

Hurricane Preparedness among Healthcare Workers in St James

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ABSTRACT

Objective: To assess the preparedness of health workers in St James, Jamaica, to respond to natural disasters.

Methods: A cross-sectional survey was conducted on a 25% quota sample of hospital and health department staff in St James in 2005 ($n = 307$). Awareness of and attitudes to disaster management policies, plans and training and how these influenced their response in Hurricane Ivan were evaluated. Statistical package for the Social Science 11.5 was used to summarize quantitative data, while qualitative data were analyzed manually.

Results: Most respondents (67%) knew of the disaster plan but only 40% had been trained in disaster management. More nurses (68%) and paramedics (51%) reported being trained than ancillary/auxiliary (33%), medical (21%) or administrative/clerical (18%) staff. Most (96%) had participated in at least one disaster preparedness drill, usually a fire drill, but not in the previous two years. Attitudes towards disaster management were positive (99% insisted training should be compulsory, 95% agreed they should help in a hurricane). The majority (86%) reported being available to work at any time and 77% had worked as scheduled during Hurricane Ivan. Transportation and personal responsibility (to children, elderly or property) were the main limiting factors. Provisions for staff welfare (eg transportation, protective gear, media updates) were perceived as inadequate. Having defined disaster response roles was positively correlated with age, years of service and occupation ($p < 0.01$).

Conclusion: Health workers in St James have positive attitudes to disaster management but require routine training to compensate for staff turnover. More attention must be given to staff welfare during disasters.

Preparación para Huracanes Entre los Trabajadores de la Salud en Saint James

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RESUMEN

Objetivo: Evaluar la preparación de los trabajadores de la salud en Saint James, Jamaica, para responder a los desastres naturales.

Métodos: Se llevó a cabo un estudio transversal con una muestra por cuotas de 25% del personal del hospital y el departamento de salud en Saint James en 2005 ($n = 307$). Se evaluó la conciencia y actitudes en relación con el entrenamiento, los planes y las políticas de gestión frente al desastre, y cómo estos influyeron en su respuesta frente al Huracán Iván. Se usó el paquete estadístico para las ciencias sociales SPSS 11.5. para resumir los datos cuantitativos, mientras que los datos cualitativos se analizaron manualmente.

Resultados: La mayoría de los encuestados (67%) conocía el plan de desastre, pero sólo el 40% había recibido entrenamiento en manejo de desastres. Más enfermeras (68%) y paramédicos (51%) que el personal auxiliar/complementario (33%), médico (21%) o administrativo/de oficina (18%), reportaron estar entrenados en gestión de desastres. La mayoría (96%) había participado por lo menos en un ejercicio de preparación frente a los desastres, usualmente un simulacro de incendio, pero no en los dos años anteriores. Las actitudes hacia la gestión de desastres eran positivas (99% insistió en que el entrenamiento debía ser compulsivo, el 95% estuvo de acuerdo en que debían ayudar en caso de huracán). La mayoría (86%) reportó estar disponible para trabajar en cualquier momento y un 77% habían trabajado según lo planificado durante el Huracán Iván. El transporte y la responsabilidad

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personal (ante los niños, los ancianos o las propiedades) fueron los principales factores limitantes. Los suministros para el bienestar del personal (p.ej. transporte, equipo de protección, las actualizaciones de los medios de comunicación) fueron percibidos como inadecuados. Después de ser definidos los papeles de respuesta, se les correlacionó positivamente con la edad, los años de servicio y la ocupación ($p < 0.01$)

Conclusión: *Los trabajadores de la salud en Saint James tienen actitudes positivas hacia la gestión ante los desastres, pero necesitan entrenamiento de rutina para compensar el movimiento de renovación del personal. Debe prestarse mayor atención al bienestar del personal durante los desastres.*

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INTRODUCTION

Major natural disasters in the last two decades have affected at least 800 million people worldwide, causing thousands of deaths and economic losses of over 50 billion dollars. In Latin America and the Caribbean, hundreds of health facilities and severely damaged by earthquakes, floods, landslides and hurricanes among others. This caused severe damage to the health infrastructure and disruption in services during critical times (1).

