for health by private entities, such as households, commercial or mutual health insurance, non-profit institutions serving households, resident corporations and quasi-corporations with a health services delivery or financing function. It includes expenditures from all sources, so includes any donor funding passing through these "financing agents".
<i>Total expenditure on health (THE)</i>	The sum of all outlays for health maintenance, restoration or enhancement paid for in cash or supplied in kind. It is the sum of General Government Expenditure on Health and Private Expenditure on Health.
Preferred data sources	National Health Accounts
Other possible data sources	Special studies
Method of measurement	National health accounts (NHA) indicators are based on expenditure information collected within an internationally recognized framework. NHA synthesize the financing flows of a health system, recorded from the origin of the resources (sources), to the purchasing agents (financing schemes), which distribute their funds between providers, to pay for selected health goods and services to benefit individuals. Beneficiaries are analysed across geographical, demographic, socio-economic and epidemiological dimensions. Total expenditure on

	<p>health (THE) is measured as the sum of all financing agents managing funds to purchase health goods and services.</p> <p>The NHA strategy is to track records of transactions, without double counting in order to reach a comprehensive coverage. Monetary and non-monetary transactions are accounted for at purchasers' values. Guides to producing national health accounts exist. (OECD, 2000; WHO-World Bank-USAID, 2003).</p>
M&E Framework	Input
Disaggregation options	Provider type (public/private)
Unit of measure	
Unit multiplier	
Limitations	<p>Data on estimated health expenditures are collected by triangulating information from several sources to ensure that the outlays constitute the bulk of the governmental and private expenditure on health. Some figures may be underestimated when it is not possible to obtain data on expenditure for local governments, parastatals, corporations, or nongovernmental organizations. Some governments do not track external (donor) funds passing through the private sector, so those flows might also be underestimated.</p>
Comments	<p>When the number is smaller than 0.05% the percentage may appear as zero.</p> <p>The most relevant attribute of this indicator is being comprehensive in its content.</p>
Contact person/partner	Finance Manager

19. Mental illness cases

Indicator ID	Core Indicator #19
Indicator name	Total number of mental disorder patients in the Cook Islands in a given year by sex and age group
Name abbreviated	Mental disorder cases
Data Type Representation	Count
Disaggregation	Age (five-year groups) Sex
Indicator group	Health status: morbidity
Rationale	
Definition	The total number of mental disorder cases classified (according to ICD chapter-level headings) in a given year
Associated terms	
Preferred data sources	Hospital records
Other possible data sources	Mental health surveys
Method of measurement	
M&E Framework	
Other disaggregation variables	Island
Unit of Measure	
Unit Multiplier	
Limitations	Case numbers are generally a poor indication of the true burden of disease. To interpret these numbers, one needs to consider both epidemiological patterns and data collection efforts in specific countries. No inference can be drawn from these figures about a country's effort or progress in controlling particular health issues.
Comments	
Contact person/partner	Mental services In-charge

20. Dental consultations

Indicator ID	Core Indicator #20
Indicator name	Top five causes for dental consultations by sex and age group
Name abbreviated	Dental consultations
Data Type Representation	Percentage
Disaggregation	Age (five-year groups) Sex
Indicator group	Health status: morbidity
Rationale	
Definition	The top five causes of dental consultations (calculated as a percentage of all consultations).
Associated terms	
Preferred data sources	Dental records Health facility reporting system
Other possible data sources	Special studies
Method of measurement	
M&E Framework	
Other disaggregation variables	Island
Unit of Measure	
Unit Multiplier	
Limitations	
Comments	
Contact person/partner	Dental In-charge

C: Implementation Plan

Summary

The Health Information Strategic Plan (2015-2019) is designed to treat health information as a national asset to improve the health of individuals and strengthen the health information system (HIS) of the Cook Islands. The goal of the HIS Strategy is to align HIS stakeholders to a common vision and way forward to maximize investments in HIS, and provide a framework for action to aid HIS professionals achieve better health outcomes.

