

Pacific Heads of Health

Réunion des directeurs de la santé du Pacifique

Advancing health information and digital transformation in the health sector

At a glance

- Pacific islands countries and areas (PICs) have long understood the importance of strong health information systems (HISs), in particular the roles of digital health and civil registration and vital statistics (CRVS) systems, in achieving the Healthy Islands vision and Universal Health Coverage (UHC). However, a lack of country leadership and governance, siloed HISs, and inadequate resources have impeded sustainable advancements of digital health and improvements in data for health.
- To achieve the vision of interoperable HISs and people-centred digital health interventions that accelerate improvements in population health and progress in national health priorities, it is critical that PICs lead and operationalize evidence-based digital health and HIS. Implementation of HIS and digital health interventions must shift from leading with technology to addressing immediate and emerging health system gaps from human resources to health service delivery.
- Successful implementation of digital solutions during the pandemic demonstrated the crucial role of strong government leadership and signalled that a digital future for the Pacific is possible. This momentum should be leveraged to scale-up investment in the foundations of sustainable HIS and digital health advancement (such as Information and Communication Technology [ICT] infrastructure, human resources, data standards, and institutional capacity), to promote digital health literacy, and to foster a culture of data-driven decision making.
- Pacific Health Leaders must assert leadership and governance to steer their governments' health information and digital health transformation process by establishing clear institutional processes and technical standards to direct HIS and digital health interventions towards their national priorities and health system needs. Development partners should support each PIC to lead their unique journey by only implementing interventions that align with each PIC's national standards and health priorities, by ensuring interoperability, and by coordinating HIS and digital health initiatives and resources across partners and stakeholders.

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Current situation

The PICs have long recognized the crucial roles of HISs and digital health in achieving the Healthy Islands vision, UHC, and the Sustainable Development Goals. Each PIC has embarked on their unique path to implement HIS and digital health interventions based on national priorities. However, common regional challenges, such as siloed HISs and inadequate resources, have impeded sustainable advancement. Most PICs have yet to take a multisectoral and cross-ministries approach, such as leveraging the health sector to improve CRVS systems that generate high-quality vital statistics that are needed to inform health services planning over the life course. UHC cannot be achieved without universal birth and death registration, and it is crucial to ensure integrated and meaningful action is taken to simultaneously improve HISs and CRVS systems.

As PICs leapfrog to novel and advanced technologies, sometimes exceeding their current digital health maturity, the foundational pillars of resilient HISs and digital health development (e.g., ICT infrastructure, human resources, digital health literacy, data standards, and institutional capacity) have not received adequate investment. Most PICs do not have the enabling environment to sustain implementation of advanced digital health interventions. Moreover, digital health solutions have been introduced on an ad-hoc basis, resulting in a chaotic and unsustainable environment that offers band-aid solutions rather than resolving health system gaps. This condition is further magnified by the limited human resources in most PICs, with already overwhelmed health staff lacking the time and resources to learn new systems and facing difficulties in using multiple systems that are not designed specifically for their needs. While economic contexts differ across the Pacific, PICs with strong governance and leadership have made greater strides in advancing digital health by coordinating development partners' support and taking a whole-of-government approach.

Over the course of the pandemic, the need for real-time, high-quality data was fully exposed; from informing effective emergency response to guiding efficient resource allocation to building trust with the general population. The pandemic also highlighted the need to improve the timeliness and completeness of death registration and notification systems, and the potentials for using digital tools to fill in these gaps. For most PICs, however, there was a lack of existing technical capacity, human resources and infrastructure to generate real-time data and to translate data into evidence-based decisions. Most PICs also did not have the infrastructure in-place to support national roll-out of digital health solutions to ensure health service continuity. More broadly, a culture of people-centred digital health implementation and data-driven decision making was absent.

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Future vision

The vision over the next decade is for PICs to have:

- 1) People centred- and health system-oriented health information and digital health solutions that strengthen health systems and accelerate achievement of national health priorities. This includes expanding the reach of healthcare specialists to address human resource gaps, reducing stock-outs and wastage through efficient management of medical supply chains, and ensuring continuity of health service delivery by connecting hard-to-reach populations.
- 2) Interoperable HISs, with connection across health facilities at all levels and with systems beyond health (e.g., vital registries), that can generate high-quality and timely information to improve population health and to ensure health systems are future-proof. This includes the use of integrated health data by:
 - a. ministers, to uphold accountability and transparency;
 - b. administrators, to manage population health programmes and address social issues;
 - c. clinicians, to effectively monitor patients over the life course;
 - d. researchers, to better understand diseases and population health patterns to create innovative solutions; and,
 - e. citizens to make informed lifestyle choices.

