



CHAPTER I

INTRODUCTION

1.1 Background

1.1.1 Standard and transmission-based precaution practice in tertiary and secondary health care settings of Maldives

Health care associated infection rate was unknown as such studies were scarce. Likewise, no studies were available regarding the level of compliance of infection control practices adhered by health care providers. According the Ministry of Health [MOH] (2006), 1% of health care facility adopts universal precaution. Based on this report the target achievement was that 85% of the health care facilities should adopt universal precaution by 2010 and above 95% by 2015. And, one of the policy goals stated in this health master plan was “to ensure that safe and supportive environments are in place to promote and protect health, and the well being of the people”.

Health care associated infection is a major public health problem. At any given time 1.4 million people worldwide are estimated to be suffering from an infection acquired in a health facility (Siegel, et al. 2007). Shaheen (2005) writes “Bacteraemia, pneumonias, urinary tract infections, line infections and surgical site infections are the major causes of morbidity and mortality”. She further states that

incidence of hospital acquired infection is expected at 5-10 percent in any health care setting. It has been estimated that the risk of health care-associated infection is 2 to 20 times higher in developing countries compared to developed countries and 5% and 10% of patients admitted to hospitals in developed countries acquire these infections (WHO, 2008).

The first Global Patient Safety challenge emerged in the name of 'Clean Care is Safer Care'. The Inauguration of this campaign was held at WHO Headquarters in Geneva Switzerland on 13 October 2005. This was a gathering for leading specialists of infection prevention and patient safety. The vision of this campaign was to catalyze global commitment by policymakers, health care workers, and patients to make 'Clean Care is Safer Care' an everyday reality in all places where health care is provided" (Pittet & Donaldson, 2005). Along with this, ensuring safety of every patient who seeks medical care is one of the most important challenges in today's life (Department of Public Health, 2008).

1.1.2 Socio-demography of the country

The Republic of Maldives is a country of South Asia, situated in the Indian Ocean, south-southwest of India. It consists of approximately 1,196 small low lying - coral islands among few of them are, just a meter above sea level, making this one of the most disparate countries in the world. People are living in 200 islands only. There are 20 atolls and most for administrative purpose Maldives government has distributed for 6 regions. The total population of the country was 270,101 in the year 2000. And around 74,000 people living in the capital island Male'. According to the world face book (2008) the estimated population by July 2008 is 379, 174.

1.1.3 Health care facilities

The Health System of Maldives is unique as it has a 5-tier referral system. It consists of Central Health Services, then the Regional Hospitals, Atoll Hospitals followed by the Atoll Health Centers and Island Health posts. Tertiary care services are available only at the central level. Medical staff working is comprised of Maldivian, Indians and a few from other countries. Total number and functions of health care facilities are given in the Appendix A.

1.1.3.1 Indira Gandhi Memorial Hospital

(Tertiary care public hospital)

Indira Gandhi Memorial Hospital, (IGMH) was opened on April 1995 and is located in Male' (capital island). "The policy of this hospital is to deliver comprehensive, sustainable and affordable health care services" (Indira Gandhi Memorial Hospital [IGMH], 2007b). This was a 250 bedded hospital with several multi specialty services and serves as the main public referral hospital. The average inpatient was 1040 and the average outpatient was 28036 during the year 2007 (IGMH, 2007). Services provide includes curative, preventive as well as rehabilitative. About 1200 staff work in this hospital, among them 450 are nurses and 178 doctors. Nearly half of the population of doctors and nurses employed were expatriates mainly from India. Some of the advanced health care facilities such as Oncology, Nephrology, and Neurology etc. are not available in the health care facilities. Therefore, people seek medical aid for these types of conditions from neighboring countries.

1.1.3.2 ADK Hospital

(Tertiary care private hospital)

This hospital also is located in the capital island Male'. ADK with a vision of 'Caring about you when you need most...' is the largest private health care organization in Maldives. The hospital's key strengths include its patient focus, friendly services, quality care, specialist expertise and cutting edge technology (ADK Hospital, 2007). This hospital began in 1987 just by one doctor as a small clinic in the name of "mediclinic". With gradual expansion of services transformed to a multi-specialty 50 bed hospital along with provision of pharmaceutical and procurement of medical services to a great extent (ADK Hospital, 2006). Majority of the nurses and doctors employed are expatriates.

1.1.3.3 Regional Hospitals

There are six regional hospitals all over the nation. Main functions of these hospitals were similar in all hospitals. These institutions provide secondary health services including some specialist care such as pediatrics and obstetrics and gynecology. The services rendered include overall health care at the regional level, including supervision of atoll hospitals and health centers. Majority of staff includes expatriates. According to the MOH (2004), each hospital covers two to five atolls. The bed strength varies in-between 35-50. Each of them is attached with a public health unit that coordinates preventive services within the region. Activities of these units were carried out by the community and family health workers.

Thinadhoo Regional Hospital was selected by random as the secondary health care facility to be surveyed. This is situated in the island Thinadhoo,

the capital island of Gaafu Dhaal Atoll. There are 9 islands in this hospital and each island has a health centre. The population of entire atoll was 11,013 (Ministry of National Planning and Development, 2006).

1.1.4 Infectious disease status in Maldives

At present Maldives is in a stage of epidemiologic transition from communicable diseases to non communicable diseases. Emergence and re-emergence of communicable diseases such as measles, chickenpox is common. Tuberculosis was one of the fatal diseases that occurred in Maldives; even though, the prevalence rate has gone down in recent years. According to the Health Master Plan (MOH, 2006) the prevalence Tuberculosis (TB) sputum positive is 0.14 and prevalence of HIV /AIDS is 1, measles and rubella is 0.059, acute respiratory infection (ARI) is 20%. Furthermore, the prevalence of Hepatitis B is $\geq 2\%$ (National Centre for HIV/AIDS, Viral Hepatitis, STD and TB Prevention, 2006).

