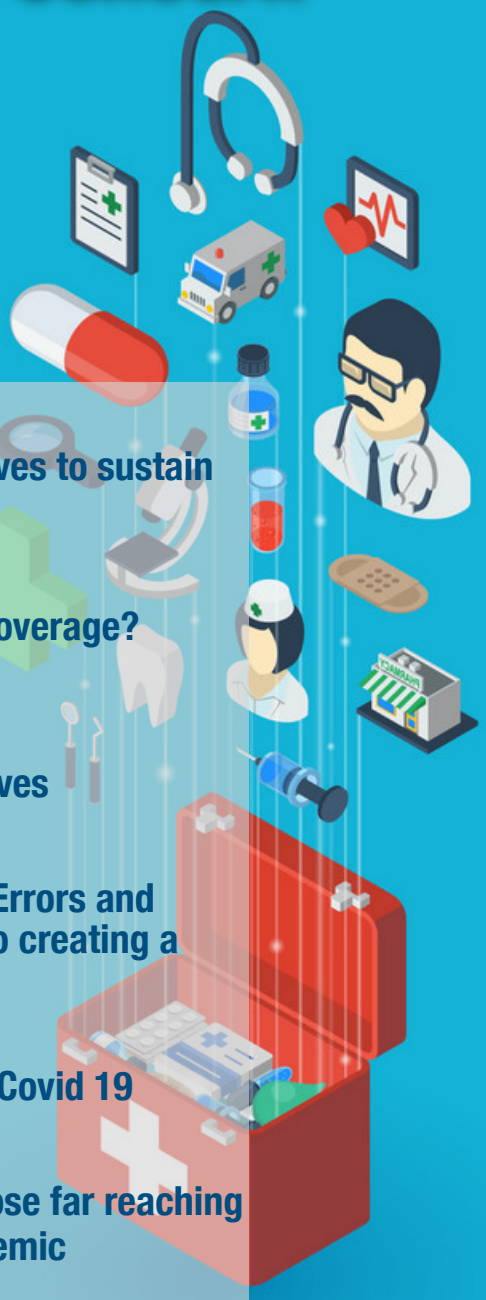
ISSN 2708-4787

MALDIVES ECONOMIC REVIEW

Volume 2, Issue 1, September 2020

Human Resources for Health in the Maldives: a matter of concern

Dr. Aminath Jameel



also…

IN THIS ISSUE

EDITORIAL

We are happy to offer Issue 1 of Vol. 2 of the Maldives Economic Review. In keeping with the special times in which we find ourselves in, we are focusing this issue on the Health Sector and related issues.
We are delighted that some of the most eminent health care professionals, leading health care professionals and academics in the field have found time to contribute to the journal. Because of such valuable contributions offered from experience borne from yesteryears and the events unfolding today, this issue of the journal offers not only veritable historical perspectives, but also original research and relevant information for students and other academics, policymakers, health sector administrators and general readers.

The lead article by Dr. Aiminath Jameel 'Human Resources for Health in the Maldives: a matter of concern', surveys the development of local human resources from the 1950s until to-date, including some of the major institutional developments during the period. The article by Dr. Jamsheed 'Revitalizing the public health system in the Maldives to sustain health gains and meet future challenges' tracks the challenging route taken to develop the first public health services in the country from the 1960s and looks at challenges in the future.

Dr. Sheena and Ms. Usman's article 'Are we on track to achieve Universal Health Coverage?' looks at how the Maldivian national health expenditure is directed towards achieving Universal Health Coverage and include the appropriateness of the budgetary allocations to address priorities. Dr. Sheeza's article 'Establishing the first medical school of Maldives' surveys the challenges and procedures that needed to be completed for the establishment in September 2019 of the School of Medicine of the Maldives National University.

Dr. Abdul Azeez Yousuf's article on 'Telehealth and Telemedicine in Maldives Post COVID-19' explores beginnings of telemedicine in the Maldives, the increased importance and expanded use of telehealth and telemedicine since the lockdown and a look forward to the future of Telemedicine. Meanwhile, Dr. Yasir's article 'Overcoming the economic burden of Medical Errors and Negligence: Integrating a systems approach to creating a compensation model for the Maldives' looks at the relevant model practiced in the Maldives and explores the importance of integrating a systems approach to the one practiced in the Maldives.

Mr. Shakoor's article on 'The dangers of Groupthink, and how it may pose far reaching negative consequences when fighting a pandemic' explores the dangers of Groupthink in general and how the negative consequences may have tragic consequences during a pandemic.
As always, we remain hugely indebted to our contributors who have found time to contribute to to this journal and we would additionally like to thank them for their patience as the final phase of publication has taken longer than intended.

We thank our readers and commentators, who are always our most important and significant supporters for giving us the reason and the stamina to continue our work.

At mer.mv we are pleased to issue this journal with ISSN number (International Standard Serial Number) which is used for all serials including journals, magazines and newspapers. The ISSN number is issued when the medium is duly registered with the ISDS Register; International Serials Data System.

May Allah deliver us from the dangers of COVID-19 and offer us a vibrant and healthy future.

Human Resources for Health in the Maldives: a matter of concern

Dr Aminath Jameel, PhD

Background

Human resources for health are identified as one of the core building blocks of a health care system. For the provision of essential and life-saving interventions; for safe pregnancy to safe mother child care. For adolescent and older persons' health to prevention and treatment for communicable and non-communicable diseases. Today, we also have come to recognise the critical role of health professionals for preparedness and in response to the threats posed by pandemics and emerging epidemic-prone diseases, as well as to the consequences related to climate and environmental health challenges.

Despite the dire need, health workforce crisis continues to remain a worldwide phenomenon and is one of the greatest challenges in the achievement of health and developmental goals. Nearly all countries are challenged by health workforce shortage: skill mix imbalance, mal-distribution, negative work environment, weak knowledge base, and iniquity in staffing in rural and remote areas compared to that in cities.

According to World Health Organization, an acute shortage of national health professionals at all levels of the health system indicate the absence of a well-defined human resource plan, and political priority. However, the ability of a country to meet its health goals depends largely on the knowledge, skills, motivation and deployment of the people responsible for organizing and delivering health services (WHO, 2009).

Changes in Economy

Maldives economy has changed significantly over the last few decades (Figure 1). Maldives' GDP per capita reached $11,890 in 2018, compared to $200 in 1978 (World Bank, 2020). World Bank also noted that the basic human development indicators are high for Maldives in 2017, ranking 101 out of 189 countries in the Human Development Index (HDI), the second-highest rank in South Asia. However, according to Asian Development Bank in its review of 2019, indicated that despite good domestic prospects, signs of a global economic slowdown in the next 2 years, especially in the Maldives' main tourist markets will impact on the overall economy with GDP growth projected at 6.5% in 2019 declining to 6.3% in 2020 (Asian Development Bank, 2019).

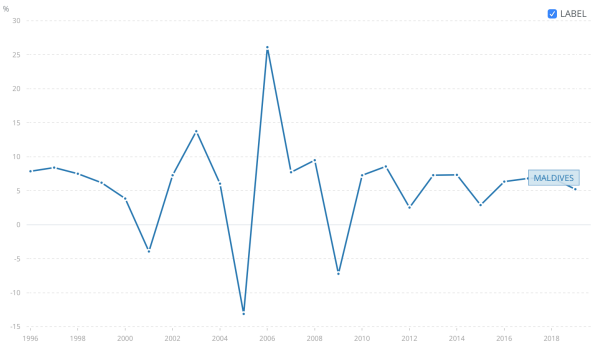


Figure 1: GDP from 1996 – 2019
Source: World Bank, 2019

Changes in health profile

Maldives was fighting some deadly diseases like Malaria in the 1950s, when World Health Organization (WHO) began collaborating with Maldives in the areas of control of communicable diseases, promotion of health and prevention of diseases and in disease related disability. This partnership led to a number of historic achievements in public and international health. Maldives has been Malaria free since 1984 and in 2015 Maldives became the first country globally to be certified malaria-free (WHO, 2016a).

In 2016, Maldives became one of the two countries in the WHO South East Asia Region to eliminate Lymphatic Filariasis. This was followed in 2017, when Maldives was certified to have eliminated Measles. And in 2019 Maldives received certification for elimination of transmission of Mother to Child HIV and Syphilis (WHO, 2019). Beside these, many vaccine preventable childhood diseases, such as polio, measles and rubella have been eliminated, while leprosy have reached the regional elimination targets and Tuberculosis and HIV prevalence remain relatively low. Outcomes of the intense public health interventions are evident in Figure 2, with significant reduction in mortality in these two groups, mother and child (Ministry of Health, 2016).

However, diseases such as Dengue and scrub typhus have emerged as major communicable diseases of public health concern while rapid improvements in economy along with lifestyle changes have resulted in the epidemiological transition with a swift change of disease burden from communicable to non-communicable diseases, and chronic non-communicable diseases are now

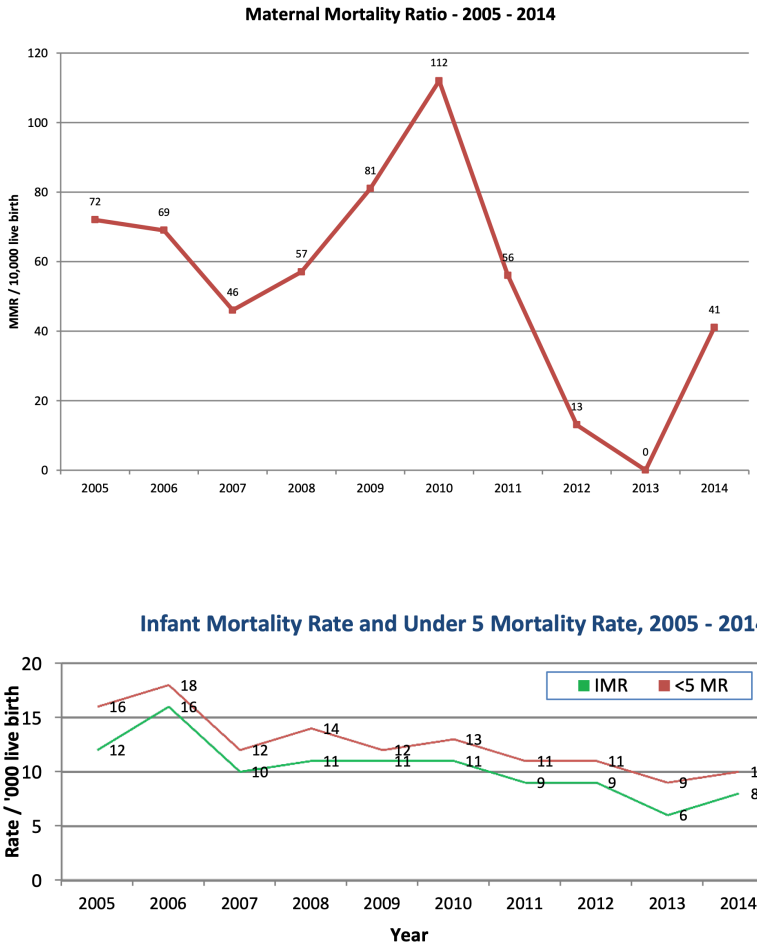


Figure 2: Maternal and Child mortality
Source: Ministry of Health, 2016

emerging (Figure 3) as the main cause of morbidity and mortality in the country (World Health Organization, 2018a).

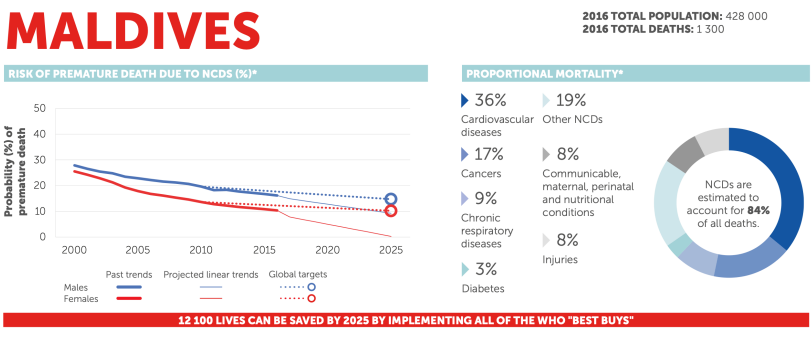


Figure 3: Non-communicable diseases morbidity and mortality
Source: World Health Organization, 2018a

Demographic transition

Maldives population have almost completed its demographic transition, i.e., the shift from high to low crude rates of births and crude rates of deaths gradually reaching a new equilibrium between births and deaths. Maldivians are living longer as seen in figure 4 adding over 10 years to their life over the last couple of decades.

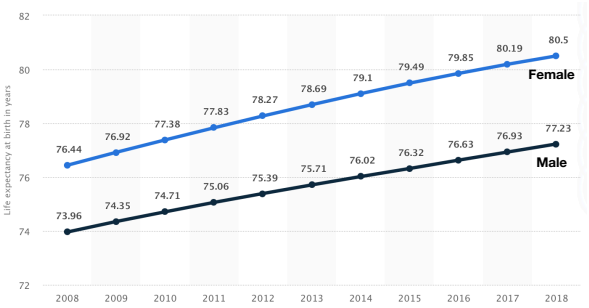


Figure 4: Maldives life expectancy from 2008-2018 by gender
Source: Statista, https://www.statista.com/statistics/970908/life-expectancy-at-birth-in-maldives-by-gender/

Population pyramid in figure 5 shows that the age profile has changed significantly with an increase in the middle and higher segment of the population. While changes in economy and demography offers great opportunities, they also present several major challenges (May, 2016).

