The Australasian Faculty of
Occupational and Environmental Medicine

The Royal Australasian
College of Physicians

The Australasian Faculty of Occupational and Environmental Medicine

Environmental Medicine Working Group Review Paper

For AFOEM Council

7 MARCH 2012

Content

1. Environmental Medicine Working Group (EMWG)

Terms of Reference

Membership

The EMWG has been established as a working group of the Australasian Faculty of Occupational and Environmental Medicine (AFOEM) reporting to the AFOEM council. A member of the Council is to serve as chair of the EMWG.

The working group consisted of six members, of which 1 is to be a Trainee and at least 1 is to be from New Zealand.

Purpose

The EMWG is to explore/research Environmental Medicine and the role of AFOEM in Environmental Medicine. To date the Faculty has primarily focused on the Occupational Medicine aspect of our name and the Council has requested a review paper that explores the Faculty's future strategic directions in Environmental Medicine.

The EMWG is to conduct inquiries and is to provide a report to council on matters concerning Environmental Medicine by no later than 30 November 2011.

The working party is to consider the following:

- Whether AFOEM should continue to include 'Environmental' in its name

If it continues to be AFOEM, then:

- What is the definition of 'environmental medicine' for the purposes of AFOEM's strategic priorities and direction
- Identify key strategic focal points, and identify how AFOEM will best achieve these:
    - Should AFOEM consider environmental impacts on human health in the context of exposures as a direct result of industrial activities, or should it cover all environmental factors
    - How AFOEM differentiates itself from 'environmental medicine' practitioners, who are not part of AFOEM and who utilise non evidence based interventions for symptom management
    - What changes should be made to the AFOEM curriculum to better reflect environmental medicine competencies
    - How should AFOEM be engaged in policy and advocacy activities in environmental medicine
    - What skills sets need to be identified within AFOEM to be able to respond to short notice environmental medicine issues in the community
    - How should AFOEM and AFPHM interface on environmental medicine matters
    - Should there be a distinct training stream in environmental medicine, or should FAFOEMs be skilled across occupational and environmental medicine on Fellowship. If a distinct training stream is not needed, the EMWP is to provide recommendations to the education committee for further action, eg review of current training and/or development of such competencies.
    - What will be the resource implications for "expanding" our strategy, including
        - Staffing

- Curriculum
- Expertise of Fellows

Consultation

The EMWG shall conduct its deliberations by electronic means in the main. There may be one face to face meeting/workshop to develop the above issues, and a further face to face meeting, if necessary, to finalise the report. Any expenditure of funds will have to meet RACP policy and AFOEM budget allocations.

The EMWG should seek submissions from interested parties within AFOEM, and from additional stakeholders where considered appropriate.

Decisions of the EMWG should be by consensus. Where needed, a vote will be taken, with the chair having the casting vote. Any convened meeting of the EMWP must have a quorum, defined as minimum 50 per cent of members according to the relevant RACP bylaw.

2. Discussion and Recommendations

The Environmental Medicine Working Group was directed by the AFOEM council to provide a report to council on matters pertaining to Environmental Medicine of relevance to the Faculty.

The working group consisted of six members, including a NZ representative and a Trainee representative:

- James Ross (Chair)
- Andrew Jeremijenko
- Richard Lunz (Trainee rep)
- Ki Douglas
- David Black (NZ rep)
- Anthony Brown

The group sought input from AFOEM Fellows and Trainees and from other Australasian and international colleges.

AFOEM adopted environmental in its name in 2007. After 4 years it was considered timely to assess how this has been utilised.

The working group determined that the name should be retained. There were points of view that environmental medicine is but one competency of an occupational physician and should not be 'singled out'. However, this aspect of practice is manifestly different from other components of practice where it requires an interface with more than the working age population.

Environmental health is to be considered an integral part of the scope of practice of occupational physicians. However, the capability to be expected of a Fellow is narrower than that of an environmental medicine specialist where that is in isolation from the occupational context.

There are other branches of medicine that call themselves environmental medicine which are characterised by very different approaches to human health from those which form the basis of physicians' training through RACP. Such approaches do not adhere to evidence based medicine and try to assign environmental exposures as causative agents in a range of symptom complexes. Such approaches are not condoned and are well outside the accepted approach for environmental medicine in AFOEM/RACP. The Australian College of Environmental and Nutritional Medicine is in no way associated with AFOEM and the philosophy and approach enunciated by members of this college are not environmental medicine as taught, assessed and practiced by Fellows of AFOEM.

The working group considered whether 'environmental' should be retained in the name of the Faculty. There was a position argued that the environmental medicine competencies are but one of many that need to be demonstrated by an occupational physician and therefore it was unnecessary to give it prominence in the name. However, the skills required in environmental medicine, while overlapping with occupational medicine, are demonstrably different, to justify the distinction in the title. Further, it was felt that any removal of the word would produce more confusion.

Definition

There were many potential definitions of environmental medicine canvassed. The working group determined that the definition of environmental medicine needed to be in the context of that practised by occupational physicians, which narrowed the scope considerably. While some Fellows may practise more broadly, environmental medicine was generally perceived to be about the impact on human health as a result of industrial activity (including agricultural and mining activity), and the prevention of such negative impacts.

Environmental medicine is the prevention, research, investigation, assessment and treatment of human health impacts of industrial affect the environment beyond the confines of the industrial site.

Survey

An on-line survey of Fellows and Trainees was conducted, with a 31.5 return rate. Approximately half of the respondents considered that they undertook environmental medicine as part of their practice. However, few did core environmental medicine activities regularly, and only some 4% did all core activities on a regular basis. This suggests that environmental medicine remains peripheral to regular practice of the great bulk of Fellows and Trainees. That Trainees had done less environmental medicine than Fellows is of concern. This lack of exposure suggests gaps in experience in environmental medicine exist in the current training program for many Trainees.

This was even more pronounced when formal courses were considered. Approximately half of all Fellows had environmental medicine as part of a formal qualification from a tertiary institution, but only 35 per cent of Trainees. It follows that both Trainees, and Fellows who practice in the field of environmental medicine, will need formal training in this area.

Training

There needs to be more environmental medicine exposure for medical students in Australia and New Zealand. The Faculty has little influence in this area. However, there should be a requirement for all Trainees: (i) to have completed a subject on environmental medicine as part of their coursework that is mandated for the training program, or (ii) to have completed an environmental medicine course of a minimum standard equivalent to a degree course acceptable to the Faculty.

Scope of Practice

It is clear that many Fellows have little or no training in, or exposure to, environmental medicine, even within the confines of the restricted definition suggested. They were in effect ‘grandfathered’ into the title of Occupational and Environmental Physician. The very nature of ‘grandfathering’ has meant that Fellows were not required to demonstrate these competencies at the time of the name change. The downstream effect is that Trainees then have difficulties in acquiring such skills if their supervisor lacks this experience.

Therefore, the training program for all new FAFOEMs will need to ensure that a minimum level of competency is achieved in environmental medicine. This should enable new Fellows to function at the consultant level in occupational and environmental medicine. There is thus no

need to consider streaming of occupational medicine or environmental medicine within the Faculty. This is particularly so when environmental medicine skills are developed and assessed in the context of the industrial environment.

Policy and Advocacy

The Faculty and College need to develop a position statement on the prevention and management of environmental impacts on human health from industrial activity. This should not cover all environmental effects from human activity or where there could be a small contribution from industrial activity, but rather where there is a direct link from the industrial activity to the environmental impact that affects human health. This approach would exclude issues such as climate change. While such topics are valid matters for the College to address, they rightly fall within the domain of public health medicine rather than occupational and environmental medicine.

The Faculty and College have not proactively addressed such issues. The organisation is not well placed to be able to engage in public debate and to influence public policy in environmental medicine. While there will always be a diversity of opinion in the College and Faculty on all matters, there needs to be an acceptance of the consensus of opinion of qualified specialists in the College on policy matters and a determination to respond to opportunities to influence public debate and response to incidents.

It is the opinion of this working group that the inclusion of 'environmental' in the title of the Faculty was adopted without the necessary training infrastructure and engagement of all Fellows. AFOEM and RACP has not had the interest nor the resources to devote to environmental medicine policy and advocacy topics that should stem from the change of name. However, the name exists, and the confusion and the message that would be given by removing the name now does not justify a reversion to the old name. It does however require a very clear delineation of what AFOEM and RACP will be undertaking in the field of environmental medicine.