The first case of HIV was detected in 1991. Since then 13 cases of HIV had been found until 2001. The place for infection was outside Maldives except one who was the spouse and only female victim. The vulnerability of the Maldivian population is high due several factors that indicate the HIV situation may get worsen in the near future.

The problems comprised of rate of drug abuse; physical geography (difficult access to counseling and testing services), morbidity (high morbidity rate among migrant workers) pre marital sex, low condom use, large proportion of young people (62% of population below 25) and blood transfusion (thalassemia is a major problem) etc. (Unicef, 2006)

Avian Influenza has not been reported in Maldives until now. According to the Ministry of Health and Ministry of Fisheries, Agriculture and Marine Resources (2005) the attack rate of avian influenza would be about 25% based on frequent pandemics. This shows that around 75000 people could be infected among 300000 of the whole population of the country. One of the foremost consequences would be shortage of health care workers, as 30% of the health care workers comprised of expatriates they may leave the country. This plan also states that “there is a need for training in the use of Personal Protective Equipment”. According to a Meta analysis with six case control studies done by Desiree (2007), physical measures are highly effective in preventing (severely acute respiratory symptoms (SARS). Hand hygiene, use of masks, gloves, and gowns alone or in combination would help to reduce transmission of infection by 55% to 90%.

Although no cases of avian influenza and SARS have been reported and the prevalence of HIV/AIDS is low in this country, all health care facilities should be prepared for these kinds of crisis. During such pandemics good infection control practices is the most important weapon that can have by individual health care providers and health care facilities. According to Pittet (2005) emerging pathogens will definitely keep infection control professionals busy, much busier than today. Lessons can be learned from the SARS epidemic in 2003, and concerns about avian flu and possible acquisition and transmission of H5N1 or H7N7 among humans. SARS outbreaks and acquisition by health care personnel might have helped hospital staff and policy makers to realize that failure to comply with infection control practices might be even at the cost of health care workers' lives. In accordance with

Boyance (2001) the technical expertise and recommendations for infection control are mostly produced in well advanced health care systems in developed countries. The principles of infection prevention are similar all over the world. Prevention of hospital acquired infection is therefore cost effective and achievable for any country even with limited resources Education, monitoring, improvement of availability of resources, and even disciplinary measures are required to improve infection control practices in hospitals (Stein et al., 2003).

Assessing compliance with infection control measures in any health care setting is vital. Regular updating and strengthening of infection control practices should be one of the priority function of any place where health services are rendered.

1.2 Objectives of the study

1.2.1 General objective

To assess the level of knowledge, attitude, and practice of Standard and transmission - based precautions among doctors and nurses in tertiary and secondary health care settings of Maldives.

1.2.2 Specific objectives

1.2.2.1 To find out the association of knowledge, attitude, and practice of Standard and transmission - based precautions among doctors and nurses in tertiary and secondary health care settings of Maldives.

1.2.2.2 To study the relationship of standard and transmission - based precautions and the following factors: age, sex, education, years of work experience, working area (department), and training on infection control practices.

1.3 Operational definitions

1.3.1 Knowledge

Knowledge of individual health care providers was considered as severity of diseases, modes of disease transmission, prevention and treatment of infectious diseases. Self administered questionnaires were used as a measuring tool and obtained scores were classified into three groups (high, moderate and low level of knowledge). Respondents who scored more than 80% of correct answers were classified as high group. Respondents who had 61-79% of correct answers were classified as moderate level group. Respondents with less than 60% of correct answers were classified as low level group.

1.3.2 Attitude

Attitude was belief, and intention to follow the principles of standard and transmission-based precaution by doctors and nurses. Likert's scale was applied to measure the attitude. All individual answers were computed to obtain total scores and calculated for means. The mean scores were used to divide the participants into three groups that were positive group, neutral group and negative group. Respondents who scored 65 -75 were considered with positive attitude, 52 - 64 with neutral attitude and 15 -51 with positive attitude.

1.3.3 Practice

Practice of standard and transmission-based precautions by doctors and nurses was obtained both by using a self administered questioner and observation. Methods and frequency of infection control practices were determined. Rating questionnaires included from 1-5 (1 never, 2 seldom, 3 sometimes, 4 often, and 5 very often). The mean scores were used to divide participants into 3 groups. The highest level of practice was considered scores 69-75, moderate practice 54-68, and 15 -53 as low practice.

1.4 Variable table

Table 1.1: Research variables

Conceptual variables		Operational variables	Determinant scale	Variable measurement method
Knowledge	Diseases and its severity	Test score on disease and severity and knowledge	Ordinal	Questionnaire
Knowledge	Diseases and its severity	Test score on disease and severity and knowledge	Ordinal	Questionnaire
Demography		Demographic data		Questionnaire
		Age	Ratio	
		Sex	Nominal	
		Position	Nominal	
		Work experience	Ratio	
		Place of work	Nominal	
		Training of infection control practices	Nominal	

Table 1.1: (Continued) Research variables

Conceptual variables	Operational variables	Determinant scale	Variable measurement method
Demography	Work experience	Ratio	
	Place of work	Nominal	
	Training of infection control practices	Nominal	
Standard and transmission-based precaution	Frequency of Standard and transmission-based precaution practice	Ordinal	Questionnaire