The purpose of activities under this Implementation Plan is to:

- Align directly with the vision and broad objectives of the HIS Strategy, enabling long-term and sustainable national HIS implementation planning, progress monitoring, and attentive regular follow-up.
- Deliver tailored HIS support better and faster in a transparent and more collaborative way, which enables a flexible platform for emergent requests for technical assistance to be rationalized, resourced, and implemented.

This document describes how the Health Information Strategic Plan (2015-2019) shall be implemented and provides the roles and responsibilities, prerequisites and steps involved in operationalising the HIS Strategy. This document is intended for:

- HIS Professionals working in the Cook Islands
- Government officials
- Development partners, including (but not limited to) donors, technical agencies, academia, non-government organizations, implementing partners, and solution providers
- The general public.

The plan described in this document provides a framework for achieving the six strategic priority areas from the HIS Strategy. The priority areas are:

1. Strengthening HIS resources
2. Developing national minimum core indicators
3. Improving HIS data sources
4. Enhancing data management
5. Improving the quality of information products
6. Increasing dissemination and use of information.

The implementation of the HIS Strategy will cover the five-year period from 2015 to 2019. Annual work-plans and budgets will need to be negotiated within the Health Information Unit of the Ministry of Health. The newly-formed HIS Committee will be a key stakeholder in this process, and should have the opportunity to review work-plans and potential activities.

1. Priority actions for year one

While detailed annual work-plans will need to be developed, results from the assessment and prioritisation highlighted the need to:

- Establish a Health Information Systems Committee with multi-sectoral representation including health, statistics, civil registration, education and the private sector
- Develop a Health Information System Strategic Plan and associated Policy
- Establish a central HIS Unit and expand capacity for data analysis and dissemination
- Review current indicators and assess in terms of: alignment with National Health Strategy (2012-2016) and other strategic documents; effectiveness in producing relevant information for monitoring health outcomes and assessing health system effectiveness; and data availability for their production
- Improve current mortality coding practices, including aligning the current death certificate to meet international best-practice standards for correctly assigning underlying cause of death
- Develop a national meta-data dictionary that clearly defines health terms and provides formulas for calculating indicators
- Develop a 'culture of information use' among data collectors and users.

These activities will form the core of the work-plan for year one (2015), as shown in the Implementation Schedule below.

2. Implementation schedule

Ref	Description	COST	Timing					Principal responsibility	Collaborating partners	
			Phase 1		Phase 2		Phase 3			
			Year 1 2015	Year 2 2016	Year 3 2017	Year 4 2018	Year 5 2019			
	STRATEGIC PRIORITY 1: HIS RESOURCES									
	Objective: Ensure there are adequate resources for the effective functioning of the health information system									
1.1	Develop an effective governance mechanism to guide HIS developments									
1.1.1	HIS Committee is established								MOH	Statistics Office; Civil Registration; Education
1.1.2	Terms of Reference developed	\$500	\$500						MOH	Statistics Office; Civil Registration; Education
1.1.3	Regular meeting schedule developed	\$1,400	\$280	\$280	\$280	\$280	\$280		MOH	Statistics Office; Civil Registration; Education
1.2	Capacity in core health information sciences is enhanced									
1.2.1	Training schedule for health information unit is developed	\$1,000	\$1,000						MOH	WHO; Universities; PHIN; POLHN
1.2.2	Career pathways with succession plans are developed for HIS staff	\$3,000	\$3,000						MOH	WHO; Universities; POLHN
1.2.3	Identify and channel opportunities for career path support	\$3,000	\$1000		\$1,000		\$1,000		MOH	WHO; Universities; POLHN
1.3	Central health information unit is established									
1.3.1	Create a central health information unit within the MOH								MOH	
1.3.2	Terms of Reference and scope and purpose of unit are developed	\$500	\$500						MOH	
1.3.3	Five-year budget developed to ensure sustainable financing for ongoing maintenance and operation of the system	\$25,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000		MOH	Finance
	STRATEGIC PRIORITY 2: CORE INDICATORS									
	Objective: A national set of minimum core indicators is developed and regularly reported on									
2.1	National set of minimum core indicators are developed									
2.1.1	Core indicator set is developed	\$5,000	\$5,000						MOH	HIS Committee
2.1.2	Meta-data dictionary is developed	\$7,000	\$7,000						MOH	UQ; HIS Committee
2.2.3	First core indicator report published and disseminated	\$3,000		\$3,000					MOH	HIS Committee