Recommendations

- A definition of environmental medicine to be used for the purposes of AFOEM that reflects the role limited to the impact of industrial activities on the wider environment. This definition to be communicated to stakeholders
- That there not be a separate environmental medicine stream in the AFOEM. Environmental medicine is but one competency that should be possessed by all FAFOEMs
- That other Colleges/Faculties with an interest in environmental medicine (with the exception of the Australian College of Nutritional and Environmental Medicine) be approached to establish an environmental medicine 'contact group'
- That ways of providing exposure to the practice of environmental medicine for Trainees be considered
- AFOEM website to be modified to include details on environmental medicine
- Canvas the Fellowship to ensure those with environmental medicine expertise are identified as such on the find a consultant resource
- Require all Trainees to complete a tertiary level subject in environmental medicine either stand alone or as part of a tertiary course

- Ensure there is clear differentiation between AFOEM and the Australian College of Nutritional and Environmental Medicine
- That AFOEM/RACP do engage in environmental medicine issues as part of the Policy and Advocacy Committee (PAC) strategy
- That the PAC develop a position statement on the impact of industrial activity on the environment and human health
- That the PAC address the following topics as priority areas for PAC: asbestos and noise
- That AFPHM be the lead on environmental issues that are not primarily from an industrial source (i.e. climate change)

3. Background

The Australasian Faculty of Occupational and Environmental Medicine adopted the addition of 'Environmental' in its title in 2007, after some lengthy debate within the Faculty and the Royal Australasian College of Physicians. At that time the Faculty established a working party that answered to the Council on implementation of the name change. This working group met on three occasions until early 2008.

The most obvious change as a result of this was the incorporation of environmental medicine more formally into the training program of the Faculty. The Faculty curriculum, which was approved in 2010 and endorsed by AMC in 2011, has a competency of environmental medicine.

What did not change was any requirement for existing Fellows to be able to demonstrate environmental medicine specialist knowledge and skills commensurate with existing AFOEM competencies. In this case, it was assumed that FAFOEMs would limit their scope of practice to their own identified specialist skills, and if they were to conduct environmental medicine services, would need to ensure they had the requisite capacity. It appears that only a small proportion of FAFOEMs do actively engage in providing environmental medicine services.

AFOEM grew out of the Australasian College of Occupational Medicine. In 1993 it was incorporated into the RACP as the Australasian Faculty of Occupational Medicine.

The American College of Occupational Medicine decided to adopt the name of American College of Occupational and Environmental Medicine in 1996, some decades before AFOEM. Around the same time, the Journal of Occupational Medicine, which is published under the auspices of ACOEM, changed its name to the Journal of Occupational and Environmental Medicine.

Meanwhile, the Faculty of Occupational Medicine of the Royal College of Physicians considered a name change. This was not pursued. There was a review of environmental medicine conducted in the UK in 2010, led by a Fellow of the Faculty of Occupational Medicine. This review concluded that there were numerous medical colleges with an interest in environmental impacts on human health and that a multi-college environmental medicine-working group should be established.

The use of the term 'environmental medicine' has in part been grasped by the Australian College of Environmental and Nutritional Medicine (ACNEM). This group lies outside of the mainstream medical college system, and is not recognised by AMC as a specialty. http://www.acnem.org/modules/mastop_publish/

The ACNEM website makes it abundantly clear that the scope of practice, the clientele, the scientific basis to that practice between ACNEM and AFOEM is quite different, to the point that there is almost no. The AFOEM practice of environmental medicine does not presuppose that there is a huge burden of illness based on poorly defined toxins and the need to purge the body of these supposed causative agents. AFOEM may be concerned about the possible confusion between the rigorous, evidence-based practice of our Fellows, and the implausible claims of nutritional medicine practitioners. However, the best approach is to essentially ignore ACNEM and pursue our own course in preventing and treating human health impacts from industrial sources of environmental damage.

4. FAFOEM's Current Practice in Environmental Medicine

AFOEM Environmental Medicine Survey

The Environmental Medicine Working Group recognised that it would be important to find out (i) the level of practice in environmental medicine amongst members (Fellows and Trainees) of the Faculty, and (ii) the boundaries of that practice particularly with respect to environmental medicine as practiced by AFPHM. The working group also wished to assess the level of training of members in environmental medicine. It was agreed to conduct an on-line survey of the membership.

The survey was set up in Survey Monkey (www.surveymonkey.com). A specific direct link to the survey was created and this link was advertised to members in a number of regular bulletins and a direct email to members. The survey was available from July 2011 and closed at the end of September 2011.

Respondent Status and Response Rate

A total of 125 responses were received. Not everyone answered every question or every part of each question.

The question asked was:

Are you a Fellow or a Trainee?

Fellow	96	82.8%
Trainee	20	17.2%
No response	9	
Total	125	

The membership numbers for the Faculty at the time of the survey were:

Active Fellows	309
Active Trainees	88
Total	397

This gives a response rate of 31.5% overall (Fellows 31.1%, Trainees 22.7%).

This response is clearly less than ideal but is consistent with other surveys of doctors. A recent study in general practice found similar response rates in general practice.

Current Practice in Environmental Medicine

The question asked was:

In your current practice as a Fellow or Trainee of AFOEM do you consider that you practise environmental medicine?

Yes (practise environmental medicine)	60	48.4%
No (don't practise environmental medicine)	64	51.6%

No response	1	
Total	125	

Overall fewer than half of the respondents considered that they practised environmental medicine.

A slightly higher proportion of Trainees reported that they did not practice environmental medicine.

	Fellow	Trainee
Yes (practise environmental medicine)	48 (50%)	8 (40%)
No (don't practise environmental medicine)	48 (50%)	12 (60%)
	96 (100%)	20 (100%)
Incomplete response	9	
Total	125	

Definition of Environmental Medicine

A definition of environmental medicine was not given in the survey. Respondents were asked the following question with a free form response.

How would you define environmental medicine?

Most people (112) answered this question while only a few (13) did not. The detailed responses are in Appendix 1.

The responses varied widely but could be grouped into a number of main themes.

There was a general theme that environmental medicine relates to the recognition and management of the effects of the environment on health. Some people talked of assessing risk. For example: *The health effects of exposures other than occupational exposures. Basically occupational medicine skills outside of industry.*

There were however a number of refinements. Some people restricted environmental medicine to the natural and perhaps the socio-political environment (that is not the workplace extending to the environment) and mentioned such things as radiation, noise, war and famine although one implied only substances were the issue. One respondent specifically excluded factors relating to human activity.

A different approach was to restrict concern to environmental contaminants arising from the workplace but affecting people in the community (and hence in their environment). This made environmental medicine "occupational medicine over the fence". Some people recognised that this was limited but thought this was the focus for AFOEM. Some extended this idea to include product stewardship.

Generally people took the perspective of the environment affecting health (eg *Relationship of environmental toxins, pollution, surroundings to health and the impact this may have on*

morbidity/mortality of individuals or large groups) but some looked at it the other way and were concerned with the environment being the context in which this patient's illness occurred.

There were a few respondents who considered that environmental medicine included the effect of industrial and other human activity on the environment. For example: *The effects of human activities and work on the natural environment and the effects of the natural and artificial environment on human, animals and other life forms.*

The idea of global environmental health issues was rarely mentioned (*climate change and other fields like public health with components of toxic exposure*).

Two respondents confessed that they did not know what environmental medicine was and one noted*, just seemed to be added in at some stage.*

Following this theme one respondent considered the faculty name change: *Basically I consider the "Environment" addition to our specialty to be superfluous and unnecessary as what is generally referred to as environmental medicine has been, is and in all likelihood will continue to be practised under the long-standing meaning of occupational medicine.*

Only one respondent mentioned the "alternative environmental medicine", MCS or clinical ecology. *This is difficult. It has a legitimate side (the college) where we consider such issues as heat exposure, dust etc. Then there is the pseudo-science that sees oestrogenic compounds in every household product and relates their use to almost every disease.*

Finally a rather enigmatic response: *Optimistic, ambitious and wishful thinking.*

Environmental Medicine for AFOEM and Environmental Medicine for AFPHM

The question asked was:

Is there a difference between environmental medicine as undertaken/practised by Fellows of AFOEM (occupational and environmental medicine) and by Fellows of AFPHM (public health)?

Answer Options	Response Percent	Response Count
Yes (there is a difference)	76.3%	87
No (there is not a difference)	23.7%	27
Comments		103
Answered question		114
Skipped question		11

Of the Fellows who responded, 78.3% thought there was a difference in environmental medicine for AFOEM and AFPHM but only 66.7% of the Trainees thought there was a difference. This difference between Fellows and Trainees was not statistically significant.

There were 103 comments for this question. The detailed comments are in Appendix 2.