Health Care delivery system

The evolution of health care system in the Maldives shows that the modern allopathic system of medicine as well as organized public health practices were introduced only in the 1950s. Primary Health Care (PHC) Conference in 1978, took a major turn in the health care system in the Maldives. The first Country Health Plan (CHP) was developed in 1980. Included in this CHP was the PHC concept adopted at the conference in, Alma Ata, which set in motion a paradigm shift in health development, based on equity and social justice, moving from a

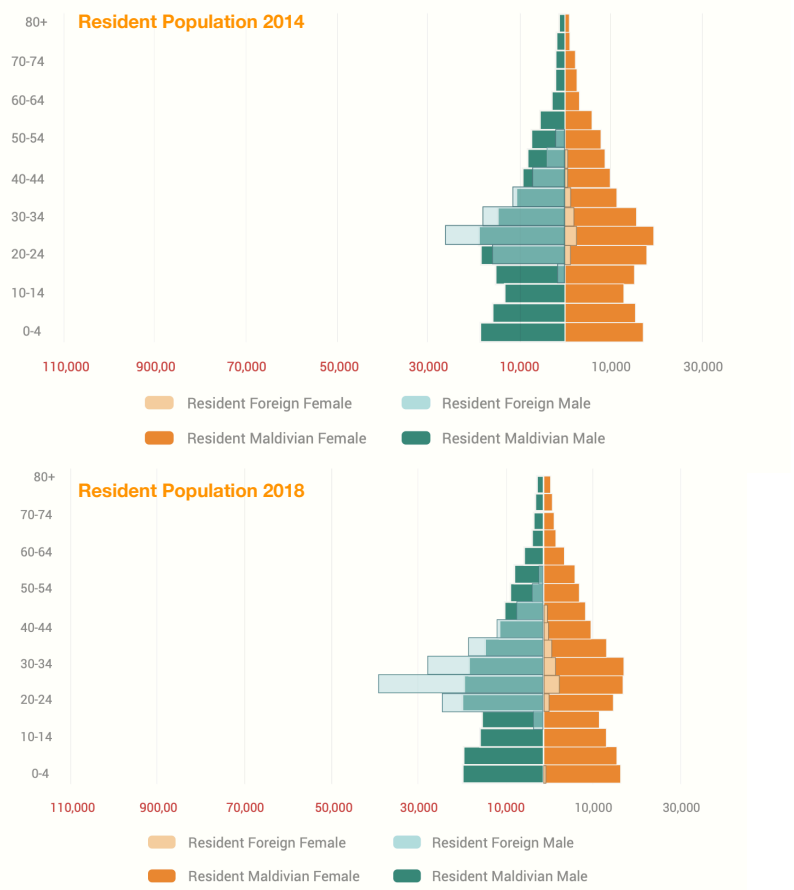


Figure 5: Maldives Population pyramid 2014 & 2018
Source: UNDP, 2014

clinical to a more public-health-orientated, with maximal community participation in improving their own health. Dr Mahler, Director General of World Health Organization, at that historical meeting, in his keynote address emphasized, on the essential element of continuity of the strategies of health for all and the need to avoid inflexibility in the approaches adopted. He reiterated that health delivery system must be geared to pay greater attention to the underprivileged, with priorities drawn up in the light of epidemiological, social and economic situations in each country.

Currently, the health care delivery system of Maldives is organized into a four-tier referral system with the island

level health facilities referring patients to higher level health facilities to the atolls, regions and then to central level depending upon the need and service availability. The universal health insurance scheme known as Aasandha covers the cost of health expenditure both in-country as well as in selected countries in the region. There has been rapid cost escalation in recent years, and government health expenditures stand at over 7 percent of GDP and almost 20 percent of the budget, which much higher in the region, among middle income countries, or other small-island states. As the age profile of the population changes with an increase in the aging population and rising burden of NCDs, the sustainability of its health system and its ability to afford human capital investments will be increasingly in doubt unless key system reforms are undertaken (World Bank, 2019).

Health workforce training

In the early days, Traditional Medical Practitioners, Spiritual Healers and Traditional Birth Attendents were providing health care. However, the training of health workers known as "Health Assistants" started in early 60's with the support of WHO, which lead to establishment of health care facilities at atoll levels, the first being at Lh. Naifaru in 1964. Those Health Assistants were trained mainly to control communicable diseases and manage some basic health care. In 1973 the first institute, Allied Health Services Training Center was initiated to train multi-purpose health care workers, to work at atoll level and island level. At the same time, short upgrading courses were also conducted for Traditional Birth Attendants known as "Foolhuma", on safe delivery and new-born care. Health problems at that time were mainly related to communicable diseases and maternal and new-borns health. Hence, training focused on those specific areas to ensure that each atoll and island had a trained health worker to provide primary care.

The Allied Health Services Training Centre was later upgraded to Institute of Health Sciences, when Diploma level nursing program was initiated. Later in 2018 a School of Nursing was initiated at Maldivian National University to train nurses. While Institute of Health Sciences continued to train other categories of health care workers. Until 2018, all Maldivian doctors received their medical education abroad. However, in 2018, the first Medical School started in the country and is still in its infancy stage.

Health Workforce

Maldives (as defined by number of doctors, nurses and midwives per 1000 population) currently has a ratio of 7.5 per 1000, which falls well above the minimum threshold of 2.28 per skilled workers per 1000 population adopted by WHO in 2006. However, in this era of Social Determinants Goal (SDG), this threshold was recognised as having limitations as it is focuses only on maternal and new-born health. Hence, a new threshold of 4.45 doctors, nurses and midwives per 1000 population was identified as an indicative minimum density representing the need for health workers" (WHO, 2016b). This threshold is expected to address the SDG agenda which refers to a broader range of services provided through universal health coverage namely the, "SDG index threshold".

Training of health workforce does not match the growing needs, a large expatriate workforce is currently in the

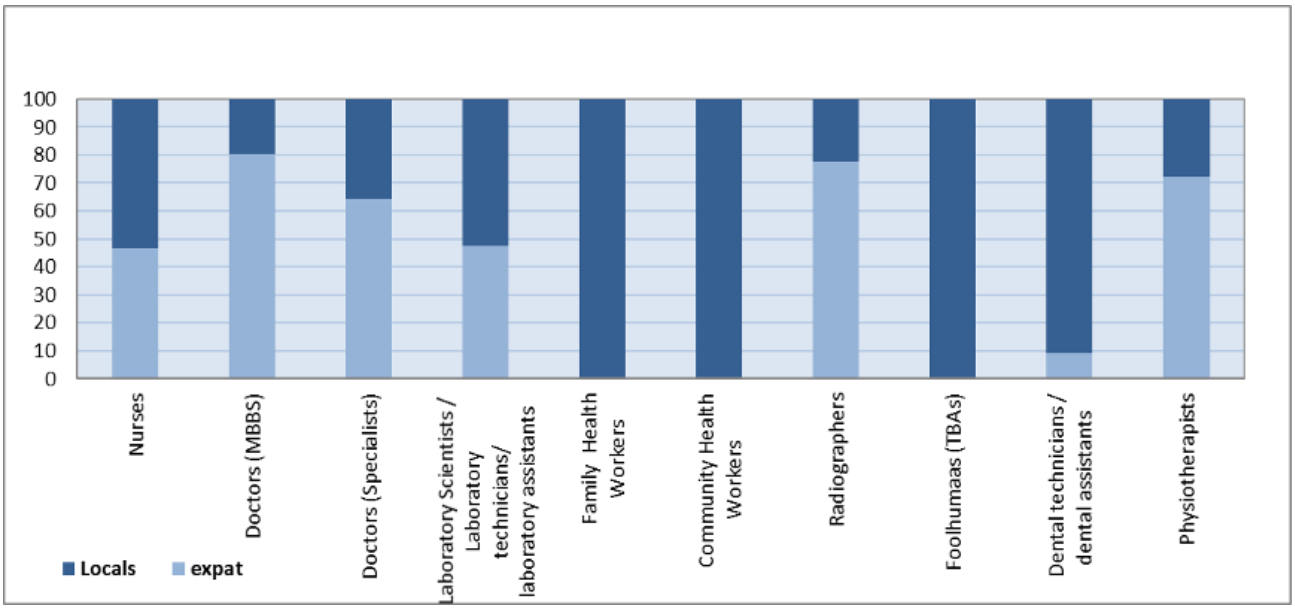


Figure 6: Percentage of local and expatriate health
Source: National Bureau of Statistics (2018)

health sector; both in public and private. Over 40% of health work force consist of expatriate (National Bureau of Statistics, 2018). Figure 6 represents the percentage of local and expatriate health personnel and by type in 2017.

Maintaining high health-care standards is a great challenge, as many foreign health-care professionals working in Maldives are often doctors in their first post or those unable to secure jobs in more competitive labour markets. Due to a combination of weak careers structure and incentives, there is high turnover among foreign health-care professionals, especially among those employed to the atolls. At the same time attracting and retaining experienced health-care specialists, including those to train and mentor future local doctors is a challenge. For IGMH, an Indian medical officer is up to 40 per cent more expensive than a Maldivian counterpart. (Poitr 2018).

Looking ahead

In 2014 National Health Workforce Strategic Plan was developed by the Ministry of health with participation of key stakeholders and the following points were highlighted in it (Ministry of Health, 2014).

1. Inadequacy of HRH management policies and support to provide equitable distribution with an appropriate skill mix, or attract and retain HRH in the islands.

2. Lack of policies and regulatory frameworks for quality assurance towards an enhanced health workforce performance and productivity, and

absence of HRH database and evidence-based information to advocate policies.

3. Pre-service and in-service training outputs are not aligned with the needs of the health service system in terms of number and quality.

4. Limitations of leadership capacities to adequately perform the essential HRH management and monitoring functions.

5. Lack of a multi-stakeholder coordination mechanism for policy dialogue, consultation, planning, implementation and monitoring of HRH outcomes.

6. Lack of national policy and plan to enhance the HRH resources from the national budget as well as other resources

It was estimated that the cost of achieving staffing standards for priority cadres by training Maldivians is approximately MVR 350million (US$ 22.5 million) and it could be achieved in approximately 11or 12 years (Ministry of Health, 2014).

Conclusions

To provide cost-effective, yet high quality services that are accessible to the people requires to match with human resources for health requirements in terms of numbers, skills and distribution. In planning human resources for health in an island nation such as Maldives it is critical to take into account the unique geographical characteristics and population dispersion. Increasing national capacity will not reduce dependency on expatriates but it will reduce the overseas spending done through Aasandha. At the same time to maiximize the expertise of the health professionals increasing the use of modern technology such as telemedicine will enhance accessibility to specialist care at island level. Already there are a handful of highly competent Maldivian specialists who have gained respect and confidence of the people. Maintaining stable numbers of health care providers, through training and deployment to meet country's health needs is a great challenge. Nonetheless, the National Health Workforce Strategic Plan 2014-2018 has highlighted key issues and laid directions. It is therefore up to policy makers and all stakeholders to commit themselves to ensure its implementation.

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About the Author

Dr Aminath Jameel, Completed Bachelors' Degree in Nursing and Midwifery in 1971 and Masters Degree in Community Health Nursing in 1988 from Madras University, India. Completed her PhD in Health Science in 2002 from La Trobe University, Australia. She has extensive experience in planning human resource for health and infrastructure development in the Maldives. Spent many years training primary health care workers and nurses at all levels both in the Maldives and overseas. Was a lecturer at University Malaysia and MNU and was a member of the Advisory Council of the SAARC countries for the development of MPH/MHA program (in collaboration with the University of North Carolina, USA). Held membership at several national committees and boards and volunteered in many community developmental activities, especially women's developmental activities in the country. Pioneered the Diploma Nursing program, the first Diploma level education in the country. She is a recipient of The United Arab Emirates Health Foundation Award in 2006 and Princess Srinagarindra Award 2011 from the Princess Srinagarindra Award Foundation under the Royal Patronage, Thailand. She is now retired but is a member of South Asians for Human Rights and is engaged with her not-for-profit organization, AgedCare Maldives founded in 2004. This is the first program for ageing population in the country which is a member of the International Federation on Ageing.

Are we on track to achieve Universal Health Coverage?

Dr. Sheena Moosa (MBBS, PhD)
Sofoora Kawsar Usman (BA, MSc)

Introduction

Financial protection is one of the elements of Universal Health Coverage (UHC) initiative that aims to achieve access to health care for all (Kutzin et.al., 2017). Policies need to address three elements, financial, protection, equity (population coverage) and quality (services coverage) to achieve UHC of the population (Figure 1). This paper explores how the national health expenditure is directed towards achieving UHC and appropriateness of the allocations to address the priority health problems of the resident population. The analysis draws on the National Health Accounts (Ministry of health, 2013; 2017; 2019) as the main source of data and triangulates with other relevant published literature and annual reports.

Financial protection for health care has been one of the earliest social protection mechanisms in the country and has evolved over the years (Figure 2). Work to introduce a social health insurance scheme started in the Maldives started 2007 with technical assistance from Thai professionals (WHO mission report, 25 Oct 2007, unpublished), with a study of health expenditure and financing that identified the resource requirement, fiscal capacity and modality of payments were developed. With the establishment of National Social Protection Agency (NSPA) in 2007, there was a significant impetus with initiating a social health insurance scheme and enactment social health insurance Act (15/2011) with the goal to assure financial protection and fiscal sustainability.

Progression of the UHC in Maldives

Madhana, the health insurance scheme was seeded in early 2008, aimed at providing affordable health care for the population. The entire scheme was fully funded by the government until late 2009. Since the scheme was opened for voluntary registration to the public, the government provided a yearly contribution of a maximum of MVR2000 depending on the beneficiaries' income levels. The government also pledged to assist those unable to pay their own contributions through full subsidisation. The aim of the scheme was to achieve universal coverage by 2012.The scheme covered 61,000 people or 19% of the population (Usman, 2014); including civil service employees, political appointees, senior citizens, pensioners, people below the poverty line, retirees, people with disabilities registered at NSPA and children of single parents claiming allowances from the government.

The medical care program under 'Madhana Plus' was initiated in 2011 and covered medical expenditure from

selected international health service providers, in addition to the coverage provided by Madhana. This is a contributory scheme with annual contributions of MVR1500, and a mandatory requirement of participation, as stipulated by the social health insurance Act.

One of the five pledges of the Maldivian government, then, was to provide affordable and quality health facilities for all. In order to deliver on pledge, the development and initiation of the health policy of the Government targeted to ensure access to primary health care to all citizens in an equitable manner (President's Office, 2012)

In a bid to achieve UHC, Aasandha was introduced which covers inpatient and outpatient treatment including drugs and diagnostics, though subject to certain specified exclusions and conditions, within an overall cap of 100,000 MVR per person per year (Aasandha Maldives, 2012). In theory, the entire population of the country, comprising over 300,000 citizens, was eligible for scheme benefits without any premium contributions, but beneficiaries do need to provide their demographic details (for example: National Identity Card) while using the scheme.