Hurricanes are annual features of Caribbean life, causing damage and destruction from extreme wind conditions, wave surges and flooding due to heavy rains. The official hurricane season in the Caribbean is June 1 – November 30 and Jamaica lies along one of the most frequently travelled paths of hurricanes (2). While hurricanes may not often hit directly, associated rainfall often causes flooding and landslides (3). A few of the destructive hurricanes that have affected Jamaica include Allen (1980), Gilbert (1988), Charlie year 2004 and Ivan (2004).

The health sector must remain functional during and after any disaster. In addition to reducing the vulnerability of health facilities to the impact of hurricanes, health personnel must be prepared to immediately become an active, reassuring and organizing force to which the community can look. Caribbean neighbours may also need assistance.

A PAHO/WHO survey in Jamaica following Hurricane Gilbert revealed an information gap with regard to disaster management in the health sector. At the primary care level, only 17% of staff knew of the disaster management structure at the ministry headquarters while 57% were aware of the structure at the local level. In secondary care, 50% of staff reported knowledge of the national structure and 75% were aware of the structure at the local level (4).

Among the limitations identified were inadequate and irregular emergency medical and non-medical supplies, serious deficiencies with regard to medical equipment, transportation and communication and a shortage and inadequate mix of manpower. The relative lack of preparedness of the health sector was underscored by the fact that the Ministry of Health's Disaster Plan had not been completed. Where one existed at the local level, it could not be activated due to resource gaps and lack of training. The report recognized the dedication of health service personnel who, though lacking the necessary support, proved an important resource in the

wake of hurricane Gilbert. It recommended that the will to continue in the face of adversity should be encouraged by the development of local staff sufficiency (4).

Study Population

The Western Regional Health Authority administers public health services in the parishes of St James, Trelawny, Hanover and Westmoreland. Within St James, the Cornwall Regional Hospital (CRH) strategically located in the 'Tourist Capital' of Montego Bay, is a multidisciplinary 400-bed referral institution that serves the region. This hospital employs 800 persons in 25 occupational categories. Excluded from this number are staff of the divested housekeeping and porter services and maintenance staff employed by the Western Regional Health Authority, who were also included in the study.

The St James Health Department includes 25 health centres of different categories and sizes in four health districts. The staff complement is 243 persons in 17 occupational categories. This study aimed to assess the preparedness of the health team to respond appropriately to a natural disaster such as a hurricane and to identify factors that influence their ability to respond.

METHOD

A cross-sectional survey was conducted at CRH and the St James Health Department using qualitative and quantitative methods. The population of healthcare workers was stratified by institution and then by occupational category. Quota sampling was used to select 25% from each category of persons employed for at least one year.

Data were collected over a one month period using confidential face-to-face interviews after receiving informed written consent. To assess policies, supportive environment and alliances formed for disaster management, qualitative data were obtained from persons involved in the process, using focus group discussions (with a mix of staff categories) and key informant interviews (with Medical Officer of Health and hospital Chief Executive Officer). Input and analysis of quantitative data utilized SPSS 11.5. Chi-square tests and Spearman rank correlations were used to identify associations between variables. Qualitative data were analyzed thematically.

Permission to conduct this study was obtained from the Western Regional Health Authority and ethical approval was received from the University of the West Indies/University Hospital of The West Indies Ethical Review Committee.

RESULTS

Demographic and occupational characteristics of sample

A total of 307 persons were interviewed with the majority being from CRH (238). The sample was predominantly female (67.1%), consistent with the gender composition of the health team. The team was relatively young, with 51.1% under 40 years of age. More older workers (> 50 years) were in Primary (33.3%) compared to Secondary Care (22.7%).

The largest occupational category was the ancillary/auxilliary group (42.0%), followed by the nurses (22.5%). The administrative and clerical group, para-medicals and doctors were in the minority each having 11–12%. A larger proportion (34.9%) had been employed for 1–5 years with 28.7% employed over 15 years. More primary care workers (43.5%) had been on the job for over 15 years while the largest group (36.1%) of hospital personnel had worked five or fewer years (Table 1).

