Assessment of capacities of Medical officers (MO) and Public Health Inspectors (PHI) at the points of entry (sea ports and air ports) to Sri Lanka to respond to a Public Health Emergency of International Concern (PHEIC)

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Abstract

Introduction

Training is an essential component of the Human Resource Management. In service trainings should be based on information gathered through a Training Needs Assessment (TNA). A TNA for health staff employed at points of entry (POE) to Sri Lanka was a timely requirement.

Objective

The objective of this assessment was to assess the in-service training needs of Medical officers (MO) and Public Health Inspectors (PHI) at the POE (sea ports and air ports) to Sri Lanka to design a training manual.

Method

This assessment conducted among all MO and PHI at POE in Sri Lanka: Colombo, Trincomalee and Galle harbours, Mattala and Katunayaka Bandaranayke International Airport (BIA). A modified version of Hennessey Hicks TNA questionnaire was self-administered on activities pertaining to their job and a score for each item was given out of a maximum of 10. Descriptive statistics identified activities according to their importance, performance, ability to improve performance through training alone and those that need system changes.

Results

Sample consisted of 11 (52.4%) Medical Officers and 10 (47.6%) PHI. The assessment identified five activities as those that could be improved through training alone; disposal of materials in contact/potential contact with the case/suspect; decontamination/disinfection of a Ship/Aircraft with persons affected/suspected as having an illness of PHEIC/ arriving from an affected area; granting permission to bring human remains/ ashes of cremated bodies, monitoring vector status within the Port and interview, examination and providing preliminary treatment to travelers on board. These activities reported poor performance despite the importance attributed to them.

Recommendations

The assessment identified areas of poor performance that can be improved through training alone. A tailor made in-service training should be provided to health staff based on this finding.

Index Terms- international health regulations, port sanitation, international travel, training needs assessment, quarantine regulations

I. INTRODUCTION

Training, which is a vital component of the human resource management, is described as the enhancement of capabilities of an employee to perform his or her current job (1). Since training focuses on the current job, planning of training should focus on the current job tasks, skills and the required behaviour of the employees (2). In-service training for the health care staff is essential not only to develop knowledge, skills, and attitude but also it helps to refresh the knowledge and skills they already had. In-service training also provides opportunity to share the experiences between colleagues and trainer. It has been observed that training of the heath staff improved the patient and organizational outcomes (3).

Currently, most in-service trainings, designed for those working in the state health sector, are based on the availability of fund and the purpose of the funding sources. The method adopted at present to gather the training needs of health staff is performance appraisal during the annual increment process. It has questions about obtained and required trainings; however there are no studies on whether the performance appraisal assesses the training needs effectively. There is no evidence on utilizing the data on training needs gathered by the performance appraisal form to plan the trainings. A scientific training need assessment (TNA) could improve this situation.

Sri Lanka being an island located in the Indian ocean, is susceptible to international spread of diseases and threats through its points of entry (POE): sea ports & air ports. The International Health Regulations (IHR) 2005 has identified hazards to health that can occur during international travel and trade (4). They can be biological (infectious, zoonotic, food related), chemical, radiological, or nuclear, and may cause a public health emergency of international concern (PHEIC). These health hazards can occur through importation or exportation of infected humans or dead bodies, infected/contaminated vectors, or contaminated goods. The emergence and re-emergence of infectious diseases and threats due to nuclear and chemical substances in other parts of the world have highlighted the need to strengthen POE in Sri Lanka, to prepare and respond in an

emergency. The procedures at the points of entry, involve many stakeholders and require a well-coordinated response.

Medical Officers (MO) and Public Health Inspectors (PHI) are two important categories of health staff employed at POE to ensure IHR related activities are properly carried out. Health staff who are employed at POE are expected to ensure the safety of the country from any Public Health Emergencies of International Concern (PHEIC). This requires knowledge and skills which need to be provided through training and updated on a regular basis. Health staff at different POE can have different level of knowledge and skills which depend on several factors such as experience, place of work, trainings attended etc. Therefore in-service trainings POE health staff should be based on an effective TNA. The objective of this assessment was to assess the in-service training needs of Medical officers (MO) and Public Health Inspectors (PHI) at the POE (sea ports and air ports) to Sri Lanka to design a training manual for MO and PHI.