Ref	Description			Timing				Principal	Collaborating partners
	STRATEGIC PRIORITY 3: DATA SOURCES								
	Objective: Health information data sources are strengthened and harmonised								
3.1	Mortality data is improved								
3.1.1	Training schedule for certifiers and coders developed	\$6,000		\$3,000			\$3,000	MOH	Hospital; Doctors; QUT; ABS; UQ
3.1.2	Quality assurance procedures are implemented							MOH	Hospital; Doctors; QUT; ABS; UQ
3.2	Civil registration data is strengthened								
3.2.1	Quality assurance procedures for checking completeness of CRVS data are implemented	\$5,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	MOH	Civil registration; Quality Manager; Chief Medical Officer
3.2.2	Profiles on CRVS completeness with recommendations for improvements are produced regularly	\$5,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	MOH	Civil registration; Quality Manager; Chief Medical Officer
3.3	Data from non-routine sources are incorporated into the HIS								
3.3.1	Information on risk factors is systematically used	\$5,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	MOH	Statistics; Civil Registration; Special studies (researchers)
	STRATEGIC PRIORITY 4: DATA MANAGEMENT								
	Objective: Improve data integration, quality and sharing								
4.1	Mechanisms for supervision and feedback on information practices from different sources are implemented								
4.1.1	Feedback schedule is developed	\$100	\$100					MOH	Statistics; Civil Registration
4.2	Policies and procedures for health information are developed								
4.2.1	There is a written HIS Strategic Plan	\$5,000	\$5,000					MOH	HIS Committee
4.2.2	Conduct a stock-take of current policies and procedures relating to health information							MOH	HIS Committee
4.2.3	Policy on data access, privacy and security is developed	\$3,000		\$3,000				MOH	Statistics; Civil Registration; Policy Manager
4.3	The HIS Unit is running an integrated data warehouse								
4.3.1	International standard formats and protocols are adopted							MOH	
4.3.2	Individual authorisation control and logged access are installed							MOH	
4.3.3	Feasibility assessment of other HIS software products is carried out	\$5,000			\$5,000			MOH	IT; SPC; PHIN
	STRATEGIC PRIORITY 5: INFORMATION PRODUCTS								
	Objective: High-quality information products are regularly produced								

Ref	Description			Timing				Principal	Collaborating partners
5.1		Communication schedule is developed							
5.1.1	Communication schedule for the health information unit is developed		\$500	\$500				MOH	
5.1.2	Information products are packaged in a variety of formats to suit audience needs		\$3,000	\$3,000				MOH	
5.1.3	HIS summary reports are published regularly		\$500	\$100	\$100	\$100	\$100	MOH	
	STRATEGIC PRIORITY 6: DISSEMINATION AND USE								
	Objective: Information products are disseminated widely and used in evidence-based decision-making								
6.1		Managers use health information from a range of data sources							
6.1.1	Evidence that HIS information is used by management teams when making resource allocation decisions is collected							MOH	
6.1.2	HIS summary reports are provided to managers for their quarterly meetings		\$2,500	\$500	\$500	\$500	\$500	MOH	
6.1.3	MOH website is expanded as a valuable resource for information dissemination							MOH	HIS Committee; Cook Islands Government
6.2		Individuals have access to their own personal information							
6.2.1	Policies to facilitate access to personal health information are developed		\$3,000		\$3,000			MOH	Communities
6.3		HIS is promoted among key non-health stakeholders							
6.3.1	Provide training and technical support to non-health stakeholders on HIS		\$5,000		\$2,500		\$2,500	MOH	HIS Committee
6.3.2	Actively engage in committees and groups related (but not restricted) to the health sector							MOH	HIS Committee