There was a large degree of agreement. Some respondents admitted that they did not know what AFPHM did. The main themes were:

- AFPHM tended to have an infectious disease focus. AFOEM was seen as have more focus and expertise in chemicals (and physical agents)

- AFPHM took an epidemiology and community approach while the approach of AFOEM was more clinical and more personal approach
- AFOEM was more involved in the "over the fence" environmental issues while AFPHM was more involved in the "natural" environment and lifestyle.
- AFPHM may have a legislative/regulation response

Refining the Distinction between AFOEM and AFPHM

The question asked was:

For each of the following situations please indicate, Is this environmental medicine? Is this within the role of FAFOEM? Is this FAFPHM?

This question was answered at least in part by 115 people. However not everyone responded to all the parts. For example most people indicated whether they thought the scenario was environmental medicine or not but they may not have indicates whether it was AFPHM. The percentages in the table below are for those who responded to that part.

The scenarios and percentages of positive responses are given in the table below.

Situation/Scenario	Environmental medicine	AFOEM	AFPHM
A number of cases of childhood leukaemia identified in the community surrounding a petrochemical company	94.6%	89.3%	89.4%
Accidental release of ethyl acrylate. Small plume drifts over light industrial and retail area.	92.8%	97.3%	56.5%
Local residents complain of odour and various symptoms including headaches and asthma from chicken farm	95.5%	85.7%	79.3%
Local residents complain that health at risk from dust emission from proposed new open cut coal mine	96.4%	91.3%	76.8%
Risk assessment of exhaust emissions from a road tunnel on local school children	94.5%	63.4%	86.7%
GP refers a family because a 10-year-old girl has developed leukaemia. Family live close to high voltage power line	85.6%	68.4%	71.7%
Fish caught in harbour found to contain high levels of selenium	85.2%	52.4%	90.4%
GP refers patient with multiple chemical sensitivities	70.0%	85.9%	26.3%

The first five scenarios were identified as environmental medicine by more than 90% or respondents. The last three scenarios were less clearly seen as environmental medicine. Perhaps not surprisingly, most respondents did not see public health medicine as having a role in multiple chemical sensitivities. Interestingly many respondents did not see public health as having a role in an accidental release of ethyl acrylate.

Experience in Environmental Medicine

Respondents were asked if they had ever done some tasks that were thought to be key ones in environmental medicine. The question asked was:

In your practice have you ever had to:

Answer Options	Never	Occasionally	Often	Response Count
Contribute to an environmental risk assessment?	41	61	13	115
Contribute to an environmental impact statement?	68	39	7	114
Communicate the risk of a workplace activity on health of the local community?	45	59	11	115
Advise on the effects of off-site emissions from a workplace activity?	54	51	10	115
Assess or manage a patient with "multiple chemical sensitivities" or similar "environmental illness"?	30	72	13	115

This list of tasks was thought to be typical of the sorts of things that occupational and environmental physicians might do. It appeared that about half the respondents did these tasks occasionally. However, few respondents did any of the tasks often and only five respondents (4.3 per cent) did all of the tasks often.

The task of assessing a patient with MCS or “environmental illness” is perhaps rather different from the other four questions. As a rather clinical task it is perhaps not surprising that 63 per cent of respondents occasionally had to assess a patient with MCS.

It is interesting to note how many respondents had not done the tasks. Thirteen respondents (11.3 per cent) had never done any of the tasks and 30 (26.1 per cent had never done any of the first four tasks.

There was a significant difference between Fellows and Trainees. None of the Trainees did any of these tasks often and were more likely never to have done them compared with Fellows.

Fifty-three respondents provided examples of other environmental work they had done. A few just noted that they did no environmental medicine. Many of the examples concerned providing information about radiation or infectious agents. Quite a few activities related to “over the fence situations”. Details of these additional comments are given in Appendix 3.

Training in Environmental Medicine

To assess training in environmental medicine the question was:

Have you ever undertaken formal post-graduate training in environmental medicine or environmental health?

Answer Options	Fellow	Trainee	Total	Total Percent
No	52	13	65	56.0%
Yes specific environmental medicine course	6	3	9	7.8%
Yes specific environmental health course	5	0	5	4.3%
Yes as part of another course (eg MPH)	33	4	37	31.9%
Total	96	20	116	100%

Overall, more than 50 per cent of responders had no specific training in environmental medicine although many had done something as part of another course. For the Trainees 65 per cent had had no training in environmental medicine.

The most common source of training for Fellows was as part of a course such as Master of Public Health (MPH). The fact that Trainees may not have had training in environmental medicine may mean that they have yet to complete an MPH or the MPH does not have environmental medicine/health in it.

Discussion

The response rate of this survey may not have been ideal but the survey does give some indication of the feeling of AFOEM members about environmental medicine. Generally AFOEM members have a broad understanding of the meaning of environmental medicine and accept either a broad definition or a more limited "occupational medicine over the fence" definition. This is reflected in both the definitions of environmental medicine offered by respondents and in the responses to a limited set of scenarios.

Most people saw some distinction between the work done by AFOEM and AFPHM. Unusually this involved the more personal and clinical nature of AFOEM and the more community and epidemiological approach of AFPHM.

Conclusions

If the Faculty is to continue with environmental in its name, it is important that training be offered to the existing Fellows and that training in environmental medicine be provided for current and future Trainees. To help this it will be useful to have a clear definition of environmental medicine for the Faculty.

5. International and National Trends

International - FOM UK

The Faculty of occupational Medicine of the Royal College of Physicians had considered a name change to incorporate environmental medicine in 1996. An extract from the 1996-7 annual report stated:

At last year's AGM a proposal to include the work 'environmental' in the title of the Faculty was debated. There was general support for the concept, though some speakers had reservations to a greater or lesser extent. The question has been discussed at subsequent Board meetings. A working definition of environmental medicine as it relates to the practice of occupational medicine was agreed. This is not an attempt to re-define (yet again) environmental medicine, but to give a simple description of that part of environmental medicine which is unarguably part of the practice of occupational physicians. A description of the necessary competencies has been produced by a working party. This is relatively easy to incorporate into our training programmes and examination syllabus.

We are by this process accepting that there is a specific body of knowledge and practice which may be defined by the term environmental medicine. Inevitably, as a regulatory body, we must find ways of demonstrating that those who profess this branch of medicine have the appropriate competencies. As yet, environmental medicine is not at a stage where it can exist as a specialty on its own as defined by the Specialist Training Authority under European legislation. It seems to the Board that this is the appropriate route to make progress with this concept. Giving environmental medicine a clear definition in this way will avoid the otherwise inescapable arguments about where this particular branch of medicine fits in relation to other specialties. It will allow practitioners to demonstrate their competence in a particular field and thereby allow employers, and the public more generally, to have confidence in the practice of this increasingly important area of medicine.

After this there was a loss of momentum, and little further was done. In 2011, however, FOM lead a committee in a review of Environmental Medicine.

The committee was taken from a broad range of the medical profession.

Doctors who may have a special interest in aspects of environmental medicine include respiratory physicians, clinical toxicologists and consultants in infectious diseases (Royal Colleges of Physicians); histopathologists, experimental toxicologists, biochemists and microbiologists (Royal College of Pathologists); epidemiologists and public health physicians (Faculty of Public Health); specialists in emergency medicine (College of Emergency Medicine); and occupational physicians (Faculty of Occupational Medicine). But none of these professional bodies can lay claim to the entire field of mainstream environmental medicine, and in none of them is environmental medicine a major element of the practice of most members. As a consequence, there has been no national focus for coordinated training and accreditation of doctors working in environmental medicine. Nor is there a single authoritative source of medical opinion on environment and health.

Definition of environmental medicine

In its broadest sense, environmental medicine could be taken to embrace any influences on Health and disease that are not genetic. This would include, for example, sociological

determinants of health such as inequalities in wealth and education; aspects of lifestyle such as personal dietary choices, smoking habits and sexual behaviour; and the unwanted adverse effects of medication. However, for the purposes of this report, we restricted our consideration to aspects of medicine that are concerned with the direct and indirect impacts of the external physical environment on the health of individuals and populations. This was taken to include health effects mediated through personal behaviour or psychological mechanisms insofar as these are determined by the physical environment (e.g. dietary choices determined by crop failures because of adverse weather conditions, mental illness related to poor housing), but not otherwise. Importantly, it included the beneficial as well as the adverse effects of environmental circumstances and interventions.

The report addressed a curriculum for generic training in Environmental medicine, for any medical practitioner who was wishing to develop a specialisation in the field. It was not specific for an occupational physician.

A way to address the cross-disciplinary fragmented role in environmental medicine at present was for each College/Faculty to appoint a lead for environmental medicine. These individuals would then form a network, communicating principally by email, but with face-to-face meetings if essential. The network would take the lead in preparing joint College/Faculty statements and communications on environmental medicine (e.g. responses to consultations), and act as a link with external bodies, where appropriate under the auspices of the Academy of Medical Royal Colleges. It would also serve as a route for exchange of information about CPD opportunities, which could then be cascaded to other College/Faculty members.