Methods

This assessment was conducted among all employees at all POE in Sri Lanka. The POE included Colombo, Trincomalee and Galle harbours, and airports , Mattala and Katunayaka Bandaranayke International Airport (BIA). All MO and PHI employed at these POE were invited to participate. A modified version of Hennessey Hicks TNA questionnaire was formulated after reviewing literature, field visits and key informant interviews with relevant stakeholders from health and non-health sectors. The questionnaire with 32 items was self-administered and inquired following in relation to activities pertaining to their job and participants gave a score for each item; How important the activity is to the successful performance of your job (1=not at all important 10=very important); How well you currently perform that activity (1=very poorly 10= very well); Activity could be improved through training alone (1=strongly disagree 10=strongly agree);. Activity could be improved through changes in work system (1=strongly disagree 10=strongly agree). Participants were requested to list five most important training areas, trainings attended in the past, preferred method of training, convenient time to attend and barriers to participate. Informed written consent was obtained prior to data collection. Voluntary participation and confidentiality of the information gathered was ensured. Permission was obtained from Director Quarantine, Ministry of Health and relevant POE authorities to carry out the assessment.

Results

Sample consisted of 11 (52.4%) Medical Officers and 10 (47.6%) PHI. They were employed at Colombo harbour 5 (23.8%), Trincomalee harbour 1 (4.8%), Mattala airport 3 (14.3%), Galle harbour 2 (9.5%) and BIA Katunayaka 10 (47.6%). Participants' years of experience at Ministry of Health: range 2-32 years, mean 19.5 years, SD 10.01. Years of experience at the present station: range 1- 14 years, mean 4.22 years, SD 3.13, and years of experience at a POE: range 1 - 14 years, mean 4.22 years, SD 3.13.

Table 1 outlines the distribution of persons who reported a score of <50% when questioned on how well you currently perform each activity. Poorest performance was observed for Coordination of installation and/or activation of thermal scanners (1/17, 5.9%) and Management of Medical/Surgical emergencies (1/16, 6.3%).

Table 2 outlines the distribution of persons who reported a score of >50% when questioned on whether the activity could be improved through training alone. The highest rating was for evaluation of a Ship Sanitation Control Exemption Certificate/Ship Sanitation Control Certificate for validity (5/8, 62.5%).

Table 3 outlines the distribution of persons who reported a score of >75% when questioned on whether the activity could be improved through changes in work system. The highest rating was for Inspection of the ship after arrival to evaluate whether any infection/contamination exists (10/12, 83.3%), secondary screening of a traveler (10/12, 83.3%) and granting permission to bring human remains or ashes of cremated bodies (15/18, 83.3%).

Table 4 describes the persons who have scored >5 under each category. For activities related to arrival of a ship/aircraft to the sea/airport; although 95% thought that (Q1) assessment of information received from the Master of the Ship/Pilot in command before arrival is important to the successful performance of their job, only 20% have performed well. Only 30.0% reported that this activity can be improved through training alone. Similarly, 100% thought (Q3) inspection of the ship after arrival is important to the successful performance of their job, only 25% have performed well and only 33.3% reported that this activity can be improved through training alone.

For activities related to facilities provided to travelers and staff at POE, although 100% thought (Q4) inspection of Port kitchen/food outlets used by travelers/staff within the Port premises/raw food supplied to Ships by the Agent is important to the successful performance of their job, only 30.8% have performed well. However, 0nly 38.5% reported that this activity can be improved through training alone. Similarly, 94.4% thought taking food samples, transportation, interpretation of results is important to the successful performance of their job, only 27.8% have performed well and 0nly 22.2% reported that this activity can be improved through training alone.

The five most important training areas identified were: disposal of materials in contact/potential contact with the case/suspect; decontamination/disinfection of Ship/Aircraft with persons affected/suspected as having an illness of PHEIC/arriving from an affected area; granting permission to bring human remains/ashes of cremated bodies, monitoring vector status within the Port and interview, examination and providing preliminary treatment to travelers on board. The majority (18/21, 85.7%) have not attended any training workshops/course in the past, workshops was the most preferred method of training (16/21, 76.1%), weekends most convenient time (14/21, 66.6%), main barriers for participating in a training were shortage of staff, long distance to travel to training center.

Table 1: Distribution of persons who reported a score of <50% when questioned on how well you currently perform that activity

