Disaster Health Education and Training: A Pilot Questionnaire to Understand Current Status

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Abbreviations:

OECD = Organization for Economic Cooperation and Development WADEM = World Association for Disaster and Emergency Medicine WHO = World Health Organization WHO/PAHO = World Health Organization/Pan-American Health Organization

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Abstract

In October 2004, a World Association for Disaster and Emergency Medicine (WADEM) Seminar was convened in Brusselsby the Education Committee to discuss Disaster Education and Training. During this seminar, it became apparent that there was no single tool available to assess knowledge, skills, and resources within this field. Therefore, a tool was administered to 50 of the delegates to assess if the tool would facilitate information-sharing and curriculum development in disaster health education.

The WADEM Education Committee devised a reference scheme for disaster health training and education based on seven educational levels within a framework based on the Bradt model. A questionnaire was developed to answer questions regarding current practices in disaster health education and training, and the perceived barriers to creating an international system of standards, guidelines, and accreditation. The questionnaire was sent to all of the delegates and the responses were analyzed.

The questionnaire was useful for information-sharing and curriculum development. Based on the respondents' experience, strategies were put forward for adopting better coordinated framework for disaster health education and training. This questionnaire should be updated and repeated annually within the WADEM. Wider use of the tool is recommended to help evaluate current educational resources in disaster health and in the wider educational field. It could facilitate the development and audit of current and future courses. An international system for education and training should lead to more efficient and coordinated health responses to disasters.

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Introduction

At the 2003 World Congress in Disaster and Emergency Medicine in Melbourne, Australia, the World Health Organization (WHO) requested that the World Association of Disaster and Emergency Medicine (WADEM) consider international standards and guidelines on education and training for multidisciplinary health responses to major events that threaten the health status of a community. A Working Group of the Education Committee of the WADEM was established and published an initial paper on the issues relating to this activity. A series of four meetings of the Working Group was convened that led to an international group meeting in Brussels, Belgium in October 2004. Fifty representatives from 18 countries participated and a wide range of multi-disciplinary groups including public health, paramedics, emergency medicine practitioners, nurses, intensive care personnel, toxicologists, family medicine practitioners, clinical psychologists, social scientists, and geographers were present. These individuals, committed to disaster health management, represented governmental, inter-governmental, and non-governmental organizations.

Following extensive debate, the participants still found it difficult to define the term "disaster", but agreed that it should include "major events which actually or potentially threaten the health status of a community". This would

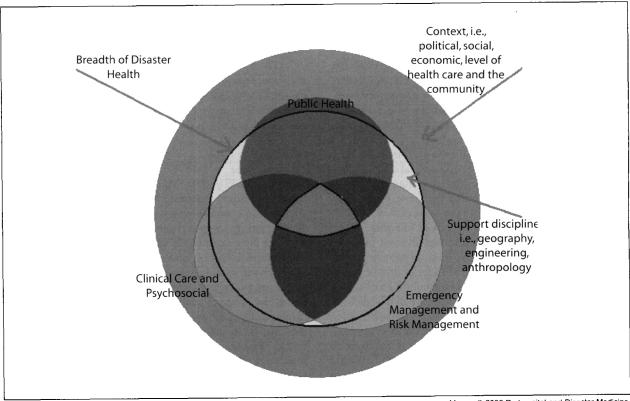


Figure 1—A framework for "Disaster Health" (Bradt et al, 2003)

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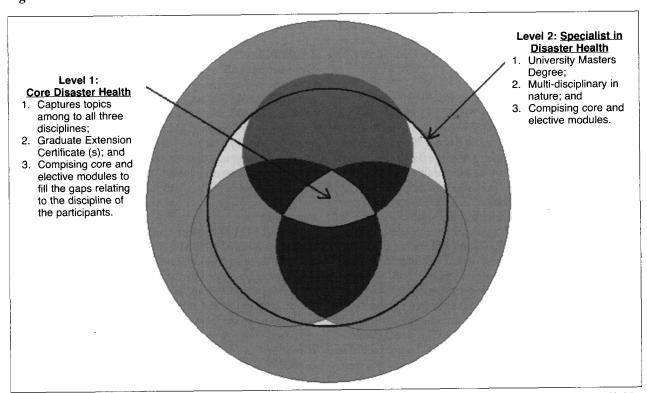


Figure 2—Framework for "Disaster Health" Education (Bradt et al, 2003)

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include events such as natural hazards, major incidents such as transport accidents, technological disasters, and public health crises, such as infectious diseases, mass gatherings, and events related to terrorism.