While the sustainability of the scheme was questionable at that time, the scheme was rebranded and renamed as Husnuvaa Aasandha. The cost drivers affecting the scheme include the fee-for-service system

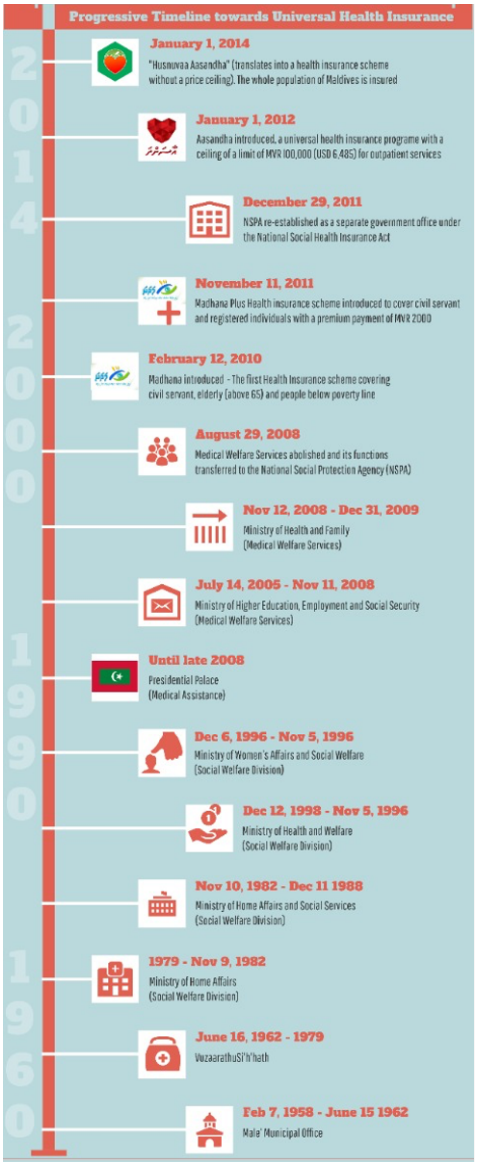
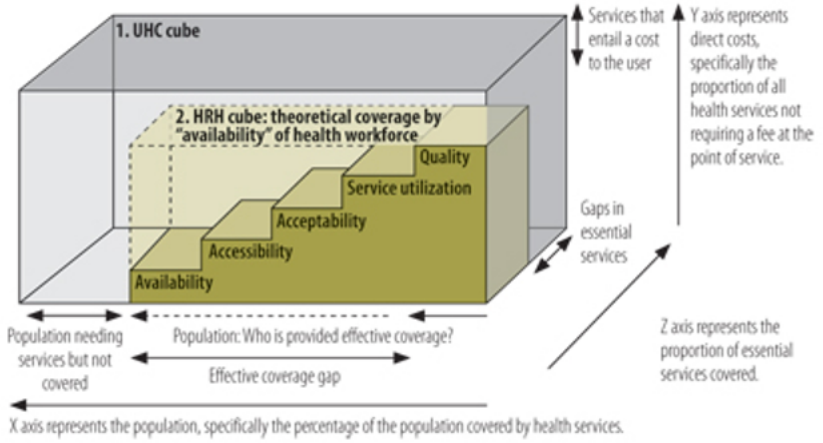


Figure 2: Milestones in financial protection in health care

that is known to encourage supplier-induced demand, the use of proprietary drugs with no essential drug lists and no cost controls thereupon, lack of monitoring and IT systems with NSPA (Nagpal & Redalli, 2012), possible moral hazard, and lack of incentives to contain costs on the part of the providers and beneficiaries. The Fee-For-Service (FFS) financing model fuelled by the weak (practically none-existing) regulatory mechanism stances a great threat to further worsening of the quality of service that is provided (Jamsheed, 2012).

Figure 1: UHC box
Source: Campbel et.al, 2013

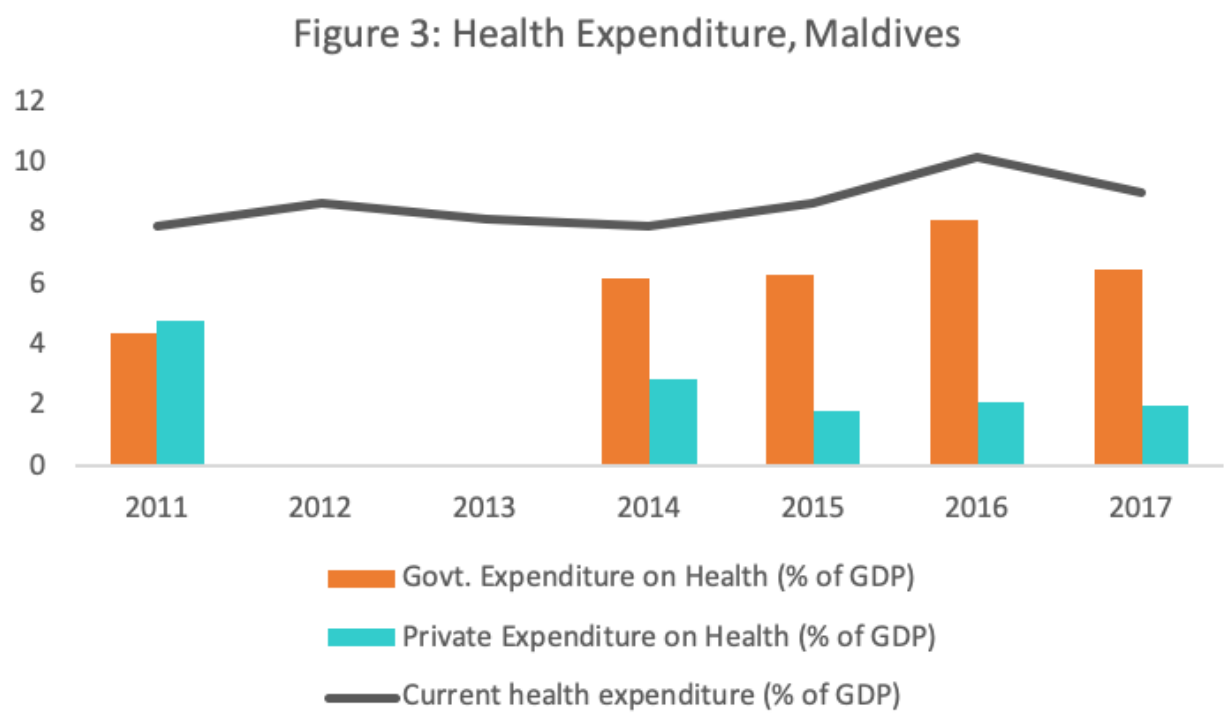


While UHC encompass three elements (Figure 1), the focus in the Maldives, has been largely on the financial protection element, somewhat neglecting the other two. However, the uptake and implementation of UHC in Maldives with pledges to increase funding and coverage. This trend is similar to many other countries (Rizvi et. al., 2020).

Financial Protection

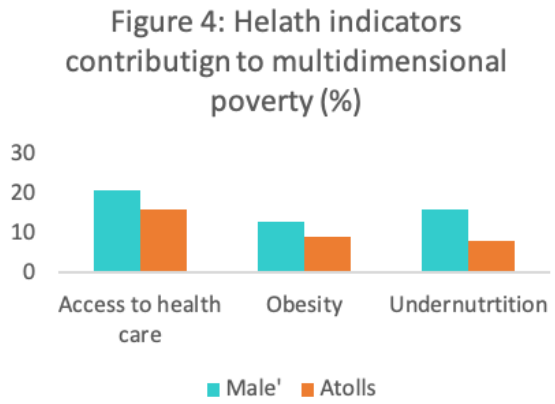
At a national level, the health expenditure as a percent of GDP has remained more or less constant over a decade at 9% (World Bank, 2017). The government health expenditure as a percent of government total expenditure doubled from 15.8% to 32.3% during the period 2014-2017 (Ministry of Health, 2019, p:25), reflecting a 2% increase in government expenditure on health as a percent of GDP. This is consequently associated with a decline of private health expenditure by 2.8% as a percent of GDP (Figure 3).

The reduction in private expenditure is in the right direction towards achieving one of the elements of UHC by ensuring that the cost of using services does not put people at risk of financial harm. This is reflected in a reduction out of pocket (OOP) expenditure by the households by 10% (30% to 21%) 2014 to 2017. This reduction in household OOP can be attributed to Aasandha coverage of health care for Maldivian residents in the country as well as in empanelled centres abroad. However, while the government expenditure doubled, the OOP only reduced by 10% suggesting gaps towards financial protection of the residents. Another plausible explanation is that while OOP regards only the resident population, government expenditure through Aasandha also covers non-resident Maldivian citizen's residents in neighbouring countries, and accounting for the steep increase in government health expenditure.

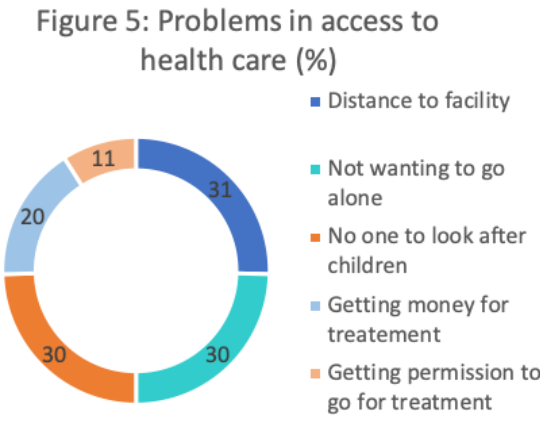


Constructed from World bank (2020); Ministry of Health (2019). Disaggregated data missing for 2012-13.

The OOP spending is also a reflection of the access to health services encompassing the other two elements of UHC- equity and quality. While Aasandha has been spending over a billion Maldivian Rufiyaa annually for medical claims (Auditor General's Office, 2017; 2019), access to health care continue to be a major concern, and is one the main contributors to multi-dimensional poverty, contributing 19% (NBS, 2020). When combined with nutrition indicators, obesity and undernutrition, the health share of multidimensional poverty increases to one third. Equitable access to health care needs to be viewed by disaggregation by geographic area, sex and citizenship, when the goal of UHC is examined. It is noteworthy, that a share of access to health to multidimensions poverty is smaller in the Atolls compared to those in Male' (Figure 4).



Source: National Multidimensional Poverty.



Source: Maldives Demographic Health Survey 2016-17

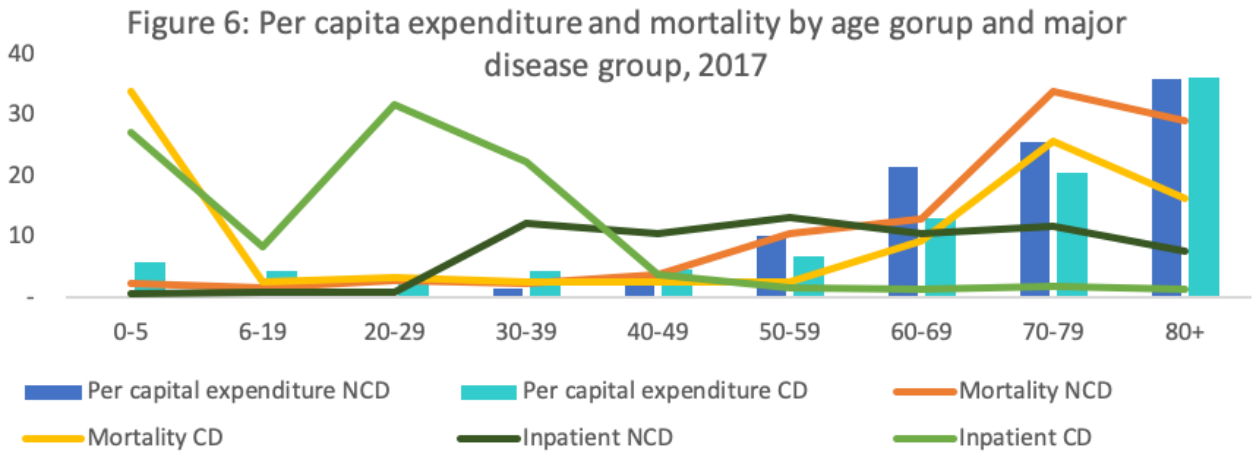
Service Coverage

This evidence raises questions of access to health care in the Atolls. While government has invested in expanding health care services in the atolls, access to health care remains a major concern, with 72% women citing problems in access to health care (Ministry of Health and ICF, 2018). Main reasons for low access no social support mechanism at the time of health care need, including no one to accompany the person and no one to look after children, followed by distance to health facility (Figure 5). Corresponding evidence on problems in access to health care by men is not available and is likely to be different given the predominant gender roles perceived in the Maldivian society. While provision of social support is often regarded beyond the scope of health, it is one of the fundamental determinants of access to health care.

The government has invested for a primary health care centre in every inhabited island, and improved health protection is seen in the atolls, with the number of islands with "no penalty points (and so showed no deprivation in terms of health) increased from 10 to 31, while the number scoring more than 0.5 decreased from 150 to 130, representing 26 percent of the population" (De Kruijk, & Rutten, 2007:p11). This problem of distance to facility is therefore puzzling, and may be interpreted that, the primary health care services on the islands does not meet the needs of the population and has to travel to a health facility in another island, in terms of scope and quality.

The scope of services at different levels of the health system is based on a tiered health system from primary care at island level to tertiary care at central level. However, as there is no organised public transport system, equitable access to health care through the tiered system continues to be a major challenge in equitable access to health care. The alternative option adopted by the government has been to increase the scope of services, despite the diseconomies of scale (Aboobakuru, 2014). Despite this, the health care seeking behaviour does not appear to match with the service delivery model of the government health sector. This stems from system related issued as well as the perception of better care from a specialist health care professional. Furthermore, this strategy has eroded the primary health care approach in the delivery of health care as the medical doctors are often foreigners with little knowledge of the local culture and even health context.

The analysis of expenditure against the disease burden by age group is one way to assess the gaps in meeting the population health needs. It is clearly evident that share of health expenditure is concentrated around older age groups (Figure 6), with nearly three fourths of spending, while expenditure on younger age 0-5 years is less than 5 percent of total health expenditure (Ministry of Health, 2019).



Population Coverage

In terms of disease burden health expenditure does not match the health care need at the youngest and oldest ages (Figure 6) but is consistent with the non-communicable disease (NCD) and communicable disease (CD) burden in the adult population. In the adult population, a note of caution is needed in the interpretation of the data as the reproductive age group (19-40 years age groups) is represented in the CD grouping where pregnancy related health care is included as per global burden of disease classifications.

In the younger age group, respiratory conditions accounts for 36% expenditure in the 0-5 year age group (Ministry of Health, 2019) while deaths in this age group are attributed to the early years of life, particularly in the neonatal period with birth defects claiming a large share (31%) of neonatal deaths, followed by extreme prematurity (Faisal et al., 2019). The evidence thus points that there is a dire need to redirect the health expenditure towards maternal and new-born health.

With regard to older age groups (60+ years), the health expenditure falls short of the need both in CDs and NCDs. More than 50% of the expenditure is on NCDs (cardiovascular diseases, diabetes, chronic respiratory diseases), that have common risk factors related to lifestyle, including unhealthy diet, low physical activity and tobacco use. While an increase in mortality and inpatient care is expected with increasing age, the pattern of increasing communicable disease mortality in older is an anomaly, not expected at this age. One possible explanation for this increase of communicable disease mortality stems from hospital acquired infections associated with inpatient care. Bacterial infections has been reported among the top ten cause of death in the country (Ministry of health, 2019), and further study is of this proposition needs to be conducted to gain a better understanding and identifying interventions to address this need.

Conclusion

As the country moves towards UHC, there are critical gaps for that needs to be addressed, particularly in terms of population and service coverage. Diverting spending to support interventions towards improving maternal health and new-born care, addressing risk factors of NCDs, and infection control in health care settings are critical to further

progress towards the goal of UHC. Investments in empowering women and social support mechanism indirectly influence towards improving population health coverage. Health financing needs to find a balance between the political motives and the health needs of the population. Since the GDP share of health expenditure is unlikely to change, there is a need to slice the pie differently if the country is to address all the three elements of UHC, particularly towards equity and quality in access and scope of the health services, that address the disease burden and health needs of the population.