International - FOM Ireland

The Dean of the Irish Faculty, Dr Martin Hogan, responded in part thus:

It is also timely in that we had a review of our Standing Orders only this year and a name change was considered. Indeed we have been long conscious of both the American College and Australian Faculty names incorporating Environmental Medicine. In fact this was the subject of a subcommittee of the Faculty in the 1990's and was, as I said, again reviewed only this year.

The outcome of both the previous review and indeed the most recent is that there is not the appetite for a name change at present.

The name change was advocated by a minority of specialists, including as it happens myself, who did have experience and practice in Environmental Medicine. We argued that the sciences of Occupational and Environmental medicine had great amounts in common and that Environmental Medicine more comfortably sat with us than any other group. The vast bulk of the membership canvassed however felt that their practice and competence lay almost completely within the Occupational Medicine section and that therefore the name "Faculty of Occupational Medicine" most accurately reflected our area of speciality.

Some also voiced concerns that it was not clear where for example Environmental Medicine stopped and Public Health Medicine began. The Faculty of Public Health Medicine is a separate Faculty within the Royal College of Physicians of Ireland and one with which we have an excellent relationship. It was perceived that a name change might have the potential to give

rise to difficulties. It should be stated that this was a perception only and there was no evidence that would be any difficulties in practice whatsoever.

Finally and significantly Occupational Medicine is recognised as a speciality within the European Union. Environmental Medicine is not so recognised either in its own right or associated with Occupational Medicine. As Ireland adopts this list it is "Occupational Medicine" which is recognised by the Irish Medical Council as the speciality and of course for which the Faculty of Occupational Medicine is the accredited Training Body. A name change within the Faculty would not have the effect of changing the name of the speciality, as this change would essentially have to come from the EU.

To address your other questions, the Faculty does indeed feel that it very much the role of an Occupational Physician to have knowledge on the impact on human health of industrial activities. This is included in the curriculum of training. I attach a link to our current Specialist

Training Curriculum:
http://www.rcpi.ie/EducationAndTraining/HMT%20%20Specialties%20Library/OCC%20MED%20CURRICULUM.pdf

The relevant environmental section is on page 55 titled Environmental Issues Related to Work Practice. We also have recently added the excellent Environmental Medicine edited by Ayres et al published by Hodder Arnold in 2010 to the recommended reading list for Trainees.

Regarding the scope of the Faculty's interest in the scope of Environmental Medicine, to date we have concentrated on the environmental effects of human activity in the workplace but we are aware on the increasing importance of issues such as climate change. It is likely that these will be added to the curriculum of training in the coming years. Again there has been a certain reluctance in making advocacy statements in this area for some of the reasons referred to above regarding the name.

NZ College of PHM

International - USA (ACOEM)

The president of ACOEM responded to our correspondence on environmental medicine. The full letter is reproduced in appendix E. It is of significance that ACOEM sees its involvement to be across all aspects of environmental medicine, and not limited to industrial sources of environmentally induced health effects.

Regarding environmental activities, our scope has included climate change, emissions, and radon (we published a position paper on this issue in the 1990s). We have not (yet) focussed on the environmental effects of windfarms. However, we are following the issue of fracking, among others.

The ACOEM definition is *that branch of medical science which addresses the impact of chemical or physical stressors on the individual or group in a community or dwelling through evaluation, diagnosis, treatment and control*.

National - AFPHM

The Australasian Faculty of Public Health Medicine was asked to provide comment about the conduct of environmental medicine and the overlap between AFPHM and AFOEM Fellow's practice in this area.

The chair of the working party was invited to present to AFPHM council on the issue. The president of AFPHM, Dr Leena Gupta, responded formally on 6 Sep 2011. The response was that *'generally, AFPHM believes that tight definitional boundaries would not be productive and that fostering collaboration and sharing of skills would be more useful'*. Indeed *there would be more value in checking for gaps rather than worrying about overlaps.*

The definition of Environmental Medicine by AFPHM is:

Issues in the physical environment which impact on health. This includes quality of air, water and food – both toxicology and microbiology. Generally exclusive of more 'social' issues with the built environment such as effect of built environment on social interaction and opportunities for physical activity.

AFPHM does see a role for Occupational Physicians in Environmental Medicine. It was noted that *at the population level there are many skills shared by FAFOEMs and FAFPHMs. As a gross generalisation, PHP are more familiar with microbiological issues of air, water and food and OEM physicians more familiar with the toxicological issues – and probably radiological issues too.*

6. Definition of Environmental Medicine

Discussion of examples to show how the definition applies.

The Working group applied the suggestions from the survey, from inputs from sister organisations, and from its own discussions to come up with the following.

There are many definitions of environmental medicine. It can relate to the 'environment' in any circumstance and how it affects human health. At its narrowest, it can apply as a subset of occupational disease when applied to workers. It can also have a very broad application, when it is taken to be the effect of environmental factors on human health in any context.

1. The interactions between risk factors in the environment and human health. Environmental medicine focuses on the causes of disease in an environmental context. The environment creates exposures to many different physical, biological and chemical agents. Environmental exposures may be general such as to UV-irradiation from the sun or specific such as to toxic mushrooms and dioxin.
2. Current concerns in environmental medicine include but are by no means limited to the environmental contributions to cancer, ozone depletion and its effects on health, global warming, air pollution, airborne allergens, water pollution, contaminated sites, nuclear accidents, radon, mercury and cadmium toxicity to the kidney, and food poisoning.
3. A branch of medicine that studies environmental inputs and the individual's physical, mental, and emotional responses to them.
4. Environmental medicine is a multidisciplinary field involving medicine, environmental science, chemistry and others. The scope of this field involves studying the interactions between environment and human health, and the role of the environment in causing or mediating disease.
5. The study of the effects on health of natural environmental factors, for example climate, altitude, sunlight, and the presence of various minerals. The study of working environments is a separate discipline (see occupational medicine).
6. Medical specialty concerned with environmental factors that may impinge upon human disease, and development of methods for the detection, prevention, and control of environmentally related disease.

However, the definition must be seen in the context of the Faculty of Occupational and Environmental Medicine. In this viewing, the definition is for the purposes of AFOEM, where environmental medicine is placed within the industrial landscape. Thus, environmental impacts on communities and societies will only be addressed by AFOEM where there is a significant contribution by industry in general or a workplace in particular.

Occupational and Environmental Physicians deal with the effect of direct and indirect exposures on human health arising from workplace activities, including proposed developments. The OEM physician takes an evidence-based approach. They do this in an individual clinical setting, at a workplace level and by contributing expertise as part of a multi-disciplinary team at a community level.

Environmental medicine therefore is the prevention, research, investigation, assessment and treatment of human health impacts of industrial activities which affect the environment beyond the confines of the industrial site, including activities such as primary industry (farming and agriculture).

7. Environmental Medicine and Education

Training for Fellows and Trainees in Environmental Medicine

Given that environmental medicine, whether it is prominently part of our name or not, is part of the competency of an occupational physician, it is recognised that not all Fellows practice environmental medicine. Nevertheless, both Fellows and Trainees need some solid understanding of environmental medicine issues. Developing skills in the practice of environmental medicine will also contribute to "future-proofing" a career[1].

At a minimum, all Fellows and Trainees should be able to take a comprehensive occupational and environmental history, which includes hobbies and leisure activities. Fellows and Trainees should also be aware of current environmental medicine issues in the media as those in clinical practice may see patients with these concerns. The most important aspect of work in this field is to know one's limitations. Environmental issues as they relate to contaminated sites and/or public outrage require a multidisciplinary approach. It is important to consider the views of various technical experts from a range of fields, including colleagues in public health and occupational hygiene, and consultants in the field that the purported health impact is affecting or is hypothesised will affect human health, to ensure a coordinated response. Both clients and stakeholders are more likely to be satisfied when the issue is comprehensively addressed. It is unusual that the Occupational Physician will be leading the environmental investigation as it relates to a contaminated site. Where there is an Occupational Physician who has an existing relationship with a company or organisation that has responsibility for a contaminated site, they may at least be asked to contribute to the assessment and may be asked to lead an investigation. There will be occasions, such as cancer clusters, where Occupational Physicians will have a coordinating and lead role.

Directors of Training in each region will need to ensure that environmental risks and incidents are addressed as a topic in meetings of Fellows and Trainees including Trainee presentations, journal clubs, seminars and workshops. Trainees would benefit from Direct Observation of Field Skills (DOFS) related to environmental medicine skills.