When considering the need for a multi-disciplinary health response to major events, the term "disaster health" was created to replace "disaster and emergency medicine". The new term incorporates all relevant disciplines. Disaster health was considered the heart of a set of interconnecting disciplines based on the Bradt model.² A framework for disaster health was constructed (Figure 1). It includes three main disciplines: (1) clinical and psychosocial care; (2) public health; and (3) emergency and risk management, as interconnecting circles surrounded by the support disciplines and disciplines that define the context in which they are set. Seven levels of training have been identified.¹

A model for disaster health education also was proposed (Figure 2). The model includes two levels of specialist qualifications in disaster health: (1) core disaster health for practitioners; and (2) specialist in disaster health for managers. The participants agreed that an international system of standards, guidelines, and accreditation for disaster health education could lead to better coordinated health responses to disasters.

The problems created by cultural and language differences among disaster health workers that are raised in the World Health Organization/Pan-American Health Organization (WHO/PAHO) Guidelines³ must be considered during training. There are no tools available to assess knowledge, skills, and resources within this field.^{1,4} The participants agreed to develop and pilot a questionnaire that would describe current practices in disaster health education and training, and the perceived barriers to creating an international system of standards, guidelines, and accreditation.

Methods

This pilot study was a retrospective, descriptive survey. The study population consisted of 45 delegates who had attended the international meeting of the Working Group in Brussels, Belgium and who were involved in disaster health education and training. Five conference delegates were excluded from the survey because they were not disaster health educators. An electronic questionnaire was developed regarding current practices in disaster health education and training, and the perceived barriers to creating an international system of standards, guidelines, and accreditation in disaster health education and training (Appendix). Questions included: (1) by whom is training given, to whom, and at what levels?; (2) how accessible is the training?; (3) in what language is it delivered?; (4) is it delivered as part of initial or continuing education?; (5) is it occasional or routine?; (6) is it delivered face-to-face or by distance learning?; (7) what methods of education and training are used?; (8) what competencies are taught?; (9) is training accredited, either internally or externally?; and (10) what problems must be overcome to move towards an international system of standards, guidelines, and accreditation? Because this was a pilot study, some questions were open-ended in order to identify and collect a range of relevant data.

This survey was distributed by e-mail to all 45 conference participants, who were disaster health educators, and their

responses were collected by e-mail. Responses were coded and tabulated using a Microsoft Excel version 2000 spreadsheet (Microsoft Inc., Redmond, Washington).

Data were processed using simple descriptive statistics (STATA 8, StataCorp LP, College Station, Texas), and results were expressed as frequencies. Because some survey participants failed to answer some questions, or provided more than one answer to some questions, the reported frequencies may not equal 100%.

Results

Survey response

Thirty-one of 45 (69%) conference delegates who were disaster health educators responded to the survey (respondents). Although 15 countries were represented in the survey, 74% of survey participants were from Western Europe, the United States, or New Zealand. One survey participant trained in various European Member States, one trained in many developing countries, and two offered training internationally (Table 1).

Survey respondents represented a wide range of disaster health disciplines, most being involved in more than one. The highest number (68%) were involved in emergency management and risk management disciplines. Several support (geography, engineering, toxicology) and context (community health care, sociology, social psychology) disciplines also were represented. Eighty-four percent liaised with other disciplines in their teaching, and the disciplines that they liaised with were evenly distributed (Table 2). Respondents were involved in all phases of the disaster health cycle: (1) mitigation (39%); (2) preparedness and initial response (77%); (3) back-up response (54%); and (4) long-term reconstruction (42%).

