

# Education and Training in Environmental Health Services Evaluation

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*A multi-functional educational and training module in Environmental Health Services Evaluation has recently been developed to build environmental health management evaluation capacity in Australia. Three institutions involved in the delivery of environmental health educational programs worked together with other key stakeholders to produce a module in Environmental Health Services Evaluation. A consultative approach was adopted to identify key content areas, and provide expert feedback on the content and format of delivery. The product, 12 connected modular sessions in Environmental Health Services Evaluation, is available for use, in a range of delivery-modes, by institutions involved in the education of environmental health practitioners (EHPs). This paper reports on the development of this module and its potential for improving evaluation and hence practice and outcomes in environmental health.*

**Key words:** *Environmental Health Education; Environmental Health Services; Evaluation; Workforce Training*

The Environmental Health Services Evaluation initiative is in response to three priority areas identified by a joint committee involving the Department of Health and Ageing, the Australian Network Association of Public Health Institutions (ANAPHI) and the National Public Health Partnership (NPHP). The priorities included environmental health, program evaluation and workforce training. At the time of development, the linkages between environmental health, program evaluation and workforce training were seen to be weak in Australia. Evaluations of environmental health services were infrequently performed<sup>1</sup> posing limitations on policy development and environmental health service delivery. Similar needs identified internationally resulted in the development by WHO of guidelines for evaluation of environmental health services (Drew, van Duivenboden & Bonnefoy 2000), which was subsequently used in the development of the module which is the subject of this article.

Course coordinators from two universities in Victoria (Swinburne University of Technology and La Trobe University - Bendigo) involved in the delivery of accredited Australian Institute of Environment Health (AIEH) programs identified the need to strengthen the evaluation components in the context of environmental health within their own courses, with the potential for this to be applied more widely to other educational providers in this area. This was in response to the need to enhance environmental health capacity, particularly in the area of evidence based practice, outlined in Australia's National Environmental Health Strategy (Department of Health and Aged Care 1999) and reflected in the AIEH environmental health course accreditation policy (Australian Institute of Environmental Health 2005).

They collaborated with an educator and an experienced health program evaluator at The University of Melbourne<sup>3</sup> to address this local and potentially wider national need. An Internet search of the curricula of eight

AIEH accredited courses, suggested a need to build evaluation into the curricula and subsequently to enhance the competency of environmental health practitioners (EHPs) in the field of evaluation.

In 2002, the Public Health and Education Program (PHERP), an Australian Government initiative with the aim of strengthening the capacity of the public health workforce across the country, offered funding for innovations that met its aims of workforce capacity building in the priority areas identified. One of the principles underpinning PHERP funding, was collaborative innovations. In line with this principle, a proposal was put together to develop and implement a module covering the subject area: *Environmental health services evaluation*. This was to be done in collaboration with The University of Melbourne, Swinburne University of Technology, La Trobe University - Bendigo, the Department of Human Services and the Australian Institute of Environmental Health (Victorian Branch). An EHP with expertise in the issues facing Aboriginal and Torres Strait communities joined the collaboration to provide assistance to the group to ensure the materials to be developed were also relevant to the workforce addressing environmental health needs in these communities.

PHERP funding was obtained to develop a teaching module that could be useful to distance and face-to-face modes of delivery, and was able to function as a resource for an accredited undergraduate and postgraduate subject and a standalone workforce training course to develop evaluation in the environmental health workforce. A further aim of the proposal was to promote environmental health outcomes through improved questioning and examination of environmental health services as espoused in the Australian Charter for Environmental Health, a key driver of the National Environmental Health Strategy:

*Improving the delivery of environmental health services, encouraging innovation, and careful examination of how environmental health services are provided - including the relative costs and benefits of each alternative - are important considerations for optimal environmental health outcomes (Department of Health and Aged Care 1999 p. 9).*

There is an increasing emphasis on evidence-informed practice in environmental health. Evaluation is one of the tools used to improve service delivery, gain a better understanding of important program and service operants, and promote innovation.