Table 1: Demographic and occupational characteristics of health personnel by institution

Variable	St James Health Dept. (n = 69) % (n)	Cornwall Regional Hospital (n = 238) % (n)	Total (n = 307) % (n)	p value
Gender				
Male	18.8 (13)	37.0 (88)	32.9 (101)	0.005
Female	81.2 (56)	63.0 (150)	67.1 (206)	
Age (yrs)				
# 39	40.6 (28)	54.2 (129)	51.1 (157)	0.102
40–49	26.1 (18)	23.1 (55)	23.8 (73)	
≥ 50	33.3 (23)	22.7 (54)	25.1 (77)	
Occupation				
Doctor	4.3 (3)	13.0 (31)	11.1 (34)	0.094
Nurse	24.6 (17)	21.8 (52)	22.5 (69)	
Paramedicals	18.8 (13)	10.1 (24)	12.1 (37)	
Ancillary/auxilliary	37.7 (26)	43.3 (103)	42.0 (129)	
Admin/clerical	14.5 (10)	11.8 (28)	12.4 (38)	
Years worked at Institution				
1–4	30.4 (21)	31.5 (75)	31.3 (98)	0.025
5–9	14.5 (10)	26.5 (63)	23.8 (73)	
10–14	11.6 (8)	16.0 (38)	15.0 (46)	
15+	43.5 (30)	26.1 (62)	30.0 (92)	

Knowledge of Disaster Management

Awareness of the Disaster Plan

While the majority (67.1%) of health workers were aware of the Disaster Preparedness Plan for their institution, only 41% thought that the disaster preparedness committee was functional (Fig. 1). More para-medicals (83.8%) and nurses (81.2%) reported awareness of the plan than other categories.

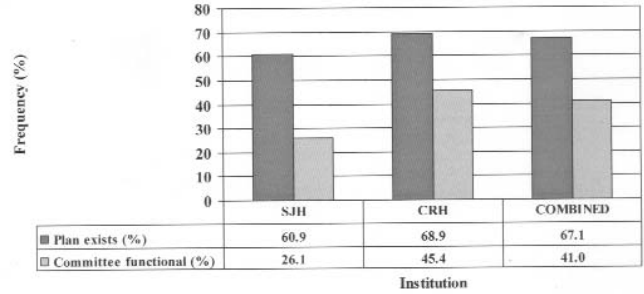


Fig. 1: Awareness of disaster plans for institutions.

Training in disaster management and drills

Only 40% of persons reported being trained in disaster management, with similar responses from hospital and health department personnel. A smaller proportion of administrative/clerical (18.4%), doctors (20.6%) and ancillary/auxilliary staff (33.3%) had been trained compared to nurses and paramedicals (68.1% and 51.4%). Most respondents (96%) had participated in at least one disaster preparedness drill, usually a fire drill. More hospital (60.5%) than Health Department (40.6%) personnel had this experience (Fig. 2).

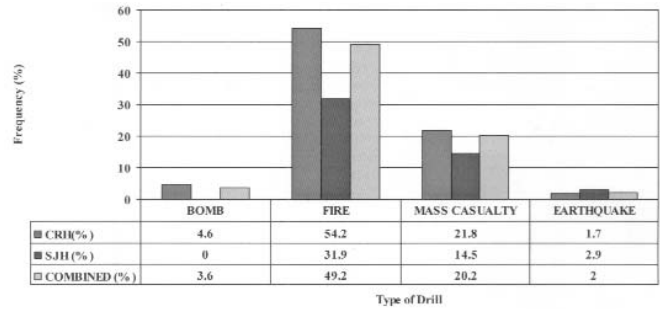


Fig. 2: Drills experienced at institutions.

Focus group discussions revealed however that no disaster preparedness drill had occurred in the previous two years in either sector. This was confirmed by key informants.

Clearly Defined Roles

Sixty-nine per cent of persons admitted to having clearly defined roles and were able to appropriately list activities that they were engaged in before, during and after a hurricane. As outlined in Table 2, having clearly defined roles was positively correlated with age ($r = 0.185, p = 0.001$), years of service ($r = 0.243, p = 0.0001$) and occupation ($r = 0.191, p = 0.001$). Ancillary/auxilliary workers topped the list of persons having defined roles while only 29.4% of doctors were clear on their role in any phase of hurricane preparedness.