Students/Trainees

Different levels of training have been identified.¹ They are (1) Level 1: Community; (2) Level 2: Responder Basic; (3) Level 3: First Responder, divided into Provider, Tactical and Strategic; (4) Level 4: First Responder, Graduate; (5) Level 5: Professional/Master's; (6) Level 6: Specialist/Consultants; and (7) Level 7: Doctoral/Management. The frequency of levels of training identified as being provided by the respondents is summarized in Table 3. Most respondents supported all levels, particularly Levels 2, 3, and 5.

Accessibility

A total of 94% of respondents reported that fees for the education/training were paid for by employers, government or agencies, or a combination of these. Seventy-one percent of respondents reported that students could receive all of the necessary education/training in their country of residence. The study did not investigate the accessibility of training in the students' country of origin.

Phases

A total of 23% of respondents reported that training was delivered in initial education only, 29% in continuing professional development only, and 48% taught in both phases. In continuing training, 39% taught occasionally, 13% annually, 13% bi-annually, and 19% tri-annually.

Country	Number of trainers
Austria	1
Belgium	6
Greece	3
India	1
Iran	1
Italy	1
Luxembourg	1
Netherlands	2
New Zealand	1
Portugal	2
Romania	1
Saudi Arabia	1
Sri Lanka	1
United Kingdom	6
United States	3

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Table 1—Countries of respondents' training programs (e.g., German trainer working in Sri Lanka)

Disciplines involved in liaison	Frequency (%)
Clinical/psychosocial	(52)
Public health	(45)
Emergency/ risk management	(61)
Support disciplines ^a	(36)
Context disciplines ^b	(42)

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Table 2—Disciplines involved in liaison (^aSupport disciplines include: anthropology, architecture, engineering, ethnology, geography, geology, seismology, and spatial planning; ^bContext disciplines include: basic life support, community health care, economics, media management, political science, social sciences, and socio-economic sciences)

Accreditation

The majority of respondents (65%) reported that their courses were accredited. Twenty-three percent were accredited locally, 58% were accredited nationally, and 13% were accredited internationally.

Education/Training Methods

Almost all respondents (97%) reported that they delivered face-to-face training. A minority (23%) also used distance-learning methods. Reported training methods included lectures (might include interaction and visual aids) (94%), seminars (81%), exercises (71%), papers (61%), and books (36%). Other reported methods included the use of CD-ROMs, the Internet, demonstrations, simulations, workshops, doorstep visits (made to local people's houses for community training), and field exposure visits.

Level	Frequency (%)
1-Community	(36)
2-First responder basic	(58)
3-First responder provider	(61)
3-First responder tactical	(45)
3-First responder strategic	(48)
4-First responder graduate	(26)
5-Professional/Masters	(48)
6-Specialist/consultant	(39)
7-Doctoral/management	(42)

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Table 3—Levels of training provided by respondents

Programs and Styles

Sixty-eight percent of respondents reported that they taught within a multi-disciplinary program, 48% taught within vocational programs, 45% taught in themed programs, 45% taught in modular programs, 42% using scenario-based approaches, 36% in competence-based units, 29% used supported practical experience, and 26% core and elective units.

Adapting Disaster Health Education to the Framework Proposed by the WADEM

Fifty-eight percent of respondents had material that they were prepared to offer toward the Core Disaster Health for practitioners course and 52% toward the Specialist in Disaster health for managers course. A total of 81% of respondents agreed that support and context disciplines should be included in both of the proposed courses.