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Establishing the First Medical School of Maldives

Dr Sheeza Ali

In September 2019, the School of Medicine was established as one of the faculties of The Maldives National University, with a generous grant from the Government of Pakistan. To ensure that the programme of School of Medicine is internationally comparable and conform to best practice in the field, The Maldives National University (MNU) sought the support of Malaysia's National University, Universiti Kebangsaan Malaysia (UKM). An agreement was signed between the two universities to support the medical programme at MNU, and guide the School of Medicine in implementing the curriculum of UKM, to assure quality of the programme and gain trust of the community.

The School of Medicine is the very first institution to teach medicine towards awarding a medical degree in the Maldives. Though the medical school has been a part of the national development plans (Ministry of Health, 2015) for several years before its establishment, the need for such an institution was questioned and the matter was not the easiest to understand for many. But for those who work in the administration of the health sector and for those living in the atolls, the need to train more Maldivians who can serve as doctors and address the medical needs of the community is only too obvious. There are numerous difficulties associated with recruitment of foreign doctors, and seeking their services in a meaningful manner, especially by the island communities, is often an arduous task.

The question raised by those who opposed the idea of having our own medical school was mainly because of the size of our population. "For a country with a total population of about half a million people, do we really need a medical school?" The answer to this question is resoundingly affirmative as is explained below.

Ratio of local to expatriate doctors in the workforce

The number of doctors working in Maldives include those working in the public hospitals, health centers and other health facilities, private hospitals and private clinics. Out of these, data is available for the public facilities and for some private facilities. The ratio of local doctors to foreign doctors is highest (3.3:1) at the main tertiary hospital, Indira Gandhi Memorial Hospital (IGMH) at Malé (Table 1).

	IGMH
Medical Officers	
Maldivians	163
Expatriates	35
Specialist Doctors	
Maldivians	80
Expatriates	41
Sub-Specialist Doctors	
Maldivians	7
Expatriates	0

Table 1: Number of Maldivians and expatriates working at IGMH, June 2020.

At IGMH, 82 per cent of the Medical Officers, 66 per cent of the specialist doctors and 100 per cent of the sub-specialist doctors are Maldivians. The ratio of Maldivians to expatriates is very low (0.04:1) in the Atoll Hospitals and Island Health Centers (Table 2).

	Atoll health facilities
Medical Officers	
Maldivians	12
Expatriates	366
Specialist Doctors	
Maldivians	8
Expatriates	189
Sub-Specialist Doctors	
Maldivians	0
Expatriates	0

Table 2: Number of Maldivians and expatriates working at atoll health facilities, June 2020.

In the health facilities of the islands, only 3 per cent of the medical officers and 4 per cent of the specialist doctors are Maldivians. There are no sub-specialist doctors working in the public health facilities of the islands.

In two of the biggest private hospitals, the numbers show a mixed picture. Both these hospitals are in the Malé region. At ADK Hospital, 91 per cent of the medical officers, 52 per cent of the specialist doctors and 23 per cent of the sub-specialist doctors are Maldivians (Table 3).

	ADK Hospital
Medical Officers	
Maldivians	29
Expatriates	3
Specialist Doctors	
Maldivians	26
Expatriates	24
Sub-Specialist Doctors	
Maldivians	3
Expatriates	10

Table 3: Number of Maldivians and expatriates working at ADK Hospital, June 2020.

At Tree Top Hospital, 28 per cent of the medical officers and 16 per cent of the specialist doctors are Maldivians. There are 7 sub-specialists working at Tree Top Hospital and all of them are expatriates (Table 4).

	Treetop Hospital
Medical Officers	
Maldivians	5
Expatriates	13
Specialist Doctors	
Maldivians	6
Expatriates	32
Sub-Specialist Doctors	
Maldivians	0
Expatriates	7

Table 4: Number of Maldivians and expatriates working at Tree Top Hospital, June 2020.

In all these facilities, the ratio of locals to expatriates have much room for improvement at all levels. The health facilities of Malé region have a very high ratio of local doctors as compared to the health facilities in the islands. This is because most Maldivians prefer to work in the capital, Malé even if they belong to other islands. The reasons as to why this is, are also many – better facilities in the capital, family already settled in Malé and moving back is difficult and limited exposure to the different types of medical cases in the islands are some of them.

The figures from the above gives us a rough number for the total number of doctors working in Maldives. And in this, only one third of the doctors are Maldivians (Figure 1). While this may not be the exact number, this gives us an idea on how many more doctors we need if we are to replace expatriates with locals. Adding the data from the sources missed in this calculation will not deviate the figure in favour of more Maldivian doctors because most of the private health facilities and the resorts have more expatriates than Maldivians.

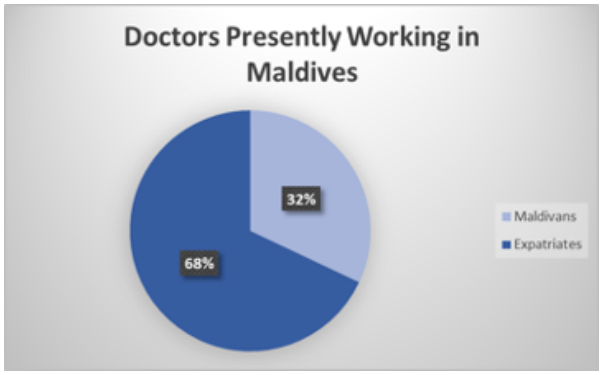

Figure 1: Pie chart showing the percentage of Maldivian doctors in 2020 as compared to expatriates.

Assuming everything else remains constant and we train 30 doctors a year, we will still need about 25 years to train 748 doctors and replace all expatriate doctors with locals.

Ratio of local to expatriate doctors registered in the Maldives Medical and Dental Council

It has been several years since the registration of the health care professionals working in Maldives was made mandatory by a regulation of the Ministry of Health. With the implementation of the Act on Health Professionals (Health Professionals Act, 13/2015), it was mandated by law. Data from the Maldives Medical and Dental Council show that since 2015, out of the total doctors registered, only 20 per cent of the Medical Officers, 19 per cent of the specialist doctors and 10 per cent of the sub-specialist doctors are Maldivians (Table 5).

	MMDC
Medical Officers	
Maldivians	342
Expatriates	1404
Specialist Doctors	
Maldivians	174
Expatriates	743
Sub-Specialist Doctors	
Maldivians	15
Expatriates	141

Table 5: Maldivians and expatriates registered at the Maldives Medical and Dental Council, June 2020.

The total number registered at MMDC is not indicative of the total number of doctors working in the country. In looking at these figures the high turnover rate of foreign doctors should also be taken into consideration. These numbers tell us the amount of expatriate doctors who served in Maldives as compared to Maldivian doctors.

Costs associated with foreign recruitment.

Recruiting foreign doctors is not only cumbersome but also a costly affair. Especially when the legal terms of their recruitment include yearly return tickets to their home countries, ensuring they are registered at the Maldives Medical and Dental Council, ensuring they have valid licenses to practice medicine, and ensuring they have work permits and work visa at all times. Added to this is the difficulty associated with getting qualified applicants to the advertisements made and the process of selecting competent doctors.

Development of the island health facilities need locals.

The island health facilities often have much room for development and in making them more efficient in dealing with the health needs of the island communities. As seen from the above data, only 3 per cent of the doctors serving in the island health facilities are locals, 97 per cent are expatriates who often have no incentive nor desire to improve the services. Having locals to serve the local communities will change this, for they will understand the need and have the desire to develop the facilities. The services provided by the island health facilities can be expanded by willing locals, thus improving the health conditions of the people.

Medical school and medical research

Research in the field of medicine is important to advance medical services as well as to formulate the best application of the available services and resources. Establishing a medical school will enhance research and therefore the services provided, by implementing evidence-based practices. This will in return enhance the level of care provided by the health facilities.

Challenges faced

Establishing the School of Medicine has its own challenges too. The limited availability of local lecturers who can teach the basic science subjects to the medical students was overcome by employing foreign lecturers. In addition, the small size of our local hospitals limits the number of students that can be accommodated at a time for clinical exposure.

Conclusion

In the main hospitals of the country and in the island communities the majority of the doctors serving are expatriates. This brings along its own difficulties such as barriers of language, culture and even application of knowledge with the local

context in mind. Though the numbers are not provided in this article, anecdotally it is known that the doctors employed in resorts are mostly expatriates. This also adds to the revenue generated by the tourism sector that is exported.

Training Maldivians by sending them to foreign medical schools is costly and not affordable by many. As a result, several local students despite having an excellent academic performance in school, and aspiring to become doctors do not get the opportunity to fulfill their aspirations. This in turn produces fewer local doctors. In addition, with the increase in the number of resorts and the new national development projects, the demand for better health services will increase and employment opportunities for doctors can only be expected to rise. If more Maldivians can be trained to serve as doctors it will also contribute to retaining foreign currency which otherwise is repatriated as remittances by the expatriate doctors.

There clearly exist an imbalance between the demand and supply of local doctors. To meet this demand, more local doctors need to be produced. Establishing a medical school in Maldives and training locals to become doctors is not only the most economical or attractive choice but also the only viable way of ensuring a steady stream of doctors who will understand the local context and serve the local communities.

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Overcoming the economic burden of Medical Errors and Negligence: Integrating a systems approach to creating a compensation model for the Maldives

Dr. Ibrahim Yasir Ahmed, MD

The medical profession in the Maldives is regulated by the Maldives Medical and Dental Council (MMDC). It subscribes to a code of conduct to be observed by the profession, and has formulated its ethical restrictions (MMDC, n.d.). This council has the legal rights to investigate medicolegal cases and take appropriate actions against parties if found guilty. The actions afforded to the council includes handing suspected criminal case over to the Maldives Police Service. Thus far, negligence by doctors can be directly appealed in a civil court for compensation. As such, whether the healthcare worker was negligent or not is determined by judges, who are not competent in medical knowledge. These judges usually depend on the opinion of medical experts to decide on the medical view. The final verdict is usually based on the fundamental legal principles of reasonableness and judiciousness. Although the contrast between medical negligence and medical error are well-known to those within the medical fraternity, the distinction is less clear to the community at large, such that doctors do not end up indicted for unreasonable causes (Raveesh, Nayak, & Kumbar, 2016). Articulating that medical errors have continually been a part of real medical practice Kapp (1996), noted a quote from a clinician "Error-free patient care is the ideal standard, but in reality, unattainable". The duties by which a doctor is obliged to their patients are: 1) a duty of care in deciding whether to accept the case, 2) a duty of care in deciding what treatment to give, and 3) a duty of care in the administration of that treatment (Kapp, 1996). A breach of any of these duties gives a right of action for negligence to the patient.

The overhead costs of malpractice litigation are unreasonable (Studdert et al., 2005). Research recognizes that most patients who experience a medical mishap as a result of negligence do not go for litigation (Hellinger & Encinosa, 2006). Unexpectedly, a study done in the USA shows that the rate of occurrence of negligent adverse events exceeds the malpractice claims (Studdert et al., 1997). Furthermore, it was observed that when a doctor is litigated, there is a high chance that it is due to non-negligent care (Studdert et al., 2005). Additionally, an analysis done by Aoki, Uda, Ohta, Kiuchi, & Fukui (2008) in Japan showed that 38.1% of the medical disputes studied did not involve medical errors, and that 26.5% of all medical dispute cases were not preventable. These findings confirmed that non-negligent adverse events are probably so often involved in medical dispute cases, because of random occurrences where even correct and appropriate practices result in undesired results. Getting adequate compensation for negligence is also hindered by the high cost of litigation expenses. According to the breakthrough Harvard Medical Practice Study (1990), only 1 in 15 patients who experience an injury because of medical negligence get

compensated, and five-sixths of those that receive compensation have no proof of negligence.

Additionally, unacceptable delays occur in getting the compensation. Kessler (2011) notes that, on average, it takes around four years to resolve a malpractice claim. Besides, for every dollar spent on compensation, 54 cents went to lawsuit administrative expenses and other operational costs (Studdert et al., 2006). In the Maldives, the first significant case of medical negligence took 12 years to resolve.

The most undesirable and costly result of frivolous medical malpractice lawsuits is the practice of defensive medicine: the ordering of tests, procedures, and visits, or avoidance of specific procedures for patients out of concern about malpractice liability risk (Kessler & McClellan, 1996). In a study done in Pennsylvania in 2003, as high as 93% of physicians practiced defensive medicine, and among those who detailed their most recent defensive act, 43% reported using imaging technology in clinically unnecessary circumstances (Studdert et al., 2005).

There is no Medical Malpractice Law in the Maldives. However, a victim can pursue any of the following measures against a negligent medical professional: 1) Seeking monetary compensation before the civil courts, 2) Filing a criminal complaint against the doctor to the Maldives Police Services under the Maldives Penal Code, 3) Complaining to the Maldives Medical and Dental Council under the Ministry of Health, seeking disciplinary action against the concerned doctor. The 2017 annual report of the Maldives Medical and Dental Council showed that disciplinary action was taken against five doctors, which included erasing the names of those liable from the register, preventing them from practicing as a physician in the Maldives (MMDC, 2017).

Ihsan vs. State was the seminal Medical Negligence and Vicarious liability case in the Maldives. It was a historical milestone wherein the Supreme Court of Maldives, on July 25 2019, pronounced against the State (Ministry of Health) and held that medical negligence was evident in the treatment administered to Ihsan's daughter, which consequently left her deaf. The appeal filed by the father of the toddler, Ahmed Ihsan, reversed the decision made by the Civil Court and later the High Court of the Maldives. The Supreme Court of Maldives and awarded a total of MVR 7,119,100 (approximately US Dollars 461,680 as of July 25, 2019), which was considered rational to cover the financial losses, mental distress, and the impact the injury has on the child's quality of life (Ahmed Ihsan v. Ministry of Health, 2016/SC-A/05).

To impose civil liability in these types of cases, the Supreme Court stated that three conditions must be met; the presence of malpractice, damage to the patient, and a causal relation between the malpractice and damage suffered by the patient. Together, this three-part test of the rationality of a malpractice claim is known as the "negligence rule" (Budetti & Waters, 2005). The verdict of the Supreme Court held that all three conditions were met. The state was found to have provided contradictory evidence, and to have made several detailed errors, and demonstrated a lack of integrity towards, keeping proper medical records (Ahmed Ihsan v. Ministry of Health, 2016/SC-A/05).