To achieve this vision, governments must lead an evidence-based approach to HIS and digital health transformation. By developing a strategic blueprint based on their digital health maturity, PICs can take informed incremental steps towards their national priorities while ensuring appropriate use of health technologies. Government stewardship is critical to steer this digital transformation process; from strengthening coordination and oversight of HIS and digital health implementation to unifying stakeholders' commitment to fostering a culture of evidence-based decision making and people-centred digital health implementation. For PICs to reap the full benefit of digital health advancement, governments must collaborate and act beyond ministry confines, such as simultaneously strengthening HISs and CRVS systems to improve data quality and achieve interoperability. Digital health literacy across governments, development partners, and the general public also needs to be enhanced in order to make informed decisions at all levels. As a whole-of-government approach is essential to achieving digital transformation, the health sector can play a leading role in coordinating across sectors beyond health within (e.g. finance, civil registry, ICT) and outside of the government, to ensure immediate and consistent investment in strengthening the foundations of HIS and digital health development.

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Examples of recent progress

PICs have continued to make progress in strengthening the foundations of HIS and digital health and in health information use, overcoming challenges brought on by the COVID-19 pandemic.

Development of evidence-based digital health strategic plan

Several PICs have developed or are updating their national digital health strategic plan. Fiji recently completed a two-year process to update their national digital health strategy. This initiative started with an in-depth situation analysis to identify digital health strengths, weaknesses, opportunities, and threats, and consisted of multiple rounds of technical expert reviews and wide stakeholder consultations across sectors and government ministries. The final strategy will guide Fiji to use digital health solutions for health system improvement by focusing on strengthening digital health foundations, governance, architecture, digital systems, and change management. This process, while resource intensive, is vital and the encouraged path towards sustainable digital transformation. Kiribati and Samoa have endorsed national digital health strategies and Papua New Guinea, Solomon Islands and Vanuatu are beginning on this journey.

Strengthening telecommunication to improve health service delivery

Investments in digital health foundations, such as ICT infrastructure, may have spill-over effects on the health system, yielding quick and heightened return on investment. This was evident in the installation of Very Small Aperture Terminal (VSAT) in Tuvalu to connect the sole hospital in country, Princess Margaret Hospital (PMH), to primary health clinics on the eight outer islands. The VSAT system enabled reliable near or near real-time direct communication between outer island health workers to medical staff at PMH, resulting in more clinically meaningful consults and improved patient management. This also reduced the number of domestic and overseas medical referrals, cutting healthcare costs and wait time for appropriate intervention. Another spill-over effect of VSAT is the increased access to formal and informal health workforce education and training through the connection of outer island nurses to medical doctors at PMH. Noted, successful implementation required capacity building to strengthen fundamental information technology skills and digital health literacy of health workers. Additional and consistent investments in infrastructure (e.g., stable electricity) and in maintenance of equipment (e.g., computers) are also required to avert VSAT disruptions.

In the Federated States of Micronesia (FSM), a telemedicine hub for live synchronous teleconsultations was set up to pilot the connection of Pohnpei State Hospital to a dispensary. With the aim of improving remote management of patients diagnosed with chronic non-communicable diseases, the teleconsultations also reduced unnecessary domestic referrals. Beyond procurement and installation of equipment, establishment of the hub required hospital clinicians and outer dispensary assistants to undergo a series of simulation training.

Pacific Heads of Health

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In addition, a two-way short messaging service (SMS) system is in-development in FSM, Marshall Islands and Palau to improve routine immunization coverage and child development. Following registration (during child delivery or the first antenatal care visit), a caregiver would receive periodic reminders on the routine immunization schedule, antenatal care visits, and important tips for nutrition and parenting.