Language of Training

All respondents reported that they taught in the students' native language or in a language commonly used and spoken in that country, and that they thought this was the most appropriate language for teaching. When asked their opinion on the best training strategies to reduce language problems while working in the field, 39% favored training in one of the WHO languages (English, French, Spanish, Arabic, Russian, or Chinese), or 42% favored a language module for those wanting to do international work. In addition, 29% suggested other options, including: (1) every student should learn a second language or speak one of the WHO languages; (2) there should be separate courses for domestic and international courses; (3) courses should be taught in the native language with translations of course material; (4) instructors should use the Red Cross Multi-Lingual Handbook; (5) liaison officers and translators of local origin for operational work should be used; (6) one common world-wide language (English) should be used for official and strategic communication; and (7) exchange programs should be included.

Cultural Awareness

Respondents recommended, based on their experiences, the following methods to increase the awareness of cultural differences between countries: (1) incorporation of material into exercises (55%); (2) training modules (48%); (3) provi-

sion of databases of local knowledge (39%); and (4) a combination of these approaches (43%). Survey respondents suggested that other content areas should include cultural anthropology, cultural geography, communication skills, body language skills, and using lessons learned from past disasters. Reported field methods included cooperation with ethnologists, visits, and reading publications.

Perceived Barriers to an International System of Standards, Guidelines, and Accreditation in Disaster Health Education and Training

Respondents reported multiple perceived barriers to establishing an international system of standards, guidelines, and accreditation in disaster health education and training including:

- Fragmentation of educational infrastructure within countries, with different institutes having different interests;
- Insufficient government involvement and funding for national programs, which then could be coordinated internationally;
- 3. Lack of a lead organization to complete this task;
- 4. Lack of international consensus regarding who should be trained and what training they should receive;
- 5. Lack of coordination among disciplines involved in disaster health education;
- 6. Insufficient interest fostered in some countries;
- 7. Insufficient international exchange between some countries:
- 8. Communication challenges related to language differences and a lack of cultural awareness;
- Need for visiting educators to respect indigenous competencies; and
- 10. Insufficient documentation of events, epidemiological studies and relevant scientific publications.

International Accreditation

Seventy-four percent of respondents identified the WADEM as the most appropriate international accrediting body for disaster health education and training. Of these, 45% recommended that the WADEM should perform this function alone, 29% recommended that the WADEM should perform this function in partnership with another organization, and 19% recommended that some other organization perform this function.

The reasons given for selecting "WADEM only" as the international accrediting body included that the WADEM: (1) is a mature organization, having been established in 1975; (2) has international credibility; (3) offers a breadth of expertise through its members; (4) has accomplished significant work in the area of international standards; (5) represents a combination of disciplines; and (6) already has an education committee. Some felt that there would be no conflict of interests by Board Members and that the WADEM may be the only body capable of working as an international coordinator. Some noted that accreditation also may bring in revenue, which would support other WADEM programs.

Those who chose "WADEM plus other" provided the following rationale: (1) the WADEM currently may have

too little status and infrastructure to guarantee long-term quality by itself; and (2) the WADEM has little experience in disaster management in developing countries. Potential partner organizations that were suggested included: (1) the United Nations (7); (2) the WHO (8); (3) non-governmental organizations such as the International Committee of the Red Cross (9); (4) local, regional or national agencies such as the Health Protection Agency (10); and (5) universities such as the Mailman School of Public Health.¹¹

Those who chose "Other only" (19%) provided the following reasons: (1) the WADEM may not have sufficient credibility; and (2) the WADEM does not have the authority or the mandate to perform international accreditation. They suggested that individual government ministries (e.g., Ministry of Education) or universities should perform their own accreditation, although the WADEM could provide guidelines and independent validation, and monitor the quality of existing courses.

Discussion

Current Practices in Health Disaster Education and Training This study suggests that expertise in disaster health and its associated learning styles already exists in a variety of teaching programs, which can be developed further to set up new courses. For example, 68% of respondents already are working within multi-disciplinary programs. A broader survey might highlight other interdisciplinary liaisons. More emphasis on training in supported practical experience could provide trainees with greater levels of preparedness for emergency situations. Internationally agreed competency-based education will lead to increased conformity among graduates. Such standardized competencies could provide greater reliability of appropriate performance by workers in the field and would inform colleagues of their capabilities.