Maldives Medical Association (MMA) welcomed the judgment, but cautioned that there is some worry that this could

be the beginning of a litigious culture, leading doctors to be pre-emptively defensive and a breakdown of doctor-patient trust. This could further lead to reluctance of foreign or local doctors to continue to work in the Maldives. The association supported a for a 'no-fault' compensatory mechanism instead of a litigatory model. This appears to be a fair model as it intends to commence another model that is more concerned with recompensing the affected patient rather than displacing blame and finding faults. The increased worries brought about by a tort liability when handling medical malpractice and patient compensation may further encourage the initiation of a no-fault system, i.e., a mechanism in which the patient is remunerated through an allocated fund of risk socialization without considering validation of the physician's negligence (Raposo, 2016).

The modern concept of medical error and patient safety proposes that it is the institutional systems within which health care providers function, rather than individual practitioners, that cause harm. Redesigning of the system within the institution, and the manner in which error is regarded within, would lead to safer care. Core systemic factors within the institution play a significant role in most adverse events and near misses in health care. It is thus incorrect to impugn singular health care providers when patients are injured (Gilmour, 2006).

The characterization of a no-fault scheme is entrenched in the principle of distributive justice, reimbursing victims without having to prove causation and fault. Contrariwise, the existing legal responsibility for negligence comprises of fault considerations grounded in theoretical legal concepts regulated through the judicial model, which are integrally limited within the confines of the established legal principles of duty of care, proximity, and negligence (Horwitz & Brennan, 1995). The no-fault compensatory mechanism suggested by the Maldives Medical Association has been followed by New Zealand, Finland, France, and Sweden for decades. No-fault compensation schemes believe that in contrast to an ineffective and inconsistent tort liability based system, it is realistic and more democratic (Horwitz & Brennan, 1995). The Maldivian Medical Association hence suggests this as an ideal system to be adapted to the local setting for several reasons. Firstly, the no-fault systems have the potential to compensate many more patients than malpractice litigation can. Still, depending on compensation criteria, level of awards, and social context, there is not much exceedingly increased costs (Studdert et al., 1997). Secondly, no-fault programs are intended to increase claims by extending compensation to all injuries, not just those caused by the fault. Thirdly no-fault compensation has the advantage of low administrative cost and faster compensation rate compared with traditional tort litigation.

It was back in 1974 that New Zealand embraced a government-funded system for compensating people with personal injuries (operated by the Accident Compensation Corporation, or ACC), substituting its tort-based system. Most New Zealanders now use ACC as the primary method of dealing with personal injury claims, including medical injuries, and evading litigation is commonly accepted as a social gain. Final reforms to this system in 2005 eliminated the final fault element from the compensation criteria for medical injuries, making it an accurate no-fault system (Bismark & Paterson, 2006). It is seen to that not all

injuries suffered by patients, but only those that can be characterized as a treatment injury are reimbursed. Treatment injury defined in a broad sense, includes those injuries resulting from diagnosis, from the treatment, from the absence of treatment, from the failure of an instrument or machine used for treatment, from lapse of informed consent, and from infections (Kachalia, Mello, Brennan, & Studdert, 2008). Hence, a patient who undergoes health treatment from a licensed health professional would receive compensation for any injury caused during the treatment; but not being a necessary result of the said treatment (Kachalia, Mello, Brennan, & Studdert, 2008).

Another example of such a no-fault system is Sweden's patient insurance compensation fund. The Swedish patient compensation fund, the Landstingens Ömsesidiga Försäkringsbolag (LÖF), began in the mid-1970s, with the formation of an inclusive social security scheme intended to protect the undesirable outcomes arising from medical treatment. It has compensated patients who sustained an iatrogenic injury through administrative means, without considering provider fault (Studdert et al., 1997). This Fund was not created to replace an unwieldy or overly expensive tort system and is a liberal and comprehensive social insurance system. Consequently, medical malpractice actions were infrequent in Sweden—on average, only about ten cases per year resulted in compensation (Studdert et al., 1997). This compensation is covered in three tiers. Firstly, a comprehensive social insurance scheme protects all patients for the expenses of their basic medical needs and lost earnings due to illness or injury, irrespective of its reason. Medical benefits are limited to inpatient and outpatient care at public hospitals and clinics, and an approved list of drugs. Secondly, employees who sustain any injury in the course of employment have these benefits complemented by coverage from a no-fault administrative scheme, similar to workers' compensation schemes in the United States. Finally, a compendium of minor schemes encompass a third layer covering injuries sustained in certain defined situations such as in automobile accidents and sports (Studdert et al., 1997). Figure 1 shows a comparison of the New Zealand and Swedish patient compensation process.

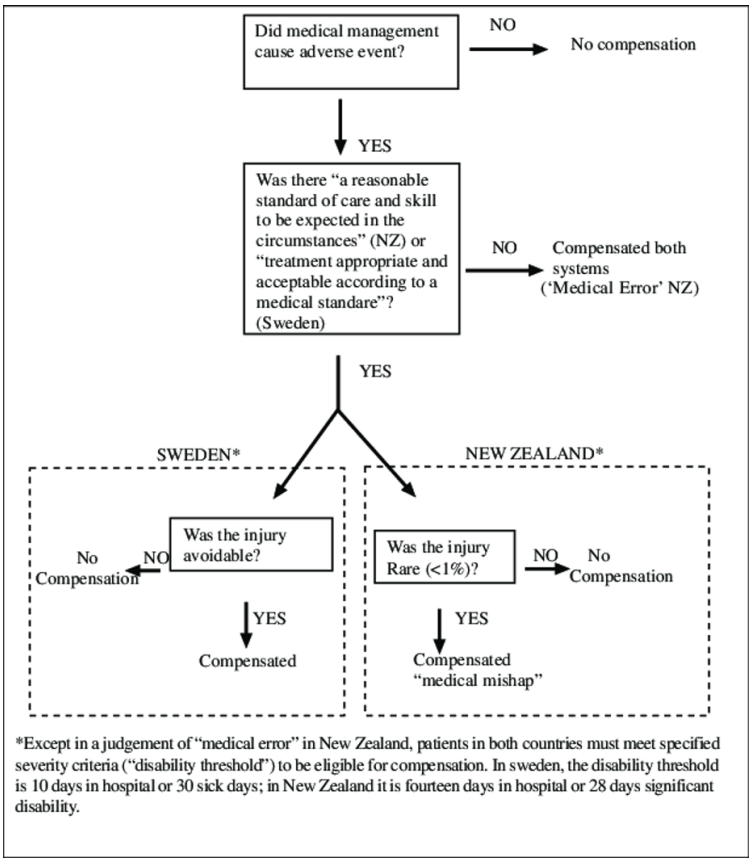

Figure 1: Compensation decision making process-New Zealand and Sweden compared.
Source: de Wet, N., Ye, W., Hales, S., Warrick, R., Woodward, A., & Weinstein, P. (2001). Use of a computer model to identify potential hotspots for dengue fever in New Zealand. New Zealand Medical Journal, 114(1140), 420.

All public and private medical treatments were covered after Finland launched the Patient Insurance Act in 1987. It includes medical examinations, surgical and non-operative treatment, inpatient ward treatment, physiotherapy, and rehabilitation as well as patient transportation (Mikkonen, 2004). All hospitals and health-related companies are obliged to be insured and was given policyholder status. Hence, medical workers neither require insurance contracts nor pay any insurance fees to the companies (Hirvensalo, 2006). The Finnish Patient Insurance Centre is responsible for clearing all claims in Finland, and an independent Patient Injury Board instated by the Ministry of Health oversees the Centre (Hirvensalo, 2006). Main alternatives for patients to complain and claim compensation in Finland is displayed in Figure 2. The assessment of patient injury is focused on the case itself, and the health care personnel concerned would not be accused or sued whenever a patient injury has been recognized, as per the no-guilt principle which is well accepted in Finland (Hirvensalo, 2006). The criterion for reimbursement is that there has to be an empirically documented harm to the patient due to a diagnostic or treatment procedure. Patient insurance covers the following costs: 1) medical treatment expenses, 2) other necessary expenses caused by the injury, 3) loss of income on maintenance, 4) pain and suffering, 5) permanent functional defect, and 6) permanent cosmetic injuries (Hirvensalo, 2006). If needed, patients can still sue the medical personnel involved, but these cases would be managed by the Patient Insurance Centre and not by the medical personnel directly. In effect, the total number of trials against medical units or personnel in Finland have reduced significantly after embracing the Patient Insurance Act (Hirvensalo, 2006).

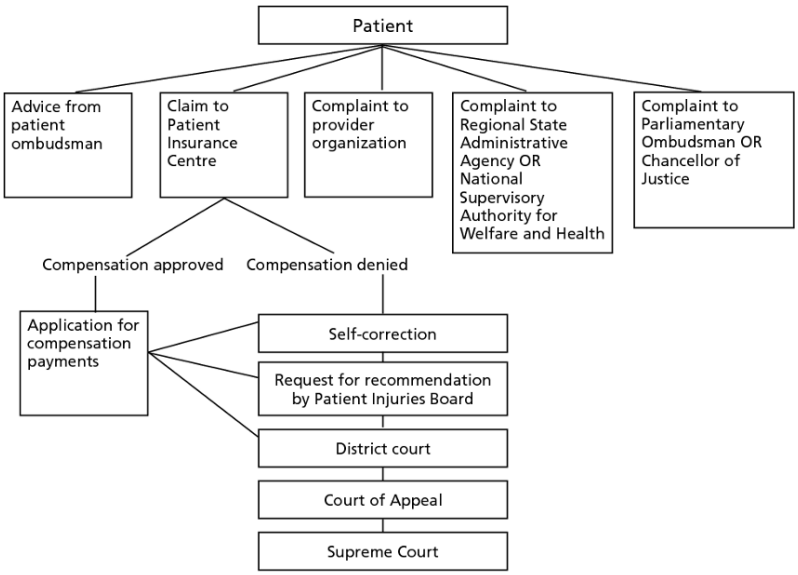

Figure 2: Main alternatives for patients to complain and claim compensation in Finland. Source: Järvelin J. Studies on filed and compensated claims for patient injuries. University of Helsinki. Juvenes Print – Finnish University Print Ltd Tampere, Finland 2012

In France, the Act of 2002 (Kouchner Act) was introduced intending to expand the conditions for compensation of medical accidents, considering the welfare of patients and the apprehensions of doctors (Thouvenin, 2011). The Kouchner Act created three key originations. Initially, it merges the liability rules for medical accidents without changing them. Next, it created a new right to compensation by the National Office for Compensation for Medical Accidents for certain intrinsic therapeutic risks. Finally, it created a new process for settlement via three newly established bodies (Thouvenin, 2011). The claims process in the French Kouchner Act is illustrated in Figure 3.

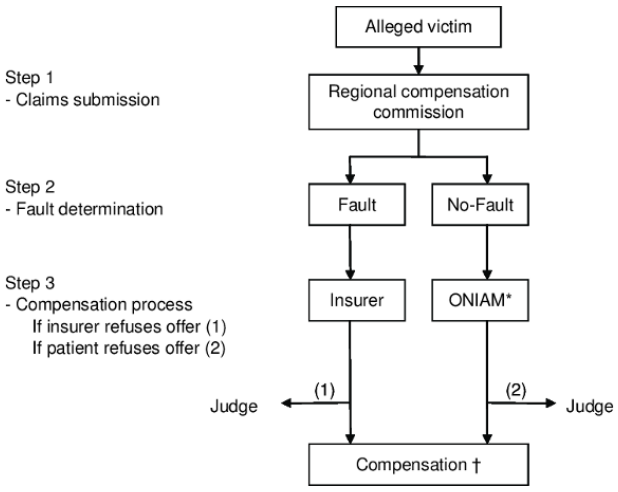

Figure 3: Compensation process in the medical malpractice system in France. *ONIAM (Office National d'Indemnisation des Accidents Médicaux) takes responsibility for no-fault payments. †If injuries have resulted in invalidity ≥25%. Source: Najaf-Zadeh, A., Dubos, F., Pruvost, I., Bons-Letouzey, C., Amalberti, R., & Martinot, A. (2011). Epidemiology and aetiology of paediatric malpractice claims in France. Archives of disease in childhood, 96(2), 127-130.

In the USA, most States maintain the classic tort system based on fault for most medically negligent acts. Nonetheless, we can find no-fault solutions in the states of Virginia and Florida for specific conditions like neurological injuries related to childbirth, where the compensation is provided when the birth occurred in a hospital enrolled in the program, and the attending physician is also part of the program (Raposo, 2016). These specific situations were selected for reimbursement under the no-fault model because the rate of success of a prerogative for damages in court is extremely likely. Besides, the compensation is expected to be exorbitant. Similarly, a no-fault scheme was implemented at the national level in the name of the National Vaccine Injury Compensation Program (Raposo, 2016) for all vaccine-related injuries.

Proposed Maldivian Model

According to Raposo (2016), to practically implement a no-fault system, two criteria should be fulfilled. Firstly, a robust social security system must be present, since the patient compensation model is necessarily a subsidiary part concerning that system which turns out to insure most of the expenses. Secondly, a group of health care providers that can maintain a high standard of conduct consistent with acceptable medical practices regardless of the threat of the civil penalty.

Maldives have a flexible and developing social security system called The National Social Protection Agency (NSPA), established under the National Social Health Insurance Act. It is mandated to manage the National Social Health Insurance Scheme and by an executive order under the same act authorized to operate social protection programs identified by the government of Maldives. NSPA is also an accountable agency to regulate and conduct Social Protection programs under the Social Protection Act. Additionally, the Maldives has a young and enthusiastic group of health care providers that could maintain a high standard of medical care, as per the guidance of Good Medical Practice guidelines issued by the Maldives Medical and Dental Council.

At present, all the major hospitals in the Maldives have a Patient Safety Committee which overlooks the medical errors and medical mishaps that occur during the hospital stay. The system was developed to improve the system in the institution so that patient care can be perfected. It has been observed in the patient safety programs implemented in other countries that irrespective of health care utilization, most patients want full disclosure of medical error and demand to be informed

of the error immediately upon its detection (Fallowfield & Fleissig 2004). Additionally, they do support the reporting of errors to government agencies and hospital committees focused on patient safety (Hobgood, 2002).

The Maldives' national social health insurance scheme (Aasandha) was established to cover all Maldivians' medical needs for free. Before the introduction of Aasandha in 2012, the out of pocket expenditure was more than 46% of the total health expenditure (Ministry of Health, 2013). The introduction of Husnuvaa Aasandha had significantly declined the out-of-pocket expenditure (WHO, 2017). In 2016, the out-of-pocket expenditures on healthcare in the Maldives were estimated at 19.1 % (World Bank, 2016).

Healthcare expenditure is an economic constraint for the government. Healthcare spending per capita of the Maldives amplified from 236 US dollars in 2003 to 1,007 US dollars in 2017, rising at an average annual rate of 12.30%. The amended expenditure in 2018 for Aasandha and subsidies total to MVR 2,864.4 million, 43.8% higher than initial budget allocations (Ministry of Finance, 2019).