Persons with longer duration of employment were more likely to be aware of the plan, have participated in drills or have clearly defined roles. There was no statistical difference in the proportion of persons who reported training in disaster management in relation to years of service. Key Informants, which consisted of Hospital Chief Executive

Table 2: Correlation coefficient of defined roles by age, occupation and years of service^a

Variables ^b	R	p- value
Defined roles		
Age	0.185	0.001
Occupation	0.243	0.0001
Years of service	0.191	0.001

^aOnly significant correlations shown

^bOutcome variable (defined roles) coded as yes = 1, No = 0; Independent variables coded as follows: age -# 39 = 1, 40 - 49 = 2, ≥ 50 = 3; Institution - CRH = 1, SJH = 2; years of service - 1 - 5 = 1, 6 - 10 = 2, 11 - 15 = 3, > 15 = 4; Occupation - doctor = 1, nurse = 2, paramedical = 3, ancillary/auxilliary = 4, admin/clerical = 5.

Officer, Chairperson of disaster preparedness committee and Medical Officer (Health), indicated that orientation of employees to an institutional disaster plan was the responsibility of heads of departments but that this was not being done. The inactive disaster preparedness committee reportedly contributed to lack of awareness among staff.

Experiences of Hurricane Ivan

Work Attendance

The majority of health workers (86.4%) indicated that they had been available to report to work during Hurricane Ivan. Two thirds of hospital staff and a quarter of health department staff reported they had been scheduled for duty during the hurricane. Of those scheduled, most showed up for duties, along with a quarter of those not scheduled. Doctors (100%) were most likely to be available to attend while administrative/clerical staff were least likely.

Barriers Encountered

The major barrier encountered was transportation. Persons also reported difficulties with staff shortage leading to not being relieved at work, and thus not getting time to attend to property or to family issues.

Staff Welfare

Fewer than 50% of respondents were recipients or had knowledge of provisions made for staff by the institution regarding the early warning system, media updates, transportation and communication with family while at work. Half (50.7%) of Health Department workers had received time off from work to conduct personal preparation. Among hospital staff, 63.4% reported receiving or knowing of food being available for staff while on duty. Sleeping areas and protective gear were only provided for a few persons.

Attitude towards disaster management

Attitudes to disaster management were generally positive, with 99.0% of persons reporting that disaster management training should be compulsory for all health workers and 95.0% agreeing that they felt responsible for helping in the event of a hurricane. Only 46.2% agreed however that pro-

vision made for staff to carry out their responsibilities was adequate and only 55.1% said they were always prepared for a hurricane.

DISCUSSION

Planning for a disaster is time consuming as there always seem to be more pressing demands. Maintaining a state of disaster preparedness year after year can be a challenge especially with long intervening periods of relative "calm". An efficient disaster preparedness committee requires not just a few enthusiasts but the corporate experience of many disciplines.

The Committee must develop the overall plan for the institution which should include clearly defined roles and standards of emergency care. Developing and implementing relevant training programmes should also be included. The Caribbean Cooperation in Health recommends that countries establish comprehensive health disaster plans which should be tested and updated every two years (5).

There is a high turnover of staff especially among porters and housekeeping staff at the secondary care level. This demands that training and drills occur frequently but this was evidently lacking in these institutions. A similar situation was described by Allen based on a study done on the Mona Campus of the University of the West Indies in 2002. Bullock-DuCasse (1986) in a small study of health and emergency workers in St Catherine also reported low levels of disaster awareness and low rates of training (7).

As essential service employees, health workers are expected to live up to their responsibility in the event of a hurricane to meet the health needs of the community. Key informants confirmed that disaster training was done and a large proportion of staff admitted to clearly defined roles. Fifty per cent of primary care staff showed up for work after Hurricane Ivan compared to 70% of hospital staff. Since primary healthcare staff is less likely to be rostered, this may be an indication of a motivated staff or a well executed plan. Lack of support for staff to maintain links with their families must have been a source of stress, however. While there was some effort to provide for staff on duty, this was inadequate: sleeping and change area for staff, food, transportation to and from work, and protective gear are issues that need to be addressed. A disaster preparedness budget may be the answer to some of the shortfalls reported.

Cuba has made impressive achievements in risk reduction and disaster response due to an effective government-driven disaster preparedness model. All adult citizens receive civil defence training which includes disaster management; any school child can explain how to prepare, what the phases of disaster management are and what to do in each phase (8). There may be important lessons to learn from this model.

It can be concluded that members of the health team in St James lacked knowledge of the plans for disaster management in their places of work. Although the staff seemed

willing to work during a hurricane even without being scheduled, they were hindered by lack of transportation and constrained by responsibility to family and care for property. Ongoing training in disaster management, a functioning disaster committee and budgetary allocations for disaster management are recommended.

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