Fellows who work in this field will need to ensure that they undertake some form of training e.g. on-the-job training with peers and colleagues from other disciplines, and specific modules on the environment from university degree courses or other short courses run by universities or professional associations.

Trainees will need formal postgraduate training which is best obtained by undertaking a module from a university with specialist courses in the environment. However, a university could be asked to provide a specific short three or four day course which meets the Faculty's learning objectives for Trainees and which would also be available to interested Fellows. If the Faculty has sufficient funds, the course fees could be subsidised for Trainees. As universities already run such modules, these would need only minor modifications.

[1] Lewis PG. Occupational and environmental medicine: moving the factory fence or hedging our bets? Occupational Medicine 2000; 50(4): 217 – 220. Mindfulness of developing areas of concern and opportunity such as those discussed herein will certainly require that we go beyond the factory fence. Yet doing so will also mean we will have properly hedged our bets against irrelevance and obsolescence, the bane of any specialty.

See Table 1 for examples of available modules in environmental medicine, environmental health, environmental health risk assessment and risk management.

AFOEM at Council level, and individual Trainees and their Supervisors at a local level, could also explore opportunities for Trainees to work with AFPHM Fellows in State Departments of Health.

AFOEM needs to ensure that the AFOEM component of the Annual Scientific Meeting and Annual Training Meeting should include the environment as part of an overall plan to cover all competencies over a cycle, preferably every three years. It would be especially useful to run some joint sessions with AFPHM and to invite speakers from other environmental disciplines.

The Annual Training Meeting could include some site visits to workplaces with a focus on environmental issues and how the worksite manages these.

Table 1 - Examples of courses in Australia with modules in relevant environmental heath competencies

University	Course	Module
Monash University	*2312 - Master of Occupational and Environmental Health* *MPH2045 - Environmental health risk assessment and management*	Australian (enHealth) framework for health risk assessment (HRA); risk management & risk communication; hazard identification, with particular reference to air, water, soil & food contaminants; sustainable development; industry stewardship; exposure & dose-response modelling; biomarkers; influences on community perception of environmental risk (including the role of the media) strategies for effective risk communication.
Flinders University - South Australian Centre for Public Health	National short courses in environmental health (3 to 4 days)	Principles of Risk Assessment and Management Risk Communication in Practice: *Engaging the public* -
Sydney University - School of Public Health	Unit of Study: PUBH5111 Environmental Health	This unit aims to develop an understanding of environmental hazard identification and risk assessment and for students to understand the principles of hazard regulation and control. The unit will explore the major categories of environmental health hazards such as air quality; water & food quality; chemical hazards eg contaminated sites; physical hazards eg noise and radiation; and microbiological hazards eg Legionnaires' disease. It will use the disciplines of epidemiology, toxicology and ecology to characterise risks associated with these hazards and will explore various approaches to managing the risks. In studying this unit students will appreciate the multi-disciplinary nature of

University	Course	Module
		environmental health concerns and the need to work closely with external agencies. Regional and global issues of sustainability, climate change and land use planning will also be addressed.
Master of Environmental Health Management	Environmental Health Management 683	Human-environment interactions: specifically, environmental factors that influence health i.e. physical, chemical and biological stressors and pollutants that affect the health and wellbeing of individuals and populations. The role of government in environmental health management. Science of environmental health, hazards and pollutants. Air pollution, water, and waste management. Industrial pollution management. Noise, built environments, indoor air and global climate issues (fully on line)
Master of Environmental Health Management	Environmental Health Risk Assessment 682	Hazard identification, dose-response assessment, exposure assessment and risk characterisation. Risk assessment and evaluation of hazards; selected examples. Hazard analysis and risk criteria. Principles and conduct of environmental health risk assessments. Concepts of risk management. Risk evaluation. Factors affecting perceptions and acceptance of risk. Prevention, control measures and public safety. Uses and limitations of risk assessment and risk management in decision making. Principles of public participation and risk communication.

Proposed changes to Domain 90: Environmental risks and incidents are minor in nature. They remove those environmental issues which are primarily an area of responsibility for public health e.g. climate change, and emphasise the multidisciplinary nature of environmental health risk assessment and communication. For Fellows and Trainees seeing patients with suspected environmental exposures, good history taking is essential. However there were other sections e.g. working in extremes of pressure or temperature, which are better dealt with under fitness for work.

8. Environmental Medicine and Advocacy

Environmental medicine is a vital component to the understanding of health in the workplace. The environment, including the work environment, is a critical factor for both health and disease. There is clear evidence that the health effects of environmental hazards associated with workplace activities can be serious, whether they are direct or indirect.

Occupational and environmental medicine in particular deals with the myriad of exposures of the work place and its surrounds.

The Faculty, by incorporating the E into AFOEM has a clear duty and responsibility to be able to *identify environmental risks and associated conditions arising from industrial activity.* The challenge is to help our Faculty, and the wider College, develop the knowledge and skill sets in our Trainees and Fellows to deal effectively with direct and indirect environmental health exposures arising from workplace activities.

Policy and Advocacy - Background

The World Health Organization (WHO) has estimated that 24% of the global burden of disease and 23% of all deaths were due to modifiable environmental factors (e.g, pollution, occupational risks, land use practices and sanitation). In Australia there is compelling evidence that environmental hazards from work activities have and continue to have significant health impacts.

The Australasian Faculty of Occupational and Environmental Medicine is unique in being the only part of the RACP having “environmental medicine” included in its title. It is the only College or Faculty certified by the Australian Medical Council for its training program to have ‘environmental’ in its title. In some sense this single act in 2008 to include environmental in our title has been a significant advocacy event in itself, and shown the College as a leader in this area and responsive to societal concerns. The change reflected the breadth of the College’s expertise and the importance of environmental issues within occupational medicine.

This name change requires major changes in policy, both in Australia and New Zealand with regard to environmental medicine to address the many issues including:

- Progress in the slow acceptance of environmental impacts of work related activities on health.
- A complex interplay of multiple exposures in the workplace and in the community where there may be consequences of the work activities, including physical, chemical, biological and psychosocial.
- A lack of understanding and prioritization of low dose chronic exposures that may cause long-term effects (e.g. asbestos, noise, benzene) in comparison with short-term health effects from injuries (e.g. musculo-skeletal injuries).
- Suboptimal control measures for many environmental hazards.
- An increased need for high quality environmental assessments by communities, governments, industry and employees.

Exposures to hazards at work are harmful to physical, mental health and wellbeing and may lead to disability. The impacts of hazards do not only affect the worker. They may “flow over the fence” and impact communities such as lead in Mt Isa and Port Pirie.

This policy and advocacy section contains practical suggestions as to how medical professionals, government, industry and employees can ensure that Australian or New Zealander can have access to timely and appropriate environmental medicine advice so that the right to a safe workplace environment can be protected and enhanced.

Policy and Advocacy

"How should AFOEM be engaged in policy and advocacy activities in environmental medicine?"

The inclusion of the Environment in the Faculty's AFOEM title requires the Faculty to set strategic priorities for policy and advocacy in environmental medicine and seeks resources to meet these priorities. As recently as three decades ago, the environment was not of particular concern to many Australians. Today there is a far greater concern in the public about the effect of the environment on health. That concern is heightened by coverage of environmental disasters and the recognition that some environmental agents can produce insidious adverse health effects decades after exposure (e.g. asbestos, noise).

The purpose of environmental medicine policy and advocacy activities is to enable the Faculty to influence the development of environmental medicine in Australia and New Zealand. It provides an avenue to be engaged in the environmental medicine debate and to contribute to an understanding within the faculty of a range of environmental medicine issues. It will promote the environmental views and concerns of Fellows and Trainees to both Government and industry and influence the health policy and health systems of both countries. It will lead to better health outcomes for employees and the wider community, and will have benefits for employers and businesses by working to reduce the health burden on the community of industrial activities.

Policy and advocacy in environmental medicine is required to

- Promote awareness of the environmental impact on health
- Support and encourage study of the environmental impacts on health
- Identify ways of minimising environmental damage that can result from industry at the work place and "over the fence", given that essentially any environmental impacts will affect the employees first and foremost
- Continuously improve public policy around environmental medicine and;
- Increase corporate social responsibility with regards to environmental medicine

The Faculty will need to work with government, industry, community and employee representatives to improve policy related to environmental medicine. To achieve this goal, all stakeholders will need to work together to minimise environmental risks in the workplace to as low as reasonably achievable (ALARA). This will improve health and the quality of life by combating the industrial and environmental factors that increase the likelihood of exposure to toxic substances that lead to disease, injury, and/or disability. Proper integration of a variety of research, monitoring, standard setting, and enforcement activities will assist in systematically controlling environmental hazards in the workplace. It will be important to promote good policy in this area.