A range of time intervals exists between refresher courses in continuing professional development and this should be addressed. These time intervals could be standardized while taking into account both the experience and responsibilities of the trainers and the trainees.

Facilitation of Information-Sharing and Curriculum Development

All of the respondents were willing to share information about their courses and teaching methods. Some also recommended useful contacts within their countries. A high proportion of the respondents indicated that they had suitable course materials that they were willing to share toward the development of the proposed courses, if appropriate. A broadly distributed survey could generate material from a wider range of disciplines. A global database of expertise, institutes, and course materials could be established for use in curriculum development. It also will be important to gather information gained from studies of disasters, including epidemiological investigations, to provide knowledge of existing problems, for training purposes, and for use in exercises and simulations. Lessons learned from previous disasters must be evaluated and incorporated into education courses and through the WADEM Utstein Template courses.¹²

Perceived Barriers to Creating an International System of Standards, Guidelines, and Accreditation

In the field of disaster health, respondents said more communication across disciplines and countries is needed in order to understand other cultures and overcome language barriers. Currently, national systems are fragmented and must be coordinated. This suggests that individual countries should adopt an international system of standards, guidelines and accreditation. This could be set up through the WHO with the assistance of the Organisation for Economic Cooperation and Development (OECD), PAHO and WADEM. The majority of respondents agreed that the WADEM should be involved in the accreditation process. International accreditation schemes in other disciplines may provide a framework for this process. ^{5,6}

In an increasingly global world, ideally all students should learn a second language, preferably one used by the WHO. Translations of course materials may be more feasible if the courses are international. In the field, a multilingual handbook could be useful, as could the provision of local translators and liaison officers. If exchanges could be built into training programs, it could lead to less insularity, more awareness of other cultures, and will highlight the need for second language training.

Limitations

Although the response rate was satisfactory, very few countries were represented and a high proportion of respondents were from developed countries. A larger, worldwide survey must be carried out to obtain a more balanced assessment of current education/training activities. Countries in varying stages of development should be represented. There may be differences in access to training and the methods used. Students' countries of origin should be studied to identify gaps that exist in the provision of education and training and how distance-learning and other methods might be used to overcome them.

Although respondents were from a range of disciplines, a high proportion of them were from the emergency medicine field and were involved in the preparation and initial response phases of the disaster cycle. A broader survey should encompass all of the relevant disciplines and longitudinal phases. Varying ranges of expertise will exist in countries, depending on the types of disasters they experience.

Conclusions

This survey suggests that the respondents would welcome an international system of education/training in disaster health. They are willing to adapt to the proposed model. The debate has continued on how to accomplish this at the World Congress of Disaster Medicine in Edinburgh in May 2005.

A further questionnaire could be developed for a wider survey of the WADEM membership. The members could widen the scope by recommending that other specialists in their countries complete the questionnaire. The questionnaire could be administered at frequent intervals and updated regularly, possibly annually. Broader and more frequently administered surveys are more likely to capture currently available educational resources, not only in disaster health, but also in education. The data collected should facilitate the development and audit of current or future courses. The WADEM may wish to seek funding for this further work.

Studies of training provisions for disaster health should be completed to determine the extent of coordination within countries. This would indicate any gaps in provision and help to develop the way forward toward international standardization.

The greater the number of countries that can provide their own expertise, the more efficient health response to disasters will become. In light of the December 2004 Tsunami that struck Southeast Asia, and now more recently Hurricane Katrina, and the earthquake in Pakistan, it is important to learn from local, national, and international responses. It is important to determine how successful these responses were. International guidelines must be established for the definitions of best practices in preparedness and the mitigation of effects against all types of hazards, and for long-term support for reconstruction and rehabilitation. This will involve expertise in many fields and will require a coordinating body.