Aasandha is governed by law by the National Social Protection Agency (NSPA). Apart from the Social Insurance scheme, NSPA is also mandated to run the Medical Welfare Program and Disability Program, among other social protection programs. NSPA is proposed to be the main body for the implementation of the no-fault system as it is the leading agency regulating social insurance schemes in the Maldives.

Three councils were established under Healthcare professional act (13/2015). Maldives medical and dental council (MMDC) were established under section 29 0f the act. Maldives nursing and midwifery council established under section 35 of the act and Maldives allied health council established under section 41 of the act. These councils has the power to form investigation committees. Under Section (i) of the Healthcare Professional Act MMDC has the powers to investigates and take action against medical practitioners and dental practitioner for act of malpractices that contradicts the established professional and ethical standards.The Maldives Medical and Dental Council is further mandated to approve professional competence requirements as a crucial part of safeguarding the maintenance of professional and ethical standards for all registered medical practitioners in the Maldives. It runs under the guardianship of the Minister of Health.

The Ministry of Health is mandated to oversee the quality assurance of all health care institutions in the Maldives. The Quality Assurance and Regulatory Division of the Ministry of Health looks after the quality of the health care institutions in the Maldives and assures the competency of caregivers. It is the second point of investigation in case of medical error or negligence in a hospital or health centre.

The procedure, patients' complaints, and those issues submitted for review by the healthcare workers would be processed by the respective patient safety and quality assurance team of the institution (PSQA). If a medical error is detected, this would be notified to the patient, and a respective settlement would be made, including compensation. If any consequent treatment is required, it would be informed to Aasandha and would be fully covered by the social insurance scheme. The compensatory amount, in

most cases, would be a predetermined amount for various injuries. The amount to be compensated would be informed to the NSPA team, and the compensation settlement would be done by NSPA.

If the compensation afforded by the respective patient safety and quality assurance team of the institution is not accepted, the patient has the right to ask the NSPA team to further investigate the case. NSPA team comprises medical specialists and lawyers, who have legal powers to investigate a complaint. For example, when interviewing the patient or when acquiring medical records. Those who are still not satisfied by the compensation afforded by the NSPA team may choose arbitration or resort to a judicial court.

If the patient accepts any of the compensation, they then cannot resort to judicial procedure. As such, constitutional issues may be raised due to the fact that the patient loses their choice to take legal action and thus their access to courts. This matter is suggested to be resolved via the respective laws of the state.

The following respective agencies are suggested to cover specific costs for the patient:

1) medical treatment expenses to be covered by Aasandha Scheme

2) other necessary expenses caused by the injury to be covered by NSPA

3) loss of income on maintenance to be covered by NSPA

4) pain and suffering to be covered by NSPA

5) permanent functional defect to be covered by NSPA and

6) permanent cosmetic injuries to be covered by NSPA. The proposed compensatory model for the Maldives is depicted in Figure 4

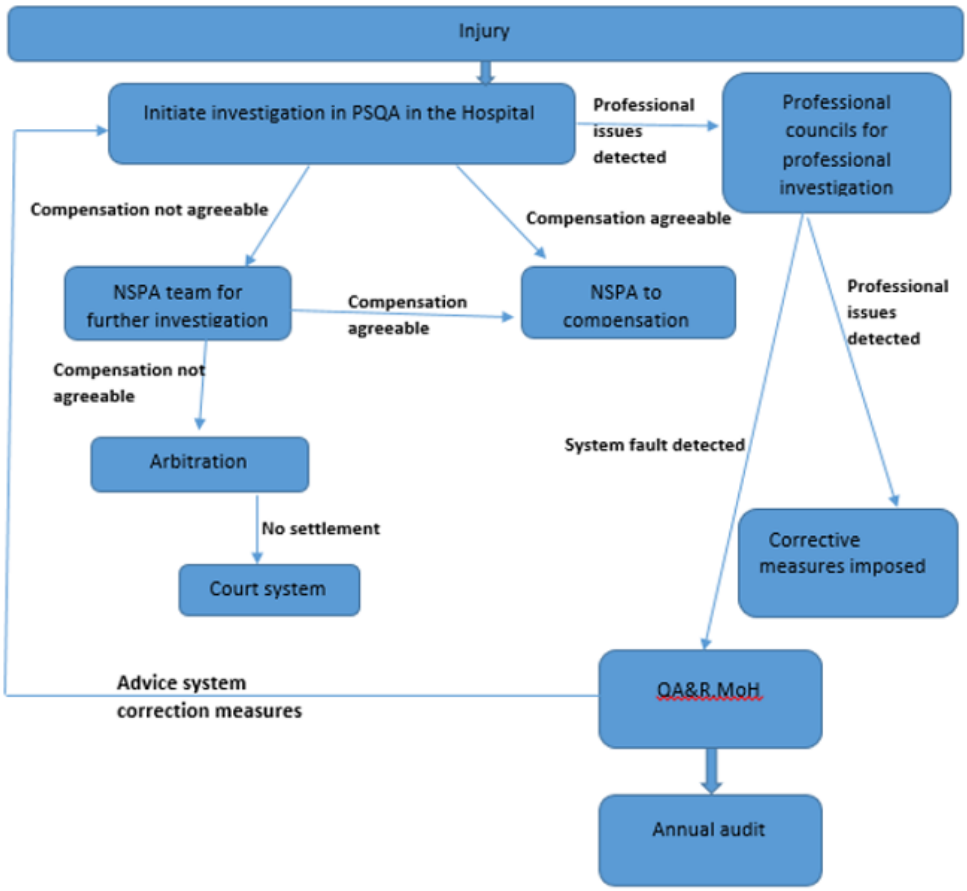

Figure 4: Integrated System approach for compensation for the Maldives

If needed, patients can still sue the medical personnel involved. However, these cases would be managed by the NSPA team and not by the medical personnel directly. Before going to the court system, an arbitration process would be conducted to avoid litigation. This arbitration process is expected further to decrease the chance of medical negligence litigation cases, as seen in the Finnish model (Hirvensalo, 2006).

It has to be highlighted that the bodies that examine applications for compensation; that is, the patient safety and quality assurance team, and the NSPA team do not deal with system issues. If the teams identify any wrongdoing by the medical personnel involved, the matter would be informed to the respective professional councils, in writing, for investigation and further action. The investigation by the professional body would solely be for system improvement and not for punishment. These professional organizations are the Maldives Medical and Dental Council, Maldives Nursing Council, and Maldives Allied Health Sciences Council. These councils would investigate the case and take appropriate steps to prevent further events. These councils also may, in an exceptional case, take any disciplinary action against the medical personnel if required.

After the investigation, if there are any system changes needed for the prevention of further errors, these recommendations would be informed to the Quality Assurance and Regulatory Division of the Ministry of Health, which in turn notify the respective health care institution to take the system changes. If any of these changes are needed in other institutions to prevent medical errors, it would be communicated to other institutions as well. An annual audit of all the cases seen by the hospital patient safety and quality assurance team would be done by the Quality Assurance and Regulatory Division of the Ministry of Health.

Conclusion

Compared to contract and tort litigation, no-fault systems appear to result in more quick, fair, and reliable compensation to injured patients (Dute, 2003). They operate independently of courts, and proof of negligence is not mandatory. Enablement of blame-free reporting and evaluation of medical errors by healthcare providers is considered their most

convincing benefit of such a system (Watson, & Kottenhagen, 2017). In the model suggested, I have proposed a system where the established agencies, councils, and departments can be utilized efficiently to initiate a no-fault compensation mechanism in the Maldives. The exact nature of this system, its governance, and controls to minimize waste and fraud need meticulous and ongoing attention. Providentially, these are subjects about which we can acquire the know-how from other countries.

With the growing emphasis on patient safety in health care institutions and the need to motivate doctors to report adverse events and "near misses" and the recent cases of medical negligence moving towards a tort system, the time is indisputably ripe to instigate a no-fault system in the Maldives.

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About the Author

Dr. Ibrahim Yasir Ahmed is a highly skilled medical doctor specialized in Internal Medicine with experience in health care and administration with core skills in Hospital Administration, Health Administration and Health system development.

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He represented Maldives in the World Health Assembly from 2009 to 2011 and was actively involved in the development of the health system during the early years of the democracy. He was the focal point of the International Health Regulation in the Maldives from 2009 to 2011, and was a member of the National Pandemic Influenza Planning committee and a member of National Committee on International Health Regulation.

After his retirement from the Government Health Services in 2011, he served as a member of Commission of National Inquiry established to make an independent and impartial investigation into developments in the Maldives from 14 January 2012 to 8 February 2012. He was also a member of Special Awards committee from 2014 to 2017. He also involves in facilitation of various workshops including the development of Health Master Plan 2016 to 2025.

His publications include an article on Bioterrorism to the Post Graduate Medical Journal, Nepal and a publication on the Pre-Hospital and Disaster Medicine Journal on National Health Perspectives on Tsunami Crisis.

He is at present the Medical Director and the Senior Consultant in Internal Medicine at Medica Hospital, a private medical establishment in Male', Maldives.

The dangers of Groupthink, and how it may pose far reaching negative consequences when fighting a pandemic

Ibrahim Athif Shakoor

Groupthink is a social phenomenon that afflicts all manner of groups, large and small, business, social or otherwise. When Groupthink sets in within a group, the group holds itself rigid and unbending and unable to brook any opposition to its conclusions and any opinions to the contrary are rejected and ridiculed.

This article sets to explore the dangers of Groupthink when fighting a global pandemic and how the effects can hurt and injure a population because of the many ways in which Groupthink manifests itself.

What is Groupthink and how does it manifests itself

In 1972 American Social Psychologist Irving L. Janis coined the term Groupthink to refer to the phenomenon, mostly psychological, where people working within a group strive for consensus, by ignoring or denying their thoughts and opinions to the contrary, adopting the perceived opinions of the rest of the group while muting their opinions for fear of disrupting group dynamics.

Janis's classic original study published in 1972 titled 'Victims of Groupthink: A Psychological Study of Foreign-Policy Decision and Fiascoes', went onto demonstrate the horrific effect of Groupthink that led to major world disrupting events like the failure to anticipate the Japanese attack on Pearl Harbor (1941) leading to World War 11; the Bay of Pigs Invasion fiasco, financed and directed by the US which landed 1,500 Cuban on the south western Coast of Cuba in 1961; and the prosecution of the Vietnam War by the then President Johnson with an estimated cost more that 843 billion US $, the lives of more than 50,000 US solders, 2 million deaths in Vietnam and a war effort that dragged on for 3 years from 1964 to 1967.

There has been many published and verified incidents of Groupthink leading groups of people to take decisions which none would have taken individually. One of the best and most common is 'The Abilene paradox' introduced by Jerry B, Harvey in 1974. In Harvery's, today famously known and often cited example, a family takes a miserable car trip during a hot summer day even though none of them, individually wanted to go. It highlights how easily Groupthink can set in and lead to faulty and miserable decisions within a small family group.

Perhaps of most significance and important to note is that the phenomenon of Groupthink is today identified as being and evident in all sorts of Groups ranging from small family units, to small and large business groups as well as within social

settings and informal groupings. It is today a commonly known and understood phenomenon and is extensively taught in managerial, administrative and similar courses across universities and colleges in all parts of the world.

in 2010 James Montier published a book titled 'The little book of Behavioral Investing: How to be your own worst enemy' in which he outlined the following 8 easily identified symptoms of Groupthink.

Illusions of invulnerability that leads members of the group to be overly optimistic and engage in risk-taking.

Unquestioned beliefs lead members to ignore possible moral problems and ignore the consequences of individual and group actions.

Rationalizing prevents members from reconsidering their beliefs and causes them to ignore warning signs.

Stereotyping leads members of the in-group to ignore or even demonize out-group members who may oppose or challenge the group's ideas.

Self-censorship causes people who might have doubts to hide their fears or misgivings.

"Mindguards" act as self-appointed censors to hide problematic information from the group.

Illusions of unanimity lead members to believe that everyone is in agreement and feels the same way.

Direct pressure to conform is often placed on members who pose questions, and those who question the group are often seen as disloyal or traitorous.

Montier, 2010

Groupthink pave the dynamics to allow the most outspoken, often the most extrovert person to take over the group and silent the most knowledgeable and the most experienced especially if they are introverts. Once Groupthink is cemented, unanimity is assumed and never questioned. There's pressure to confirm and members feel infallible. Of special concern is that once group dynamics set in, the voice and the opinions of outsiders, regardless of how educated and knowledgeable external commentators may be, are not only effectively ignored but also roundly rejected

How does one avoid the dangers of Groupthink? By making sure that there is a rigorous regime which allows for outside comments and criticism. By making sure the group is diverse and encouraged to question and comment. By encouraging others, including the media to play its relevant role in probing and questioning the consensus from within. To let it be known to the group, that their determinations will not only be questioned and criticized but will also be peer tested and that the group should stand ready to face and defend their decisions.

As the world came to grips with Covid-19 pandemic, public health officials, led the fight against the pandemic, offering

recommendations to the state and in fact leading and deciding on the strategies and tactics to delay, combat and eliminate the virus.

Groupthink and the public fights against Covid-19

Here in the Maldives, the fight was led by the National Emergency Operations Centre (NEOC) a multisector set-up bringing in the top officials from all relevant state institutions.

We shall pause here and applaud the tireless and heroic effort of the front-line workers, the doctors, the nurses, the lab technicians, and the paramedics among others. The physical fatigue and emotional distress they are subject to for months on end, and thank them for their effort.

However, the effect of Groupthink soon started to manifest itself and became evident in the way the authorities acted and reacted. The group of professionals spoke as if with one voice and brooked no second opinions or afterthought. Well meant, advice, guidance and suggestions from experienced senior physicians and public health experts were firstly ignored, then derided including in social media.

We shall refrain from offering personal and graphic details of the unnecessary and avoidable pain, hurt and misery inflicted upon families as authorities failed to be flexible and cautious in their approach. However, the consequences of the protocols laid down by the authorities in dealing with the situation led to heartache, anguish and finally grief from loss of loved ones. The many instances of miscommunication, mismanagement, and misconceived allegiance to a written set of rigid protocols that brooked no deviation, inflicted much injury and led to indignant anger.

Protocols issued by authorities locked people in cramped circumstances with inadequate ventilation with unsatisfactory access to nutrition. Mothers, babies and small family units were separated. Requests leading to urgent appeals to seek access to urgent medical attention, at times, did not receive the care and attention they deserved, with extreme unfortunate circumstances. Limited staff and resources were used to isolate a group of otherwise healthy 30-40 year olds, while some of the most vulnerable in the community, were, for use of a better word mislaid.

This was a pandemic like no other. Nobody had a perfect rule book. The rulebook was being written as authorities throughout the world lived and learnt. But this is precisely why, rigidity in approach and inelasticity in practice was so very critical at this juncture. Yet, serious concerns raised by many a commentator and experienced professionals were ignored and rejected.