### Framework for the Development of the Module

In developing the module, particular emphasis was placed on the process elements as well as on the outcome. Process elements of successful program planning include:

- clarifying the needs of the stakeholders;
- ensuring meaningful participatory decision-making;
- developing flexible, acceptable and practicable programs for specific groups;
- consensus about desired process and outcomes;
- reflective practice to ensure that needs have been met (Talbot & Verrinder 2005)

The initiative involved five key steps:

- setting up a committee of representatives from institutions interested in incorporating the module in their education and training programs, or skilling their workforce;
- consulting a range of EHPs to find out what topics and case studies they would like to see in the course;
- identifying case studies to be used in the module;

- developing a module with CD Rom based trainer notes and resources;
- establishing an electronic trainer forum for trainers to share materials, ask advice and provide feedback on the course;
- involving experts across Australia to comment and provide feedback on drafts of the modules during development; and
- disseminating, delivering, and establishing ongoing quality improvement of the module.

Each of these key steps is described more fully in the following sections of the paper.

### *The steering committee*

To ensure that the needs of the stakeholders would be met, a steering committee was set up to include the manager of the Environmental Health Unit, Department of the Human Services, Victoria (DHS), the Victorian State President of the Australian Institute of Environmental Health - Victorian Branch, and three educators from each of the universities: The University of Melbourne, Swinburne University of Technology and La Trobe University-Bendigo. A representative of the Environment Protection Authority, Victoria, and an environmental health practitioner (EHP) with expertise in Aboriginal environmental health were available to the committee for advice.

Seven steering committee meetings were convened over the duration of the project. Many of these steering committees ran back-to-back with 'sub-committee' working group meetings of the three educators to discuss pedagogical issues. The wider steering committee would later meet to discuss issues concerning the progress and promotion of the course. Functions of the steering committee included:

- clarifying terms of reference and key milestones of the committee;

- identifying key experts within the collaborating organisations and elsewhere;
- identifying performance indicators for the development and implementation of the module;
- confirming core content and areas of emphasis for the module;
- identifying essential elements of and uses for the electronic trainer forum;
- providing expert feedback on course materials, the overall approach of the initiative; and
- providing resources and case studies to be incorporated into the module.

### *Consultation to identify priority areas and case study preferences*

A structured mailed questionnaire, face-to-face interviews and a telephone interview of EHPs were performed to ask them what they would like to see included in such a course and to gain a greater understanding of the range of environmental health services in the State Government and Environmental Health Authority settings.

The structured questionnaire was sent to all Environmental Health Officers (EHOs) in Victoria and Western Australia (WA) and a number of EHPs, for example, state managers, and EHPs involved in Aboriginal environmental health. EHOs in Victoria and WA were chosen because of the geographic and demographic disparities between the two. This sample provided information about the wide range of issues and service areas undertaken by EHOs across Australia.

The face-to-face or telephone interviews of EHPs took place with key representatives of the Environmental Health Branch of the Victorian Department of Human Services, the Victorian Environment Protection Authority, the Australian Institute of Environmental Health, and an EHP with expertise in Indigenous environmental health issues at the national level.

These processes together helped identify priority content areas for evaluation. The processes also informed the development of case studies to be used as learning tools in the development of the course.

### *Developing the content*

The themes that emerged from the respondents include the measurement of outcomes, data collection methods, basic evaluation theory, the development of performance indicators, strategies to promote 'change' in the political environment (evaluation utilisation); reasons why EHPs should evaluate; program logic, efficiency of resource use, and identifying best practice. The evaluation of risk communication activities was also raised, as was the evaluation of program outcomes, particularly for programs addressing air and soil pollution, waste-management, industrial regulation and immunisation.