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Appendix—Electronic pilot questionnaire on current practices in disaster health education and training, distributed to delegates of the World Association for Disaster and Emergency Medicine (WADEM) Working Group meeting in Brussels, Belguim in October 2004

Section A: Your current employment

1	Name of institution		
2	Address of institution		
3	Type of institution	Government	
		National Health Service	
		Non-governmental organization	
		(please specify)	
		Other	
		(please specify)	
4	Position held		

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Section B: Your current training activities

To answer 7–9, please refer to the World Association for Disaster and Emergency Medicine (WADEM) Framework for Disaster Health shown in Figure 1

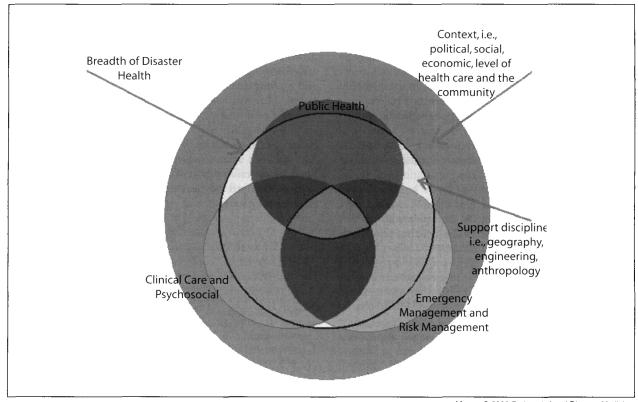


Figure 1—A framework for "Disaster Health" (Bradt et al, 2003)

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Section B (continued from page 162): Your current training activities To answer 7–9, please refer to the Framework for Disaster Health shown in Figure 1

5	In which country do you deliver your training?			
		Level 1: Community		
		Level 2: First Responders/Basic		
	(a	Level 3 Bronze: First Responders/Advanced/Provider		
		Level 3 Silver: First Responders/Advanced/Tactical		
6	Which level(s) of trainee do you teach? (You may tick more than one box.)	Level 3 Gold: First Responders/Advanced/Strategic		
		Level 4: First Responders/Graduate		
		Level 5: Professional/Master's Degree		
		Level 6: Specialist/Consultant		
		Level 7: Doctoral/Management		
		Main disciplines:		
		Clinical care and psychosocial		
		Public health		
7	In relation to the Disaster Health Framework in Figure 1, which discipline do you mainly teach?	Emergency/risk management		
, ,		Support discipline (e.g., geography, engineering, anthropology)		
		(please specify)		
		Context discipline (e.g., political, social, economic, health care, community)		
		(please specify)		
		Yes		
8	Do you teach within a multi-disciplinary program that combines other frameworks from this framework?	Go to Question 9		
		No		
		Go to Question 10		
		Clinical care and psychosocial		
		Public health		
9		Please tick the other discipline(s) you liase	Emergency/risk management	
	with from the Disaster Health Framework in Figure 1.	Support discipline (e.g., geography, engineering, anthropology)		
	(You may tick more than one box.)	(please specify)		
		Context discipline (e.g., political, social, economic, health care, community)		
		(please specify)		

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(continued)

Section B (continued from page 163): Your current training activities

10	To which stage(s) of Disaster Health is your training directed? (You may tick more than one box.)	Mitigation	
		Preparedness	
		Initial response (first 48 hours)	
		Back-up response (day 3-15)	
		Long-term reconstruction/support	
11	Please indicate the course(s) you teach and indicate the level of trainees.		
12	Is there accrediation for your	Yes	
		No	
	course(s)? If yes, indicate the level of	Local	
	accreditation.	National	
		International	
13	Please list any other courses relating to Disaster Health you are aware of at your own institution or in your country.	At your own institution:	
		In your country:	
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Section C: Your delivery of current training

44		Face-to-face	
	14	My training is delivered:	By distance learning
14	wy training is delivered.	Other	
		(please specify)	
		Seminars	
	15 My training uses the following methods:	Lectures	
		Papers	
15		Books	
		Case or scenario-based exercises	
		Other	
		(please specify)	

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(continued)