Policy and advocacy in environmental medicine is required with regard to medical education. The immediate challenge is of how best to set policy in our college to develop the knowledge

and critical skill sets in our Trainees, to enable them to be Fellows capable and willing to engage in advocacy issues relevant to environmental medicine.

A central tenet is that AFOEM Trainees and Fellows require upskilling in environmental medicine so that they are better able to adapt to the demands required as environmental physicians. There may be some advocacy and policy development to do with regard to environmental medicine education and research, as Fellows and Trainees may not see it as part of their core discipline and clinical caseload.

At the same time as more focus is brought on environmental medicine in the training program and continuing education of Fellows, advocacy regarding high priority environmental medicine issues is required. One that will be further discussed is asbestos. Advocacy and policy development of high priority areas will assist the training program identify critical areas for education.

It is important for occupational and environmental medicine specialists to understand not only the risk to workers but also to the community. They must be able to assess the level of risk that flows “over the fence” and has the potential to affect the health of the surrounding community. The effect of mercury laden wastewater from Chisso, on the Minimata community, and the death of thousands of people in Bhopal India from methyl isocyanate gas released from a Union Carbide Corporation (UCC) chemical plant are two graphic examples of how communities can be affected. Nuclear radiation from Chernobyl and more recently Fukushima are other examples. In Australia there have been other examples, including lead levels in children in Mt Isa, leaks of chromium VI from an Orica plant in NSW, and oil spills off the Queensland coast, that demonstrate the need to understand the potential effects on community as well as how to communicate and manage that risk.

Environmental medicine is an epidemiological discipline as well as a clinical discipline. AFOEM Fellows are highly trained specialists who understand the effects of work on health and (conversely) health on work. They understand the full range of workplace and environmental hazards (chemical, physical, biological and psychosocial), and the associated risks of exposure to such hazards. They have the opportunity to discover, document, research and control diseases related to work. As workers in general have higher exposures to environmental hazards than the community they often provide essential evidence regarding health effects that the community may experience. The AFOEM OEM physicians with their understanding of the environmental hazards in the workplace are well equipped to assist with these environmental hazards that have gone “over the fence” to the community.

Occupational and Environmental Physicians provide a valuable resource and connection with the general public as well as the workforce and act as an intermediary for industry and government representatives. The views of health professionals are generally considered by the public to be valid, unbiased and authoritative. This makes them powerful allies in advocacy and campaign work. An AFOEM Fellow needs to be able to effectively communicate environmental risks to the workplace and engage with the managers, supervisors and workers. These communication skills are transferable to communities if environmental risks go “over the fence”.

The AFOEM has an important communication role during and after disasters in particular to disaster workers and other affected community members. There is a need to promote AFOEM’s ability in this area, to use risk communication strategies, and to occasionally work with and through the media when required. (It is noted that an enquiry for AFOEM advice after

the floods in Brisbane including risk of asbestos, tetanus and infections to disaster workers, contributed to the formation of the working group on environmental medicine.)

This is exemplified by quotes taken from an editorial about occupational physician's role after the September 11 attacks. "Few dreamed that their training in the effects of toxic exposures, epidemiology, and worker protection would be so useful and needed during this unexpected national crisis and the health impacts that followed." "Local occupational physicians attended forums and met with community leaders explaining the implications of air/dust test results and advocated for proper clean-up and protection." "Occupational physicians, as trusted professionals, must be trained to explain complicated environmental health issues to varied populations." "Young occupational physicians must be trained to advocate for our patients and communities" "The occupational physicians performed this task admirably and their efforts were documented in The Wall Street Journal."

The ability to respond in real time to evolving advocacy issues related to industrially-caused environmental damage with human health impacts is extremely difficult at present. One issue is the RACP Policy and Advocacy protocols which centralise control over all announcements or interactions outside of the College. While this meets one requirement, that of standardising the message from the College, it means there is an extreme bottleneck at senior staff and the President's level. Without some devolution back to AFOEM there will be little prospect of such activity. The best that can be hoped is for position statements to be developed which may help to reposition public policy on some important issues. At the same time, AFOEM is now dependent on the resources provided by the College to develop and market position statements and media engagements.

The AFOEM needs to advocate to universities to employ Fellows to teach occupational and environmental medicine, to promote both teaching and research in environmental medicine at all levels including undergraduate, graduate and postgraduate. It is in a way surprising that Victoria has the only School of Occupational Medicine and other states like Qld and WA with large mining and resource industries have not. This may have limited research and investigations into the environmental hazards of industry. Advocacy is required and has already begun in WA to improve teaching and research in environmental medicine. It is noted that two Fellows in WA have had discussions with both University of Western Australia and large resource companies about funding and creating a School of Occupational and Environmental Medicine in Western Australia. Other states with large resource sectors could follow, for example Queensland; and the Faculty may be well placed to assist in the advocacy for improving teaching and research in environmental medicine in these resource states.

It is important to differentiate the roles of AFOEM Fellows from AFPHM Fellows with regard to environmental medicine. Environmental exposures that are not related to work would still be considered more the domain of Public Health Physicians. There may be times when there is overlap; for example asbestos in the home. It is recognised that AFOEM and AFPHM Fellows may interface on many environmental medicine matters and could potentially work together in a team at times to manage issues. The AFOEM considers that AFPHM should continue its prime advocacy role with regards to climate change as it not directly related to the workplace. AFOEM understands that industrial activities have contributed significantly to this developing environmental risk, but that there are many other factors involved. AFOEM should work with industry to help them manage the risks of climate change. This will, for instance, help industry adapt to policies introduced such as the Clean Energy Future (Carbon Tax) bills and in the

longer term be prepared to adapt to climate change related issues for example improved disaster management plans.

AFOEM through the Environmental Medicine Working Group (EMWG) has identified key policy issues. It will work with a variety of stakeholders who have the ability to actually influence these policy issues, including potential allies and opponents, and will set specific goals in their position statements. The success of the position statements will be assessed over time.

The AFOEM should develop and release a position statement ***Industrial Activity and Environmental Medicine***. This is seen as core work that should be undertaken by an occupational physician. This will incorporate the management of environmental pollution that impacts of the wider community. This is to promote that AFOEM Fellows are willing and should be consulted about environmental risks in the community that originate from industrial or work related activities. It will advocate that Fellows may work in multi-disciplinary teams that involve public health physicians, occupational hygienists, environmental scientists and others.

There are many issues which the AFOEM can choose to advocate. It is suggested that two areas of high priority for the Faculty are asbestos and noise. These areas were chosen as both cause permanent long term disability and are amenable to control measures. It is important that the AFOEM creates policy in an area that can effectively be addressed through advocacy and which will have the greatest impact on the problem.

AFOEM will need to incorporate this activity into its Policy and Advocacy work plan, and then lobby within RACP to gain the necessary prioritisation and allocation of resources. A Fellow with expertise in environmental medicine should be recruited to be a member of the Faculty Policy and Advocacy Committee, primarily to lead the development and marketing of this position statement.

Appendix 1 - Survey Results

1. What is environmental medicine?

(Some correction of spelling and typographical errors has been made but otherwise these responses are verbatim)

1	Environmental medicine is medicine which relates to the general environment. Under this definition occupational medicine could be considered a subset of environmental medicine.
2	Effect of environment on health
3	The management of effect of environmental factors on health - risk assessment to establishing causation
4	The physical, psychological and social health impacts of environmental emissions and other health hazards and nuisances (e.g. shift work, noise, smell, etc.) from industry on individuals, populations and communities (whether real or perceived). Also includes risk perception of and risk communication to these populations, product stewardship, waste management and sustainable development issues of the relevant industry/company.
5	Management of the patient's context which includes: - (1) physical environment and biological context (2) psychological, social and cultural context (3) health services context (4) information context (5) work environment (6) manmade environment See Harper "The Clinical Teacher" 2011:8:114-117
6	Environmental exposures affecting health
7	Basically I consider the "Environment" addition to our specialty to be superfluous and unnecessary as what is generally referred to as environmental medicine has been, is and in all likelihood will continue to be practised under the long-standing meaning of occupational medicine.
8	Health issues relating to the potential / perceived / real threat due to wider distribution of substances into air, land, water, systems - thereby threat to populations and individuals - studying the interactions of environment and health.
9	Environmental medicine is the discipline which recognises the interdependencies of human health, animal health and the environment and its potential social impact on affected communities and ecosystems.
10	The contribution of environmental exposures in the causation of a medical condition and/or the assessment of an individual or community with regards to the actual or potential adverse effects from exposures in their environment.
11	The medical specialty that addresses the effects of the environment on the health of individuals and communities.
12	To me, Environmental Medicine is the study of how environmental factors (attributable to e.g. air, water, soil, food, radiation, pressure, gravity, waste management and even living conditions) may contribute to, or be incriminated in, impacting on the health of humans (and by extension, other living organisms), whether over shorter or longer durations (e.g. "short" suggesting exposures to hypo- or hyperbaric conditions, radiation, volcanic eruptions, bushfires, industrial fires, floods & tsunamis, or "long'" suggesting more extended exposures to toxins, radiation, pestilence, famine, war, ecosystem degradation & climate changes, and even culture).
13	primarily in terms of environmental chemical effects on the health individuals or groups and hence not dissimilar to our work in workplace toxicology. our knowledge of other environmental factors in the workplace (heat, light, noise etc) may also be relevant if we extend our definition to include climate change etc but personally I feel this is more a matter for public health physicians.
14	Addressing health issues that derive from the environment rather than are created purely through human activity.
15	The scope of this field involves studying the interactions between environment and human health, and the role of the environment in causing or mediating disease
16	Environmental medicine is the practice of medicine that looks at the role of how the environment causes or promotes disease/ill health.