The committee decided that generic data collection methods, for example, how to develop a survey or how to run a focus group, would only be covered in an introductory manner in the module, due to the many generic courses on data collection methods available. However, the importance of choosing an appropriate design, particularly when making inferences of causation, was considered an important aspect to include in the module particularly in relation to the evaluation of program or service delivery.

### *Development of case studies*

An important aspect of the module development was to include the use of case studies as a means to develop 'authentic activities' which simulated actual situations (Conrad & Donaldson 2004). Using these types of activities is important in 'order to connect the learning gained from everyday life to the course in order to create a deeper sense of meaning for the participants and validated them as people who possess knowledge and who can apply what they know in other

contexts' (Palloff & Pratt 1999 p. 116). To be effective, the activity must have value outside the learning setting and should build skills that can be used beyond the life of the course enhancing student's problem-solving power (Conrad & Donaldson 2004).

Case studies which were representative of environmental health practice were actively sought. Many of the respondents in both WA and Victoria stated food safety and waste-management or waste water management as areas they would like to see addressed in the module. Most other case study areas were similarly reported across both states except for the areas of Indigenous environmental health, and building inspections, which were raised by Western Australian EHOs. Risk management was identified by EHPs across both states, more so for WA. This is one area not covered in detail in the module as it was considered that many environmental health activities were in fact 'risk management', therefore evaluation activities would be inherently considered. The steering committee discussed each of the potential case studies that could be used for each of the areas. Hypothetical scenarios were also developed and incorporated in the module to illustrate key evaluation concepts where case studies had not been identified.

### *The module*

Consensus among steering committee members was reached about the content of the 12 sessions (see Table 1). The first nine sessions cover key evaluation concepts with a range of case studies covering those areas raised during the survey. It was decided that three key case study areas would be used as whole sessions each to apply the learning of the previous sessions on a thematic level. These study areas included Aboriginal health, food safety and air pollution. These three areas were chosen because they would demonstrate particular evaluation concepts and relate to particular EHP roles, for example, remote EHOs (Indigenous health), urban EHOs (food safety) and EHPs working in State-

based environmental protection authorities (air pollution). Aboriginal Environmental Health was also a priority area decided at the funding stage, and required a session devoted to the issues of evaluating environmental health programs or service delivery.

**Table 1: Titles of Sessions**

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Session 1:	Environmental Health Services Evaluation - What is it and why do it?
Session 2:	What aspect/s of an Environmental Health service can be evaluated?
Session 3:	Planning the Evaluation - Choosing from the rich and varied evaluation menu.
Session 4:	Defining the Environmental Health Program for Evaluation
Session 5:	Data collection approaches, methods and sources useful for the evaluation of environmental health services
Session 6:	The Evaluation of Environmental Health Program Processes
Session 7:	The Evaluation of Environmental Health Program Outcomes
Session 8:	Performance Indicators
Session 9:	Economic Evaluation of Environmental Health Services
Session 10:	Evaluation in Practice: Aboriginal Environmental Health
Session 11:	Evaluation in Practice: Food Safety
Session 12:	Air Pollution: Evaluating Strategies Designed to Address Air Pollution

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### ***Development and evaluation of the module***

The module was drafted primarily by one author, the project coordinator. Health economists from The University of Melbourne wrote the economic evaluation session. Steering committee members and other interested EHPs across Australia provided feedback on each session. The sessions were sent out to specific people with expertise or interest in the topic.

The development of the CD Rom for Distance Education contains two versions - the student version and the tutor version. The tutor notes include the answers to the learning activities interspersed throughout the sessions. The student version has links to the answers that display once the students have attempted

the activity. The steering committee agreed that by incorporating the tutor's notes in the module, it would be user-friendly for the tutor. This would avoid the tutor moving between two documents - the student notes, and their own. The students' version allows each student to obtain the 'answers' to the learning activities once they have attempted each activity. This approach was adopted so that students were provided with immediate feedback and opportunities for cross-checking to enhance the learning experience (Butler & Winne 1995). Readings are provided in CD Rom or hard copy depending on the preferred format of the subject coordinator. For copyright purposes, each institution using the module is required to obtain a copy of the relevant readings. A list of the titles of the references used in the module with the 'readings' for students is provided.