Section C (continued from page 164): Your delivery of current training

16	My training is delivered as part of:	By distance learning	
	m, assume to converted as part of.	Other	
		(please specify)	
		Occasionally	
]		Routine update annually	
17	If you teach in continuing education, how	Routine update bi-annually	
''	frequently do trainees receive training?	Routine update tri-annually	
		Other	
		(please specify)	
		Part of a mulit-disciplinary program	
	Which of these simble took in a third one was used	Vocational focus (for practicioners)	
		Themed approach (e.g., in themes which integrate specific disciplines)	
18	Which of these eight teaching styles are used in your programs? (You may tick more than one box.)	Core and electives (a common core and elective input according to background)	
10		Modular approach (modules offered according to requirements)	
		Case or scenario-based framework	
		Supervised practical experience	
		Competence-based (show how/know how) approach	
19	Please give any details of any competence- based units you teach.		
		Student	
		Student's employer/institute	
20	Who pays the student fees for your courses?	Government	
		Other	
	·	(please specify)	
	Can your students obtain all their required training for Disaster Health within their own	All training obtained in student's own country	
21	country of residence, or do they need to obtain some sort of their training by attending	Attend some courses abroad	
	courses abroad or by using distance-learning materials form abroad?	Use distance-learning from providers outside their own country	

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Section D: Adapting to new training techniques

A framework for Disaster Health Education has been proposed by the WADEM, involving two new qualifications at Levels 1 and 2 as shown in Figure 2. Please refer to Figure 2 to answer questions 22-25.

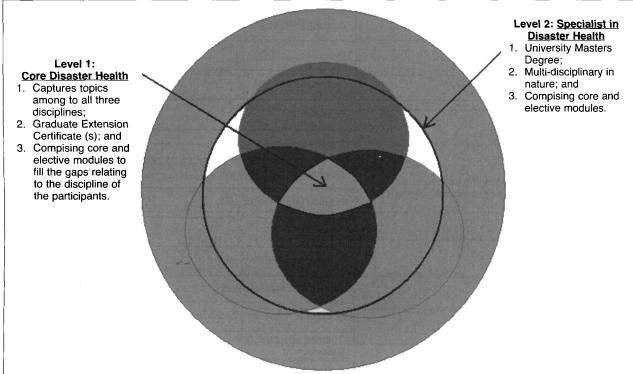


Figure 2—Framework for "Disaster Health" Education (Bradt et al, 2003)

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22		Yes	
	Are any of your present teaching materials appropriate to be adapted and shared for the Graduate Certificate (Level 1)?	No	
	, ,	If yes, please specify subjects	
23		Yes	
	Are any of your present teaching materials appropriate to be adapted and shared for the Master's Degree course (Level 2)?	No	
		If yes, please specify subjects	
24	Do you think support and context disciplines should be included in the Graduate Certificate	Yes	
	(Level 1)?	No	
25	Do you think support and context disciplines	Yes	
20	should be included in the Master's Degree (Level 2)?	No	

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Section D (continued from page 166): Adapting to new training techniques

	An understanding of local culture and conditions is	As a training module	
		Incorporate into scenario-based exercises	
26	important in international cooperation in response to disasters. How can this aspect best be prepared for during training?	Provide a database of local information for foreign workers	
	so property for suring training.	Other	
		(please specify)	
27	In which language do you teach?		
28	What would be the most appropriate language to use for training your students?		
		All training to be carried out in one of the six major languages used by the World Health Organization (i.e., English, French, Spanish, Russian, Arabic, Chinese)	
29	Language is an important factor for international cooperation in response to disasters. How do you think this aspect could best be prepared for during training?	A separate elective module in one of these languages for those wanting to work internationally in this field	
		Other	
		(please specify)	
30	What is the main barrier to developing international standards for Disaster Health Education and Training in your country of activity.		-200
31	How could this barrier best be overcome?		
		WADEM	
32	Who do you think should be the accrediting body for Disaster Health courses?	Other	
		(please specify)	
33	State the main reason for your answer to question 32.		

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