Groupthink relating to a family car trip with unhappy consequences is, of course not something to be ignored. But Groupthink, when a country is fighting a widespread and dangerous pandemic, while there is no rulebook, is of a totally different dimension.

All this is in no way to demean the effort of the authorities. There is no doubting that they did the best they could. But this is an attempt, to raise the awareness of the dangers of Groupthink to the forefront. To help individuals, institutions, ngo's and finally for the state to be aware of, first the prevalence of this animal called Groupthink and then raise the awareness of the dangers of the beast. That regardless of the objective or the type of people involved, the beast of Groupthink is bound to rear its head with unfortunate consequences whenever groups come together. That the dangers of Groupthink, can be that much more dire and of greater consequence when we are facing a national public hazard. Not just to know about the dangers of Groupthink, but also to learn of the critical importance in taking preemptive steps to prevent it or to reduce its impact.

The age of seers and prophets have left us by. There's no one person, or any one group who knows and will know the absolute perfect path. While professionals will do it better, they too, need to be aware of the dangers of Groupthink, and be willing and ready to organize to stand up for critical scrutiny,- the scrutiny of other qualified and experienced medical and health care professionals. They must be ready to receive and respond to criticism and comments not only from their colleagues but also from the media and other well-meaning professionals from other fields of study.

We can be mighty sure, that this will not be the last pandemic that we will be fighting. Even if it is not a pandemic, there will be other incidents of national concern; that will require concerted national effort.

Let us make sure, that next time around, the public and the policy makers alike, have heard of the term Groupthink and will take adequate remedy to make sure that national responses are not blighted by the dangers of Groupthink no longer.

Revitalising the public health system in Maldives to sustain health gains and meet future challenges

Dr. Ahmed Jamsheed Mohamed

Maldives has made impressive progress in the health sector over the past few decades. Life expectancy at birth has increased from 40.6 years and 40.4 years in 1965 to 77.2 years and 80.5 years in 2018 for males and females, respectively.1 The under-5 mortality rate decreased from 85.8 per 1000 live births in 1990 to 8.6 per 1000 live births in 2018.2 A joint United Nations (UN) report notes that the maternal mortality ratio (MMR) in Maldives decreased from 677 maternal deaths per 100 000 live births in 1990 to 68 in 2015, a striking 90% reduction, the highest seen globally in this period.3 With 100% skilled birth attendance, the MMR stood at 53 per 100 000 live births in 2017.4

Maldives has been an early achiever in eliminating communicable diseases; it became polio free in 1980; eliminated maternal and neonatal tetanus before the year 2000; has been free from indigenous malaria since 1984 and received malaria-free certification in 2015.5,6,7 Maldives eliminated lymphatic filariasis in 2016; measles in 2017; mother-to-child transmission of HIV and syphilis in 2019; and rubella in 2020.8,9,10,11 Several communicable and/or vaccine-preventable diseases like scabies, soil-transmitted helminthiases, whooping cough and mumps that were once rampant are now rarely, if ever, seen. Maldives has been at the forefront of the regional success in eliminating diseases and led the Region in most of these achievements. These success stories are the fruits of long-term investments in public health.

Public health outcomes take time. If clinical medicine is like a sprint, public health is a marathon, or a long-distance triathlon. These achievements are the results of decades of unwavering efforts, with consistent focus on public health and progressive investments. Each success story has a long history of learning and unlearning, building on from the lessons learned, making course corrections on aspects that did not work, and reinforcing those that worked well in specific islands, atolls or in a much broader national context. Here, I look at some of the key contributors and drivers of public health success, highlight some of the current and future challenges, and discuss further strengthening of the public health system in Maldives.

Human resource development

A new chapter in the health service of the Maldives started with the health assistant training programme that began in 1960 and foolhumain (midwife) training that began two years later.12 With these humble beginnings, the country went on to train hundreds of community health workers (CHWs) and family health workers (FHWs), who along with the foolhumain became the “foot soldiers” and bedrock of public health service delivery in Maldives. This enabled expansion of health services to all inhabited islands through a highly decentralized service delivery model. Training programmes for FHWs and foolhumain were later discontinued but

continued for CHWs, with gradual improvement in the standard of education and need-based changes in the scope of training. As the number of CHWs completing training and joining service increased, the government was able to expand services in health centres and health posts on the islands, leading to the provision of basic medical and surgical care, and public health services on every inhabited island. The CHWs played a dual role of providing health centre-based medical treatment and community-based public health services. In islands without health centres, FHWs worked in island offices under the guidance and support of Island Chiefs. The early CHWs along with FHWs and foolhumain worked in some of the most challenging circumstances, pioneering public health in Maldives, while also providing basic medical and surgical treatments.

The Maldives of the 1960s and 1970s saw a high prevalence of infectious diseases such as malaria, leprosy, tuberculosis; vaccine-preventable diseases such as polio, mumps, whooping cough; parasitic diseases such as filariasis and intestinal worms; protein–energy malnutrition, among others. The early CHWs had the herculean task of defeating these age-old scourges in some of the most challenging environments. With no modern amenities such as electricity, mechanized transport and often with no dedicated structure, their services were provided wherever they were called for. They played a crucial role in the first public health programmes in Maldives such as filariasis, malaria and leprosy control programmes, and were behind the success in controlling and eliminating multiple diseases. Vaccination began in 1962 with the introduction of the diphtheria–pertussis–tetanus (DPT) vaccine, and the subsequent launching of the Expanded Programme on Immunization (EPI) in 197612,13 was one of most successful public health interventions where CHWs and FHWs played a crucial role from the initial days till now. At a time when electricity was not available on most islands, maintaining the cold chain of the vaccines using solar-powered refrigerators, carrying vaccine boxes filled with ice on the shoulders while travelling by sail and paddle, getting into islands with no harbour to provide outreach immunization programmes, managing the cholera epidemic of 1977–1978 or the shigella epidemic of 1982, attending to complicated deliveries to save mothers and children or other medical emergencies are but a few of the heroic efforts that the younger generation may not fully comprehend or be aware of. Nonetheless, it is the dedication, passion and hard work of these outstanding public health heroes that enabled us to live in a society with some of the best health indicators in the Region, where maternal and infant mortality is among the lowest, where people live much longer and where we no longer see many infectious diseases that are still highly prevalent in most of our neighbouring countries.

The contribution and ingenuity of CHW deserves a special mention in the management of cholera and shigella outbreaks in Maldives. Cholera was first reported from L. Maamendhoo towards the end of 1977, by the lone CHW in the entire atoll. The high degree of suspicion and clinical acumen he had for a disease that he has never seen or treated, but only learned theoretically during the training is praiseworthy. This was part of the 7th cholera pandemic that began in Indonesia in 1961, possibly introduced to Maamendhoo through a foreign fish collector vessel operating in the atoll.

The Maldives of 1977 was not only limited by poor health infrastructure and lack of trained health professionals. Extremely scarce therapeutics including IV fluids were limited to few islands, oral rehydration salt (ORS) was not introduced yet, and water treatment option was limited to small stocks of chlorine available in islands with health centres. It was also a time when hygiene and sanitation was poor; knowledge and understanding of feco-oral transmission of diseases and its prevention was low and; superstitious beliefs, fear and apprehension were common, with widespread practice of fanditha and mystical practices. All of these were challenges that had to be overcome to control cholera.

After declaration of a national emergency, the response at central level was led by the President through a national operation centre, adopting a whole-of-government approach and medical supplies to the islands was significantly increased. However, the epidemic management in the islands was almost entirely by CHWs. This includes providing treatment; advising on oral hydration with locally prepared rehydration drinks for those with mild to moderate dehydration; admitting patients with severe dehydration in makeshift hospitals, administering IV fluids to tens of patients and monitoring them, often by a single CHW; and community awareness to change knowledge, attitude and behaviour of people; etc. Management and control of the epidemic was made possible with a strong support and participation of the community and island/atoll chiefs who not only assisted in management of the sick but also on logistics and disease prevention and fully complied with the advice given by CHWs.

By the time the outbreak was controlled in about six months, the disease was spread to all atolls except Vaavu Atoll, affecting 11,303 people and death of 252 from 119 islands. However, the causative organism, Vibrio cholerae was seen in the investigations done during 1982 shigella outbreak as well.

The 1982 shigella affected 13,752 people with 197 death. Management of shigella outbreak was very similar in many ways, except for that fact that the country was better prepared form the cholera experience and had better infrastructure and human resource capacity.

Public health infrastructure

The year 196412 marked the beginning of making health services accessible to those who lived on the islands with the opening of a health centre in Lh. Naifaru. 1982 marked another major milestone in the investments made in health services at the atoll/island level with the opening of a modern health centre in Vaavu Atoll (with the assistance of the United Nations Capital Assistance Fund).12 It commenced with the construction of a new generation of health centres with modern facilities and inpatient wards, as well as the opening of the first atoll hospital in Kulhudhuffushi with the assistance of the United Nations Children's Fund (UNICEF).12

Every successive government continued with this important investment, building health centres in every inhabited island and upgrading the facilities and services and opening Regional and Atoll Hospitals. The health centres and hospitals in the atolls have a dual function of providing medical services and hospital-/community-based public health services.

Outreach health service

A dispersed geography with small populations scattered over a large area

poses several hurdles in providing health services. One of the solutions adopted to overcome this challenge and provide access to services that were lacking on the islands was the outreach health service. Maldives has a long history of providing outreach health services starting with a health boat, "Golden Ray", donated by the British Government in 1961.12 This boat had facilities such as a consultation room, dispensary and a small operation theatre. Subsequent additions included the introduction of an atoll health launch and health dhoni in 1970s, and two boats, Aljamaahiriyya and Alfaatih, donated by the Libyan government in 1980.12 These vessels played a crucial role in providing medical and public health services to the islands through outreach programmes, and later in conducting medical evacuations during emergencies.

Outreach public health services with mobile health teams started biannually to the north and south in 1985. They focused on health promotion based on primary health care (PHC) principles.12 Based on this experience, outreach work was decentralized, and the frequency increased to a quarterly basis. These teams provided a range of public health services, including immunization, maternal and child health services, infectious disease control, health awareness, nutrition and vector control.12

Health awareness and community empowerment

One of the important tasks carried out by CHWs, FHWs and foolhumain was providing a range of health information to the communities to improve their knowledge and understanding of disease transmission, prevention of infectious diseases, hygiene and sanitation, nutrition, and many other aspects of health. This, along with special programmes via radio and other means, was aimed at building a more informed and empowered community that would be equipped to prevent and protect itself from prevalent diseases and adopt healthier behaviours.

Home visits

Regular home visits by FHWs and foolhumain and CHWs were important in many aspects. The tasks undertaken by them during these visits ranged from antenatal and postnatal check-ups, breastfeeding guidance, food preparation and nutrition guidance, active case-finding for important infectious diseases, directly observed treatment for diseases like TB, checking on immunization status and looking for missed doses, safe water, sanitation, vector control, and looking for hygiene practices and many other behavioural changes. Educating mothers on reducing maternal and child mortality was a top priority at these visits and contributed immensely to its success. It also helped to build trust and a strong rapport between the people and health workers and strengthened the overall public health intelligence.

Water and sanitation

The habit of open defecation, usually on the beach or in the woods started changing in the early 1970s, moving to a private household concept of gifili,12 which, however, was associated with high contamination of the shallow water table, posing additional health risks, especially because of the proximity of the water well to the defecating area. To overcome this, the government started a community toilet project on the islands in the mid-1970s, which faced a range of problems, including poor maintenance and underutilization, and resulted in contributing to pollution in a major way.14 However, the knowledge and attitude of

the people towards using toilets improved and a survey in 1985 showed that 97% of the people preferred a toilet to open defecation on the beach or using gifili, and 78% wanted to build their own toilet.14 This was a significant difference in Maldives in such early days, perhaps as a result of the efforts of health workers in educating and empowering communities, while many neighbouring countries are still struggling to change people's attitude towards the use of toilets and eliminate open defecation. 1992 marks the beginning of sewerage projects on the islands,12 which subsequently led to a phase-out of individual septic tank systems on many islands. A community water storage tank project for rainwater harvesting on the islands began in 1974 and led to a household PVC water storage tank project in 1990. These were major investments that contributed to the marked improvements in sanitation and hygiene as well as access to safe water in the Maldives, where 98% of the households now have flush toilets and access to an improved source of drinking water.12 Installation of modern sewerage system by gradual removal of septic tank based systems and upgrading older generation sewage systems still continues, and is a costly venture due to the dispersed nature of Maldivian islands. Nonetheless, it is a necessary investment for the health and wellbeing of the people, that contributed immensely to the elimination of polio, keeping Maldives free from cholera and shigella, and disappearance of intestinal helminth (worm) infestation with overall improvement of child nutrition, growth and cognitive development.

Focus on primary health care (PHC)

The Alma-Ata Declaration of 1978 was a defining moment in the field of public health globally. It addresses issues of health determinant and equity, broadening the concept of healthcare beyond doctors and hospitals. Unlike the common misconception of defining PCH as primary care, equating with primary education, PHC is applicable to all levels of health service, adapted to meet the needs of individual people and communities through a lifespan approach to attain the highest possible standard of health. Maldives was quick to adopt the concept of PHC as the foundation to attain "health for all" and, in 1980, developed the first multi-year health sector plan based on the principles of the PHC approach adopted at Alma Ata.16 This was followed by a national survey in 1983 to assess the health situation and evaluate the extent of implementation of PHC in the country, to inform course correction and future planning.17 Much of the public health success seen in the Maldives could be attributed to the effective public health interventions under PHC principles.

Health information and public health surveillance

From the very early days, meticulous record-keeping was given high priority, which eventually resulted in a strong public health surveillance system. This is an essential component of a strong public health system and a requirement for successful elimination of diseases. The credit goes to the generations of community health workers for the work they did in this regard. They could remember important health conditions of every individual on their islands, and the records they maintained was a vital component of independent verification and validation of all diseases that have been eliminated in the Maldives. The surveillance system evolved with time and

currently is almost entirely on digital platforms.

Enabling environment

There were several additional factors that immensely contributed to the public health success in Maldives. This included strong political commitment; economic development, especially after the introduction of tourism; improvement in education, social conditions and nutrition; forging strong partnerships, including with UN agencies like WHO, UNICEF and United Nations Population Fund (UNFPA), and several other international organizations; and socio-political stability. The Islamic values of the society, like mutual respect, social cohesion and cleanliness, was also a contributory factor. Community ownership with active participation of the public and community-based organizations in all public health initiatives was a remarkable feature, and key to the success achieved.