Activity	Not Relevant	<50%
1. Coordination of installation and/or activation of thermal scanners at pre-designated screening stations	4	1/17 (5.9%)
2. Management of Medical/Surgical emergencies	5	1/16 (6.3%)
3. Coordination for assessment of affected/suspected animals, cargo containing contaminated food items/ livestock/ hazardous radioactive or nuclear material by Focal Points	6	2/15 (13.3%)
4. Inspections and taking samples from discharge by Ships/Air Crafts	7	2/13 (15.4%)
5. Disposal of materials in contact/potential contact with the case/suspect-water or food, human or animal deject, waste water and any other contaminated matter	4	3/18 (16.7%)
6. Assessment of information received from the Master of the Ship/Pilot in command before arrival to evaluate whether any PH risk exists	1	4/20 (20.0%)
7. Assessment of information received from the Master of the Ship/Pilot in command before arrival to evaluate whether any PH risk exists	1	4/20 (20.0%)
8. Coordination of management of travelers with Medical/Surgical emergencies after arriving to the Port	6	3/14 (21.4%)
9. Surveillance of persons who have been exposed to infection but allowed to disembark	3	4/18 (22.2%)
10. Inspection of the Ship after arrival to evaluate whether any infection or contamination among travelers (passengers and crew), animals, livestock, food items exists	9	3/12 (25.0%)
11. Decontamination/disinfection of baggage, cargo, containers, conveyances, goods or postal parcels arriving in a Ship/Aircraft with persons affected/suspected as having an illness of PHEIC or arriving from an affected area	2	5/19 (26.3%)
12. Taking food samples, transportation, interpretation of results and the format to be sent with the samples	3	5/18 (27.8%)
13. Inspection of Port kitchen/food outlets used by travelers or staff within the Port premises/raw food supplied to Ships by the Agent	8	4/13 (30.8%)
14. Coordination with Harbor Master/Ground Manager of Airport for parking of Ships/Aircrafts at designated point of the Port	2	6/19 (31.6%)
15. Monitoring vector status within the premises of the Port (rats, mosquitoes, flies, cockroaches, ticks, mites, midges, fleas)	3	6/18 (33.3%)
16. Inspection of public washrooms and solid/liquid waste disposal services	4	6/17 (35.3%)
17. Advising Master of the Ship/Pilot in command of the Air craft regarding disembark of travelers or removal of cargo	5	6/16 (37.5%)
18. Procedure for travelers who continue the international voyage	8	5/12 (41.7%)

Table 2: Distribution of persons who reported a score of >50% when questioned on whether the activity could be improved through training alone

Activity	Not Relevant	>50%
1. Decontamination/disinfection of baggage, cargo, containers, conveyances, goods or postal parcels arriving in a Ship/Aircraft with persons affected/suspected as having an illness of PHEIC or arriving from an affected area	2	9/17 (52.9%)
2. Interview, examination and providing preliminary treatment to such travelers with Medical/Surgical emergencies on board	9	6/11 (54.5%)
3. Disposal of materials in contact/potential contact with the case/suspect-water or food, human or animal deject, waste water and any other contaminated matter	4	10/18 (55.6%)
4. Monitoring vector status within the premises of the Port (rats, mosquitoes, flies, cockroaches, ticks, mites, midges, fleas)	3	10/18 (55.6%)
5. Granting permission to bring human remains or ashes of cremated bodies after verifying relevant documents	3	11/18 (61.1%)
6. Evaluation of a Ship Sanitation Control Exemption Certificate/Ship Sanitation Control Certificate for validity	13	5/8 (62.5%)

Table 3: Distribution of persons who reported a score of >75% when questioned on whether the activity could be improved through changes in work system

Activity	Not Relevant	>75%
1. Monitoring vector status within the premises of the Port (rats, mosquitoes, flies, cockroaches, ticks, mites, midges, fleas)	3	13/17 (76.5%)
2. Inspection of Port kitchen/food outlets used by travelers or staff within the Port premises/raw food supplied to Ships by the Agent	8	10/13 (76.9%)
3. Surveillance of persons who have been exposed to infection but allowed to disembark	3	14/18 (77.8%)
4. Transfer of an affected/suspected traveler to IDH/closest designated hospital for isolation/quarantine	3	14/18 (77.8%)
5. Taking food samples, transportation, interpretation of results and the format to be sent with the samples	3	14/18 (77.8%)
6. Coordination of management of travelers with Medical/Surgical emergencies after arriving to the Port	6	11/14 (78.6%)
7. Assessment of a human case/suspected case on board	1	15/19 (78.9%)
8. Assessment of information received from the Master of the Ship/Pilot in command before arrival to evaluate whether any PH risk exists	1	16/20 (80.0%)
9. Interview, examination and providing preliminary treatment to such travelers with Medical/Surgical emergencies on board	9	9/11 (81.8%)
10. Inspection of the Ship after arrival to evaluate whether any infection or contamination among travelers (passengers and crew), animals, livestock, food items exists	9	10/12 (83.3%)
11. Secondary screening of a traveler detected by thermal scanning or by HDF	8	10/12 (83.3%)
12. Granting permission to bring human remains or ashes of cremated bodies after verifying relevant documents	3	15/18 (83.3%)