17	Assessing and managing health risks associated with exposure to environmental hazards
18	Practice of assessing and/or managing the health effects or potential health effects on individuals and communities of environmental contaminants or pollutants and hazards. Could include chemicals or physical hazards such as noise pollution, nanoparticles, radiation etc.
19	EM is the extension from the workplace into the immediate surrounds. The occupational aspect goes to the limits of the workplace property but how the environment is affected cannot be ignored. eg the effluent into the rivers, the effluent into the atmosphere and local pollution of residential areas. These have been until relatively recently been of no concern but people do not want their back yards polluted. Of course there is the whole question of a Pollution tax which the faculty has not taken a position on. A tax on polluters can be a proxy for a carbon tax. Time for AFOEM to step up and make an influence on the debate.
20	Definition - impact of the general and specific environment on worker's health and performance. Needs to be inclusive of specific sub-environments (eg Aviation Medicine, Diving Medicine) and context (rural and remote, temperatures/humidity, etc). Should exclude the opposite (impact of work on the environment) as this is not our purview.
21	Environmental medicine is a field of medicine that is dedicated to the study of the relationship between the environment and health.
22	Environmental Medicine is the practice of medicine - both preventive and/or in response to an environmental hazard or exposure. This can be occupational, due to non-occupational exposure to industrial activity, or on a population basis. The first two are more likely to be relevant to an occupational physician while the latter is more the area of expertise of public health physicians.
23	Environmental medicine is that cross-over area between Public Health and Occupational Health. They are good at infectious agents, the rest (physical, chemical, ergonomic, psychosocial are ours!
24	The study of the effects of the environment on health.
25	In the context of the AFOEM, environmental medicine is a set of skills that enables physicians to participate in the identification, assessment, and control of actual or potential health effects in individuals or populations who are or have been at risk from exposures in the environment that have arisen from workplaces or work activities.
26	The interactions between the environment and human health.
27	an aspect of public health that addresses the impact of the natural environment on health
28	Practice of medicine; to treat/ monitor the effects of environmental substances on workers and general population
29	the diagnosis and management of medical conditions caused by the impact of environmental factors.
30	That branch of the science and art of medicine that is concerned with the effects of physical, chemical and biological agents in the general environment on human health. In particular the prevention, detection and treatment of those human health effects by the application of scientific principles.
31	The effect of environmental factors on health
32	It is the recognition, investigation and management of adverse effects on the environment and the general population as a result of exposure to agents which occur naturally or as a result of human intervention.
33	anything in the environment which affects the health of the community or the working population at their work-site eg lead, excessive exposure to sun
34	The practice of medicine which is impacted on by environmental factors.
35	A clinical expertise in relation to the effects on the human body and mind of environmental substances.
36	Assessing and providing recommendations for improvement of Health matters related to the environment.
37	the management of risk factors that exist in the interface between the world in which we live and

	human health
38	? No idea, just seemed to be added in at some stage
39	interaction between environment, society (including natural and built environments) and individuals, particularly with regard to health and injury
40	Relationship of environmental toxins, pollution, surroundings to health and the impact this may have on morbidity/mortality of individuals or large groups.
41	It relates to issues which affect workers in the workplace but which are more of an environmental nature and may impact on the members of the public also. Examples are blue green algae in parks, lakes or sewerage treatment plants, avian influenza in personnel who work in Parks, mosquito borne diseases, viral diseases affecting wildlife and also the public, chemical contaminants in workplaces and discharge to surrounding environment. Occ physicians who work for or contract to large corporates are more aware of the interactions between occupational and environmental issues and I believe it would be a retrograde step to disassociate our faculty from this fundamental aspect. Occupational medicine does not stop and start at the front gate of the employer but has consequences of an environmental nature.
42	The effects of the environment on health and the effects of industry on the environment which may affect health.
43	Discipline involved in the assessment of environmental exposures affect individuals and the population. Water Air and Soil issues predominate. This differs from occupational exposures where the workplace is involved.
44	The wider context of occupational medicine is the effects of pollution on the population outside the factory gates. Also the community implications of a new worksite. I work with a big oil company who are pretty much taking over a tiny remote village and putting in 5000 workers - this, as well as any spills, noise, etc, needs to come under the umbrella of our Faculty, I think.
45	Branch of Medicine concerned with investigating, researching and managing health outcomes due to exposures occurring in the general environment.
46	An expert in identifying the health effects on people and populations due to exposures in their general living environment.
47	medicine pertaining to the health effects of environmental phenomena or events such as global warming, radiation spills, factory pollution affecting local community
48	Health aspects related to environmental exposures that are quite distinct from occupational exposures.
49	This is difficult. It has a legitimate side (the college) where we consider such issues as heat exposure, dust etc. Then there is the pseudo science that sees oestragenic compounds in every household product and relates their use to almost every disease.
50	. . . encompasses the effects of chemical, physical and biological agents released into the environment on the (mainly human) population. Thus it includes effects on persons outside the usual working age range (eg, effects of lead exposure in children; asthmagenic agents in non-working people with chronic lung conditions; environmental noise at levels not affecting hearing; the elderly and otherwise health compromised). It also includes issues such as health hazards associated with activities such as soil remediation, management of waste (incineration; leaching into water supplies, etc). Some may say that the latter involves both occupational and environmental health - a somewhat grey area. A main issue is the great difference (one or more orders of magnitude) between "safe" exposure levels in the workplace versus the general/populated environment. Env. medicine interfaces with public health medicine - the latter having a strong focus on infectious diseases, but also involved in "pollution" issues.
51	The understanding of the medical impact (i.e. health effects) of industrial processes primarily (and natural processes secondarily) on people directly involved with such processes as workers and the immediate and more distant population that is located away from the actual process. I see it as overlapping Public Health and sharing a lot of common territory in this sense, and merging into occupational medicine/health the closer the population is to the actual process (ie from the general population at large to the working population involved with the process).
52	To me, environmental medicine refers to managing the health effects of physical, chemical, biological and human factor hazards *outside* workplaces. There's obviously overlap with

	occupational and public health medicine, however I would characterise occupational medicine as doing the same *within* workplaces (plus assessing employee medical suitability for work), while public health medicine *could* be characterised as dealing with non-environmental health (ie prev med / hygiene) hazards.
53	The impact of the environment, factors in the environment and an adulterated environment on the health, wellness and fitness and progress of both flora and fauna in the specified geographic area of concern. In effect it is the total impact of both nature and man on the survival of mother earth and how to deal with life in a distressed and polluted world trying to use medicine knowledge to solve the problems.
54	Impact of environmental exposures on health
55	Identifying, managing and preventing adverse effects on health due to environmental factors.
56	Environmental Medicine is that branch of medicine which deals with signs, symptoms and concerns of individuals exposed to chemical, physical or biologic agents in their home community or in the workplace.
57	offsite effects of toxicants generated by industrial and man-made activity domestic and non-occupational exposure to known toxicants (typically occupational and classical) regulatory and standard setting
58	Optimistic, ambitious and wishful thinking
59	I would define it as the area of medicine that relates to the environment and its impact on individuals and communities and particularly with regard to working environments and their impact from a physical, social and legal perspective.
60	The study of health impacts of environmental exposures that occur within the general environment, rather than within the workplace. For our faculty, I would see the focus being on environmental exposures that arise from industrial/occupational processes e.g. emissions, waste, spills and radiation. I would also include product stewardship, i.e. ongoing health effects from goods produced once they are packaged, transported or purchased by the public.
61	Medical and health issues related to environmental exposures
62	Environmental medicine is the field of medicine that deals with the impacts of industrial activities on the surrounding human populations.
63	Assessing any possible health effect due to the interaction between human environment (indoor air, outdoor air, soil, water, etc) and human body.
64	Exposures in workplace home and general community and minimization and control and prevention of the hazards and exposures
65	The scope of this field involves studying the interactions between environment and human health, and the role of the environment in causing or mediating disease
66	For Occupational Physicians, that area of medicine that deals with the actual or potential health effects from direct or indirect exposure to workplace processes e.g. fugitive emissions.
67	To include how a worker interacts with the work environment eg what effect does a FIFO job have on the worker, family relationships , friends eg what can employers do to assist - training in cultural awareness - resilience - phoning home / coming home - etc etc
68	The study of the health effects of health hazards found in the environment with particular reference to industry and the working and general population. Health hazards include physical, chemical, biological, electromagnetic and others.
69	Environmental factors are incorporated into a large range of occupations, and includes indoor occupations as well: Ambient temperature, Heat stressors, Sun exposure, Office environment and relevant equipment all form part of the 'Occupational & Environmental' Medicine we practice.
70	deals with the 2-way interactions of the environment and health: physical including weather, noise, heat/cold, dusts; chemical including airborne, waterborne and solid; radiation including natural and man made
71	Interaction of environment on health