A tutor's electronic forum has been set up to allow those using the module to provide suggestions for improvement, suggest other case studies or readings as they come to their notice, provide tips for assessment or delivery, and find out about future updated versions of the module. It is expected that the forum will be useful with wider use of the module. The forum is part of the reflective practice outlined earlier which is essential in program planning and evaluation.

The module is available for use by all teaching institutions involved in teaching EHPs in Australia. It is now in its second cycle of use in face-to-face mode in an undergraduate degree at Swinburne University of Technology. The subject coordinator (steering committee member), has been providing feedback during and following its delivery. Comments on its first trial in 2005 included:

*Overall the program is great, and the breath of topics covered is terrific. I think some of the students are finding that there is a lot to take in with the readings etc, particularly for EH students as the science subjects do not have the same approach, but this is a good thing I think!*  
(Course deliverer).

The subject evaluation results, undertaken as part of university reporting requirements, have indicated that the subject has been favorably received. Feedback has indicated that students enjoyed developing a broader understanding of evaluation processes and the role of evaluation in enhancing environmental health practice.

A short-course was also developed that incorporated key elements of the module. It has been conducted in Queensland twice, in collaboration with the Queensland University of Technology, first at the institution, and second as an AIEH Queensland State Conference 2-day workshop.

The module has also been used as part of a subject in the Masters in Environmental Health at Queensland University of Technology, and in second semester 2006 has been offered for the first time in distance mode to Masters of Public Health and Masters of Environment students through The University of Melbourne.

### Aims and Learning Outcomes

In program planning and evaluation the best outcome is to achieve the goal which in this case is an environmental health workforce competent in evaluation. At this stage, we do not know if we have reached this goal, but one of the project objectives towards achieving this was to develop an innovative module in a collaborative way that was accessible, flexible and practicable.

As the program is utilised by teaching institutions, it is expected that practitioners skilled in evaluation, will strengthen the relevance, effectiveness and efficiency of their practice. EHPs will be more competent in the planning and implementation

of evaluations of environmental health services. The knowledge-base with regard to the content, process, organisation, efficiency and effectiveness of environmental health services will be enhanced. Policy making with regard to the operation of environmental health services will be better informed, and finally, environmental health outcomes will be improved. The feedback loop of theory informing practice and practice informing theory will continue.

Program planning and evaluation is a dynamic process and this module will continue to change to meet the needs of the stakeholders. Case studies will continue to be collected and incorporated into the module, and provided as additional resources to ensure that there is a variety of current and relevant case studies available in the longer term. Different case studies will suit different audiences, hence the need to maintain a bank of relevant case studies. Students of the short courses in particular will have the opportunity to apply their learning to their own workplace based activities.

### Conclusion

The education and training module has been developed as a response to the growing recognition of the need to strengthen evidence informed practice in environmental health activities. It is anticipated that the consultative approach adopted in the module development, the flexible delivery of the program and the ongoing mechanisms for the evaluation and improvement of the module will ensure the module is a not only a valuable learning tool for the environmental health workforce, but assist in informing policy and decision making in environmental health service delivery.

### Endnotes

1. Anecdotal evidence that is supported by statements in the National Environmental Health Strategy (1999).

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### Note

The distance delivery of the module will be administered by The University of Melbourne. Institutions involved in environmental health education and training will be able to access the course via Distance Education as a subject of The University of Melbourne, or a subject of the student based university. The module will be made available to Australian institutions to incorporate into their teaching programs for face-to-face teaching. Those already within the workforce will be able to access the course via distance education through The University of Melbourne, face-to face as a standalone semester-long or short course, or as one of its postgraduate programs.

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