Establishing digital health architecture building blocks to accelerate data collection and use

Initiatives to strengthen the building blocks of digital health architecture are being implemented to enable digitalization of data collection that supports integrated healthcare delivery. In Fiji, Kiribati and Solomon Islands, the Master Patient Index is being introduced to support implementation of national unique health identifications and interoperability of HISs within (e.g. immunization registry) and outside (e.g. civil registry and vital statistics systems) of healthcare. An open-source, standard-based electronic immunization registry platform is also being implemented to link expanded programme on immunization (EPI) with other vaccination programmes such as COVID-19 and human papillomavirus vaccine. Digital data collection and visualization tools for supportive supervision have been deployed for EPI and cold chain equipment in FSM, Fiji, Solomon Islands, Tonga and Vanuatu, in order to facilitate accurate documentation of supervision outcomes, real-time data sharing, and faster evidence-based decision making.

Why urgent action is needed now

HIS and digital health solutions hold immense potential to advance the health of the Pacific population and to accelerate progress towards the attainment of the Healthy Islands vision and UHC. Successful implementation of digital interventions over the course of the pandemic demonstrates that a digital future is possible for the Pacific, despite known infrastructure challenges. This momentum should be strategically leveraged to ensure investments made during the pandemic are built upon in an interoperable and sustainable manner. Interoperable HIS and digital health solutions can also alleviate stresses on the healthcare system, such as lightening the burden on the health workforce. With ICT infrastructures becoming more widely available due to increasing investment in the region, PICs must be forward thinking and maximize this opportunity. As such, Pacific government must lead urgent actions to prevent HIS and digital health interventions from remaining siloed and unable to meet emerging health system needs.

Moreover, the foundations for sustainable health information and digital health advancement require consistent investment and effort to foster continued progress over time. Incremental steps, informed by each PIC's digital health maturity, must be taken to develop ICT infrastructure, human resources, digital health literacy and institutional capacity in a cohesive and sustainable manner that can successfully support implementation and uptake of increasingly advanced interventions. It is critical that each PIC embark on their journey to health information and digital health transformation without delay.

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Recommendations to be considered by the Heads of Health

Recommendations for Heads of Health

1. Assert leadership and governance to direct a country-owned health information and digital health transformation process by defining, adopting, and documenting minimum technical standards and interoperability requirements for health information and digital health solutions.
2. Develop and implement an evidence-based strategy and operational plan for health information and digital health development, based on the digital health maturity model, that will guide each PIC towards their national priorities and interoperable HISs. Informed by strategies and standards, implementation may include:
 - Taking a leading role in CRVS strengthening by ensuring notification and registration of births and deaths and cause of death assignment are consistent with the data standards and that information systems meet interoperability requirements.
 - Deploying interoperable digital health interventions that alleviate the burden on already strained health workforce and allocating sufficient training and resources to support uptake.
3. Participate in the sharing of best practices through established sub-regional mechanisms (e.g. Pacific Health Information Network, Directors of Clinical Services Meeting, and Directors of Heads of Nursing and Midwifery Meeting) to ensure health information and digital health advancement and promotion of digital health literacy are embedded throughout the healthcare system.

Recommendations for Health Ministers

1. Lead coordination with ministries outside of healthcare to steer HIS and digital health advancement. This includes collaboration with ministries of finance and economy to establish sustainable financing mechanisms, ministries for communication and information technology to develop national infrastructures to support health information and digital health foundations, and across ministries to enforce data standards and system interoperability.
2. Assert leadership and governance to direct a country-owned health information and digital health transformation process by establishing institutional mechanisms that enforce adherence of technical standards and alignment with national priorities by all health information and digital health interventions being introduced.

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Réunion des directeurs de la santé du Pacifique

Recommendations for development partners

1. Ensure Pacific governments are in the driver's seat by implementing health information and digital health interventions only if they adhere to technical standards and align with health system needs defined by each PIC. Use each PIC's digital health maturity assessment as the basis for initiatives in HIS and civil registries strengthening, advancing digital health systems, and developing country-specific digital health road maps.
2. Prioritize the interoperability of any new health information systems by coordinating technical assistance and donor resources across development partners, including:
 - Convening annual coordination meetings with all development partners and key stakeholders investing and implementing HIS and digital health interventions in the region.
 - Providing cohesive support to develop interoperable HISs and digital health interventions that enable PICs to collect, produce and utilize data at all levels of the health system.
3. Support the development of regional solutions to common challenges by developing Pacific benchmarks and creating platforms for PICs to share case studies and best practices.