Current and future challenges

Risk of re-emergence of eliminated diseases

Though the achievement of Maldives in eliminating and controlling infectious diseases is truly remarkable, sustaining these successes is no simple feat. Any of the eliminated diseases, except for smallpox, which has been eradicated globally, could re-emerge if we become complacent. The re-emergence of scrub typhus in Maldives in 2002, after almost 58 years of the last reported case,18 is a classic example. It was the similar clinical presentation of the initial few patients from the same island that led to the suspicion of an outbreak of an "unknown" and urgent expert help was sought from abroad. Sadly, by the time the investigation determined the disease and causative agent, several patients were lost. A strong surveillance system and constant vigilance must be maintained to look for any sign of resurgence of all infectious diseases that have been either eliminated or kept under control. Diseases such as malaria, measles and filariasis that have been eliminated in the Maldives, and others such as leprosy and tuberculosis that are on the verge of elimination are still endemic in most of the neighbouring countries and could easily be imported and locally transmitted if we become complacent. Equally important is maintaining the high immunization coverage to sustain the elimination and control of vaccine-preventable diseases. Increase in the percentage of children who did not receive any vaccination from 1% in 2009 to 8% in 2016–2017 and a drop in basic vaccination coverage (% of children age 12–23 months receiving all basic vaccinations) from 93% to 77% during the same period15 is a cause for concern and may pose formidable challenges, seriously undermining the success achieved in the battle against vaccine-preventable diseases.

Noncommunicable diseases

Noncommunicable diseases (NCDs) have emerged as the major cause of morbidity and mortality in the Maldives, accounting for 78% of the total disease burden and 84% of all deaths.19,20 The NCD risk factor survey conducted among people living in Male' in 2011 shows that 45.9% (39.1% of men and 52.4% of women) engage in low levels of physical activity, and 37.1% (32.0% of men and 42.3% of women) were overweight (BMI ≥25 kg/m2).21 The 2016–2017 demographic and health survey shows that 42% of men and 3% of women in Maldives are smokers.15 These factors, along with a low intake of fruits and vegetables and high intake of

salt and saturated fats, are all high-risk factors for all major NCDs.19

Health of migrants

The health of migrants, especially unskilled workers who live on the fringes of the community, in congested living conditions with inadequate hygiene and sanitation, is as important to the health of the entire community as it is for the migrants themselves. The conditions they live in, the level of understanding many of them have on disease transmission and personal hygiene, and barriers to access to health care makes this segment of the community highly vulnerable to infectious diseases. Rubella cases seen among expatriates, high transmission noted among migrant workers in the 2020 measles outbreak and COVID-19 highlight some of these challenges.

Risk of epidemics and pandemics

Dengue has emerged as one of the most important communicable diseases in Maldives. The first outbreak of dengue in the Maldives was in 1988, though the disease was first reported in 1979.12 Like most of the tropical countries, for the past several years, Maldives has seen frequent outbreaks of dengue, leading to a large number of cases and deaths. Dengue is transmitted by Aedes mosquitoes, which also transmit several other diseases, including chikungunya, Zika virus disease and yellow fever. The 2006 chikungunya epidemic in the Indian Ocean reached Maldives in December 2006 and by the end of April 2007, a total of 11 879 cases were reported, affecting 61% of inhabited islands, with an attack rate of up to 72%.22 Maldives also reported sporadic cases of Zika virus infection, though there was no outbreak of this epidemic-prone infection with high morbidity, especially microcephaly.

Vector-borne diseases and zoonoses are the emerging infectious disease challenges that put every country in the world at risk. The 2009 H1N1 outbreak, Zika virus infection of 2015–2016, and the current COVID-19 pandemic due to SARS-CoV-2 are clear examples of the devastation epidemics and pandemics can bring to affected countries and the entire world.

Other important issues with public health implications

There are several other issues that have important public health implications, either in specific population groups or the general population, affecting communities at large. Some of these issues include mental health and psychosocial issues, substance abuse, road traffic accidents, occupational hazards, accidents at home, antimicrobial resistance, etc.

Discussion

The multiple health achievements highlighted in this paper are testimony to that fact that health has been a high priority in the Maldives over the past several decades. This is further evident by the high expenditure on health, which stood at 32.3% of the total government budget in 2017, the highest percentage allocated in the WHO South-East Asia Region.23 However, the current health system in Maldives is highly tilted towards hospital-based curative care, with only 5.5% of the health budget spent on public health or disease prevention.19 While curative care is important and a necessity, it contributes little to keep the population “healthy” and is a high-cost expenditure, especially in managing chronic NCDs. The ever-rising health costs nationally and globally of curative care will remain a huge burden on the economy, unless we increase public health investment and

focus on disease prevention to keep people healthy, rather than wait for people to get ill and then treat the sick. Various health achievements discussed in this paper were primarily achieved through public health interventions. While the high health expenditure in Maldives is commendable, the proportion of the budget spent on public health needs to be increased significantly, both to decrease the health-care spending in the medium to long term but, more importantly, to keep the population healthy and productive, as they could then contribute more efficiently to the social and economic development of the country.

In addition to a marked increase in public health expenditure, the public health system urgently requires a major reorganization and strengthening to sustain the achievements and meet current and future challenges. Urban public health needs special attention in the greater Male' area, bridging an important gap in public health service delivery. A medium- to long-term plan and a clear career pathway is crucial for training public health professionals to ensure that the required expertise and skills are in place. Recent experiences have identified the need for new responsibilities such as public health enforcement officers, field epidemiologists, contact tracers, etc. who would be critical to effectively managing future public health challenges.

Recreation of a strong grassroots public health workforce like the CHW/FHW/foolhumain model of the past but including a concept of public health volunteerism or back-up teams is required on every island. Such back-up teams could be mobilized for special interventions or used to provide surge support, as needed. A concept of regional public health hubs could strengthen local expertise and ensure evidence-based timely decisions, enabling faster responses when needed.

Addressing the social and commercial determinants of health, amending tax laws, changing trade policies and business regulations to create a conducive environment for healthier consumer options are important. Decongesting Male' and other similar islands to make them more liveable, creating space and promoting a physically active lifestyle are of prime importance to transform unhealthy lifestyles and improve the psychosocial well-being of the community. It is crucial to launch a massive nationwide movement of increasing public health literacy to better inform the public and achieve positive behavioural changes towards prevention and control of infectious diseases, NCDs and adopt healthier lifestyles.

It is vital to build a strong health intelligence system by adopting modern technology for effective public health surveillance, including entomological surveillance. This should be supported by a capable public health laboratory, and early warning systems and rapid response mechanisms to quickly detect emerging public health threats and effectively respond to them. Establishing a strong border health system to detect and promptly contain "imported" infections and minimize the risk of spread of infectious diseases through global travel and trade is important.

Revitalization of PHC is important not only in the public sector, but also engaging the private sector and NGOs. Some of them are the first responders and play an increasingly important role with immense potential to contribute to the health of the

nation. Special measures need to be taken to ensure that public health programmes, including immunization, active case-finding, and public health surveillance reach migrant workers, and fully cover them under universal health care to ensure that no one is left behind.

We are in the middle of a pandemic and evidence indicate that the world will be experiencing more frequent disease outbreaks and pandemics in the coming years. We need a strong public health system to meet these challenges. Investments on the fire brigade both with resources and training in peacetime would only enable them to save lives and property by swiftly extinguishing the fire in a burning building. Likewise, it is crucial that establish a well-funded, strong and resilient public health system in Male' and the islands to be able to respond to pandemics like COVID-19 more efficiently and effectively.

Being a highly literate and educated upper-middle-income country, Maldives is in a much stronger position to build an even stronger public health system than in the past and pass on the legacy of a robust and resilient public health system with a healthier community for future generations. However, several of the health determinants are outside the control of the health sector and require not only increase in public health investment but also a whole-of-government approach, with the highest level of political commitment, support of the legislature, and ensuring health in all policies.

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Telehealth and Telemedicine in Maldives Post Covid 19

Dr Abdul Azeez

Even while the National Health Scheme of Aasandha is a universal system accessible to all Maldivians, around 20% of Health Expenditure, (calculated at 13,966 per capita in 2017) is borne out of pocket. Telemedicine and telehealth has the potential to lower the out of pocket expenses and allow for patients across the geography of Maldives, to access the best health care professional without having to travel the seas and bear high transport and rental costs in addition to the cost of consultation.

Covid-19 global pandemic has, with all its unfortunate consequences, highlighted the potential and scope and depth of the use of telemedicine in all countries. This importance takes on additional significance in island nations like the Maldives.

What is Telemedicine

Telemedicine is, today, a commonly practiced mode of health care provision where the Health care provider and the client are at a distance and communicate electronically.

In today's socially distanced world we have moved from the more restrictive definition of Telemedicine to the concept of Telehealth; which is beyond telemedicine and involve, apart from the basic concept of Telemedicine to include remote electronic patient monitoring, post operative (surgical) monitoring, tele-education and teleconferencing . Telehealth have been used to keep doctors and other health professional informed across the length of the country from the beginning of Covid.

Covid -19 lockdown forced health care providers, both public and private, and patients to utilize telemedicine services with country wide use of Tele-consultations. Facing lockdowns and restricted movements private clinics and patients found that for many, Teleconsultations was not just the most convenient but at times the only option.

As an added benefit, many found that instead of having to travel to Male'; the capital for specialized consultations, much to their surprise, that they could now seek appointments while at home in the island and consult with specialists without having to undertake a dedicated journey to the capital. A journey, which for many were not only arduous and expensive, but the often-protracted forced stay in the capital, paying capital city rents, were an additional out of pocket health expenditure and a source of stress. Loss of regular earning of people like fishermen and farmers were an additional inconvenience and source of financial loss.

The benefit of teleconsultation was noticed and enjoyed not only by island-based folk but also by the inhabitants of greater Male' city too. Male' based clients, found that tele-consultations saves time and was more convenient. They no longer needed to struggle to walk the crowded and dirty and crowded city streets of Male'. Also the hassle of trying to get a taxi in Male is overcome. Additionally, they found that apart from commuting time, they were also saving time by not having to wait at the clinic until the appointment was up. Also

teleconsultation can be done while at office without taking leave thus increasing office productivity. Mothers looking after small children often find it difficult to visit as they need to leave the children with a relative or grand parents if they have to visit a hospital or the clinic .

For elderly patients with knee and hip-joint problems as well as heart and lung issues who often have to climb down multi-storey buildings, many without lifts, Teleconsultation was a source of great comfort and convenience.

A brief look at the History of telemedicine in the Maldives.

While globally, Telehealth and Telemedicine has been a rapidly growing multi-billion dollar business it has been slow to develop in Maldives .

Early in 2000s a telemedicine system to connect Addu Regional Hospital and Kulhudhuffushi Regional hospital to IGMH was tried with WHO support. However, for a variety of reasons the system did not function as anticipated. Some of major reasons include having to synchronize free and available timings for the patient and the doctor in Male'. Storing and forwarding data ahead of time, allowing greater flexibility of timing was also tried. But this too failed due to lack of coordination and delay.

Later, around 2004 a SAARC Telemedicine project was initiated and a few sessions including teaching ward-rounds and case discussions with major teaching hospitals were undertaken with doctors at IGMH and teaching hospitals in India. However, this project fell through after 2009, due a loss of focus from the Centre and the failure to appoint senior and committed professionals to manage and pursue the project.

In 2009 the Ministry of Health started a project worth 15 million USD with a grant from Abu Dhabi Red Crescent Society. It involved connecting 35 small health facilities to 3 major hospitals and training of health professionals. Each kiosk costed 100,000 USD. This project, again did not function well, because of a lack of strategic direction and focus and also because doctors at Regional Hospitals were not committed or motivated to seek advice or consult with specialists in Male'. Additionally the running costs especially the dedicated internet rental line were prohibitively expensive at that time.

In 2010 Dhiraagu donated a Telemedicne unit to G.Dh Thinadhoo at a cost of 155,000 USD. There were plans to expand to 3 more islands across the country. Again the equipment was not well utlised.

While there has been much effort and expenses to introduce telemedicine services in the islands, all attempts lacked sustainability and sustained focus. Even though dedicated internet lines, which was an essential requirement then, were a major obstacle, it is also to be said that shifting focus, doctors in the islands not cooperating as they should and commitment from the central authorities would have contributed to the failure.

Today, a lot of these expensive equipment have broken down and a lot effort have gone to waste.

Recently private medical facility in Addu Feydhoo AIIMS inaugurated a telemedicine service in partnership with Apollo hospital in India. The service is today, still in operation and is being used though it could be more popular if the charges could be reduced.

Future of telemedicine

For Telemedicine to be successful and make the best impact in a country there has to be three important systems in place.

Good network connectivity with an affordable cost .

Appropriate laws in place to protect data and patient confidentiality.

Provider payment system by private insurers or through AASANDHA.

In the past, connectivity to the islands was not strong enough and required special ISBN lines with very high monthly fees. Today with 4 G network and better communications platforms special lines are not required for the system to function.

Another problem was allocating time from a doctors schedule for teleconsultation because of busy routine daily hospital work. There was no mechanism to offer incentive for the extra work of teleconsultation. Therefore, doctors at the peripheral facilities found it not worthwhile to wait till a specialist is free in the referral hospital. However, with the restrictions of lockdown and travel restriction many patients found it convenient to Tele-consult specialists both in IGMH and other private hospitals and private clinics.

Finally, the Social Heath Insurance System of AASANDHA have started to accept and have allowed payments for Teleconsultation.

With the acceptance by Aasandha, the availability of better internet services and Social Media apps like Whatsapp and Viber have allowed Telemedicine to flourish and expand during the lockdown days of Covid 19.

Today's technology offer new convenient portable gadgets and small teleconsultation units which offers more satisfactory and reliable consultation. These units can monitor blood pressure, temperature, heart rate and listen to patient's heart and lung from a distance using digital stethoscopes. In addition an ECG can be also done and can be interpreted by a specialist in another island or in the same island without the patient having to move from home.

Such equipment are expected to be portable, compact and widely affordable in the short term allowing households to have such units at home, similar to having a fridge, TV or a microwave at home

Such equipment can allow round-the-clock Telemedicine Clinics operating in small islands to offer their services to the whole country. One could visualise 24 hrs teleconsultations clinics manned by national and international specialists. Patients in different islands can access the best of professional care in any part of the country. Today's Telemedicine capacity has the potential to expand and offer their services Internationally too, once the regulations and registration system are in place.

About the author

After graduating from Madras University India and gaining work experience Dr. Azeez joined Maldive health service in 1985.

He continued his training with a Diploma in Tropical Medicine and Hygiene at London School of Tropical Medicine and did post graduate training in Internal medicine and worked in NHS hospitals in UK.

Dr. Azeez served as Director General of Health Services from 2000 to 2008 during which period he worked with WHO and other International Health Agencies. He represented the country at WHO Executive Board member and Board member for Global Fund for HIV Aides and TB and Malaria. He also served as UN Joint staff pension board member and member for Commonwealth Health Advisory Board.

Dr Azeez have also had training in Diving and Hyperbaric Medicine and worked in prevention and management of diving accidents.

ISSN 2708-4787

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