Table 4: Distribution of persons who have scored >5 under each category

Activity	Not relevant	How important the activity is to the successful performance of your job	How well you currently perform that activity	Activity could be improved through training alone	Activity could be improved through changes in work system
Q1 Assessment of information received from the Master of the Ship/Pilot in command before arrival to evaluate whether any PH risk exists	1	19/20 (95.0%)	4/20 (20.0%)	6/20 (30.0%)	16/20 (80.0%)
Q 3 Inspection of the Ship after arrival to evaluate whether any infection or contamination among travellers (passengers and crew), animals, livestock, food items exists	9	12/12 (100.0%)	3/12 (25.0%)	4/12 (33.3%)	10/12 (83.3%)
Q 4 Taking food samples, transportation, interpretation of results and the format to be sent with the samples	3	17/18 (94.4%)	5/18 (27.8%)	4/18 (22.2%)	14/18 (77.8%)
Q 5 Discarding food found to be unhygienic, adulterated and unsafe for human consumption	3	17/18 (94.4%)	12/18 (66.7%)	5/18 (27.8%)	13/18 (72.2%)
Q 11 Coordination for assessment of affected/suspected animals, cargo containing contaminated food items/ livestock/ hazardous radioactive or nuclear material by Focal Points	6	9/15 (60.0%)	2/15 (13.3%)	7/15 (46.7%)	7/14 (50.0%)
Q 12 Coordination with Harbour Master/Ground Manager of Airport for parking of Ships/Aircrafts at designated point of the Port	2	16/19 (84.2%)	6/19 (31.6%)	4/19 (21.1%)	13/19 (15.8%)
Q 13 Advising Master of the Ship/Pilot in command of the Air craft regarding disembark of travellers or removal of cargo	5	14/16 (87.5%)	6/16 (37.5%)	6/16 (37.5%)	11/16 (68.8%)
Q 14 Inspections and taking samples from discharge by Ships/Air Crafts	7	12/14 (85.7%)	2/13 (15.4%)	5/13 (38.5%)	8/13 (61.5%)
Q 22 Surveillance of persons who have been exposed to infection but allowed to disembark	3	18/18 (100.0%)	4/18 (22.2%)	9/18 (50.0%)	14/18 (77.8%)
Q 24 Disposal of materials in contact/potential contact with the case/suspect- water or food, human or animal deject, waste water and any other contaminated matter	4	16/17 (94.1%)	3/18 (16.7%)	10/18 (55.6%)	11/18 (61.1%)

Discussion

In Sri Lanka the relevant law governing the prevention and spread of diseases is the Quarantine and Prevention Ordinance (6). The said ordinance provides the Minister of Health to make regulations for the purpose of preventing the introduction into Sri Lanka of any disease and also preventing the spread of any disease in and outside Sri Lanka.

With the post conflict economic boom, Sri Lanka has accelerated its progress on becoming an aviation, naval, energy, knowledge and commercial hub. This development process has created global links and major population flows along trade, commerce, tourism and labor into the country, within the country and out of the country with increasing cross border travel. Due to the increase of international travel and trade and emergence and re-emergence of new international diseases, it is important to have comprehensive border health strategies.

International Health Regulation (IHR) also provide guidance on international public health security and obligate the WHO member countries to implement necessary provisions within the country (4). .

It is now recognized that the public health threat is not limited to specific disease or manner of transmission, but also the illnesses or medical conditions, irrespective of origin or source that presents or could present significant harm to human. Therefore it obligates countries to a) develop certain minimum core public health capacities; (7).

Human component of the border health strategy lies within the Ministry of Health whereas the Department of agriculture and Animal Health are responsible for the 'animal' and 'plant' components. Passengers or the airport and airline employees identified with communicable diseases are required to be reported to the Epidemiology Unit of the Ministry of Health using notifications forms. Director Quarantine is the national focal point in the domestic legislation. Inter- agency coordination and mobilizing resources from other stakeholders in an emergency remain as an important centralized role in providing these services. Knowledge, skills and practices of health staff employed at POE also play a significant role in implementation of the country's border health strategy.

The assessment identified five activities as those that could be improved through training alone as stated above. There is great need to improve the performance in relation to these activities since there were observed to have poor performance despite the importance attributed to them. The respondents mainly identified four activities that can be improved through system changes as sated above; 1.Assessment of information received from the Master of the Ship/Pilot in command before arrival 2. Inspection of the Ship after arrival to evaluate whether any infection/contamination exists 3.Coordination for assessment of affected/suspected animals/cargo by Focal Points 4. Surveillance of persons who have been exposed to infection but allowed to disembark. However these activities can also be considered in training as these were reported as activities that are performed poorly by MOO/PHI at POE.

While this assessment provides an in depth picture of the training needs of health staff employed at POE, it only accounts for their own perceptions. Methods such as direct observations or supervisions of functions can identify more deficiencies. Similarly opinion of supervising officers or subordinates and non-health officials can add more to the TNA. It is also worthwhile considering if those activities suggested as can be improved only through a system change can be improved through training or an attitudinal change as well. However, observing the results of the current assessment it is strongly recommended that a tailor made in-service training should be provided to health staff at POE in order to strengthen Sri Lanka's border security.

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