72	I really don't know!
73	The assessment and management of work-related or industrial processes that impact on the environment or community, or are perceived as hazardous by the latter.
74	The effects of exposures arising from environmental sources on the health of workers and the community.
75	The practice of medicine concerning how health impacts on the environment, and, conversely, how the environment impacts on health. This would include management and prevention of potential adverse health effects due to environmental causes.
76	The study of the effects of environment on health and health on the environment?
77	The health effects of exposures other than occupational exposures.
78	Basically Occupational Medicine skills outside of industry.
79	Analysis, evaluation and management of factors in the environment which impact on patients
80	Providing risk assessment and management to clients (company or community) on environmental hazards and risks.
81	Investigating impacts of the environment on health and arranging treatment and solutions
82	Treating patients who have conditions as a result of an exposure to an agent *while at work Having to advise companies on environmental health risk assessments
83	The side of medicine dealing with unusual environments such as aerospace.
84	The study of the cause-effect relationships between the environment and ill-health and their management
85	Health outcomes arising from primary environmental influences such as the climate and from secondary environmental influences such as contamination/polltion.
86	The study of the interaction of the environment with human health
87	Mainly indirectly as I describe my role - effects of the work and the workplace environment on the health and wellbeing of “the individual” and “the collective of individuals” This includes the "cultural contributors to the environment" I also consult in the area of EMR/EMF
88	The investigation, diagnosis, and management, of Health conditions caused by exposures to environment factors.
89	The impact of an organisations activities of the wider community e.g. water run off, air emissions, noise and vibration
90	The interaction between environmental hazards and human health/illness
91	Effects of the environment on health
92	Where hazards are in the environment but not directly in a workplace.
93	Environmental medicine is the study of the health effects on populations or individuals of natural environmental factors (eg climate), man-made hazards (eg EMF, ionising radiation, human contribution to climate change, chemical and other environmental contaminants), as well as the impacts of societal structures and related psychosocial effects, .
94	Effect of environment on health
95	How environmental aspects of our life can affect health
96	A multidisciplinary branch of medicine that looks at the interaction of the environment and health
97	From the point of view of AFOEM, I think environmental medicine should focus on the assessment and management of environmental impacts from the workplace, so would relate to such topics as contaminated land from old industrial sites, air pollutants from industrial processes or accidental emissions such as radiation.
98	health effects of the environment on people and vice versa, but not generally related to the physical nature of work

99	Environmental medicine involves the knowing how best to manage significant factors or changes in the normal environment of humans, which can affect their health. This can encompass factors in the physical environment; such as temperature, pressure, the type of radiation present; factors in the chemical environment, such as gaseous, liquid, or solids which can be inhaled, absorbed or ingested; biological factors such as the presence of reservoirs of transmissible diseases, and factors in the psychosocial environment such as the presence of violence and intimidation.
100	My practice of environmental medicine is mainly focused on the identification, assessment, communication and control of environmental health risks in relation to industrial plants. Of course a much broader definition could be applied - involving the effects of all environmental exposures on human health.
101	illnesses or diseases causes by environmental factors and due to environmental exposures
102	Medicine related to the interactions between risk factors in the environment and human health
103	Environmental medicine concerns the health of people from agents in the environment either naturally occurring or from the results of human activity from industrial or other workplaces or from more society sources.
104	Health effects arising from environmental factors outside the workplace.
105	Within my practice, when I deal with issues of exposure of the general public to chemicals, biological pathogens, etc, I consider this environmental medicine
106	In AFOEM context it is the assessment and control of the (potential) effects of an industrial process on the health of the community (and wildlife??).The affect could be via direct routes (ie classic industrial pollution via air, water, soil) or indirect eg "product liability" etc.
107	The effects of human activities and work on the natural environment and the effects of the natural and artificial environment on human, animals and other life forms.
108	my narrow definition is essentially that aspect of medicine associated with the management of health issues impacting individuals or the community resulting from occupational activity
109	The assessment of the impact of industrial operations on the determinants of health of communities via the physical, mental, spiritual and emotional aspects of health. This may be via emissions to soil, water and air, or due to impacts on recreation, amenity or social determinants of health.
110	Managing the environment to assist with the health of populations - mostly workers.
111	The effect of air, earth and water on health
112	Climate change and other fields like public health with components of toxic exposure

2. The difference between environmental medicine for AFOEM and AFPHM

(Some correction of spelling and typographical errors has been made but otherwise these responses are verbatim)

1	As one who is qualified in both occupational medicine and public health I would consider occupational medicine as medicine relating to health problems of workers both on a preventive, curative and rehabilitative aspects. Public health practitioners should concentrate on the epidemiology and preventive aspects which relate to the whole community and not just the workers.
2	Occupational physicians often has a better understanding of occupational and environmental toxicology as well as risk assessment and communication relating to industry, including impacts of waste, emissions and psychosocial issues relating to industry and the impacts on surrounding communities. I believe an independent occupational physician would carry more credibility in these issues. This is particularly true of occupational physicians with industrial experience (as opposed to those with working mainly in the administrative, clinical and medico-legal side of occupational medicine)
3	AFOEM focuses on a narrower environment (occupational) AFPHM takes a more broad perspective of environment
4	Occupational medicine looks at work exposures, Public health looks at exposures not work-related.
5	Public Health physicians seem to be primarily involved in the epidemiological and community implications of environmental concerns, rather than primarily the impact upon workers and employers.
6	Theoretically there should be very much common ground. However I suppose that Occ Physicians would be looking at smaller / local population concern, whereas Public Health Fellows are looking at the greater community. This should presumably mean that Occ Physicians consider / respond to local events.
7	Fundamentally occupational medicine is concerned with the working environment and is focussed on the health and wellbeing of the workforce while public health medicine is more concerned with the physical, mental and social wellbeing of the general community. However, there is considerable overlap since industrial development may impact on local communities and local ecosystems (such as deforestation, biodiversity loss, changes to habitats and disease vectors etc). Also, the public health status of local communities may impact on industrial developments and operations (such as in remote, tropic and developing countries e.g. malaria, TB, HIV etc). Also, global public health issues such as climate change and emerging infectious diseases may impact on industry and the global economy.
8	Fellows of AFOEM have taken specific in-depth training in Environmental Medicine rather than just general training in Public Health.
9	I would seek the views of AFOEM colleagues about possible environmental effects of working at altitude, or at depths, or in space, or in confined spaces, or at extremes of gravitational forces, or on sewerage workers, radiation workers, firemen, soldiers or peace keepers, BEFORE seeking the views of AFPHM colleagues on such matters. I also consider our AFOEM colleagues to be more likely to be pragmatic and provide individual-specific advice, considering past experiences with AFPHM colleagues whom I have found to be more likely to provide public health legislation guidance.
10	although there is potential for some overlap, OP's currently tend to have more involvement with individuals and defined groups vs. larger populations
11	In my view, noting I don't practice in either arena, yes: deriving from the focus on practical care of the individual patient or organisation rather than addressing issues at a population, policy or government enterprise level.
12	Maybe - often occupational physicians will be responding to individual patient concerns post exposure, whereas public health physicians will be more involved in population health.
13	In my role there is a difference. I assess the environmental factors that might affect staff ill health (eg. contaminated water supply to staff dining room, radiation issues from high voltage power lines running below office space, etc), whereas the AFPHM people look at broader community

	issues.
14	I expect there would be, but I am unsure about this. Occupational physicians would apply the principles of assessing a risk and applying a hierarchy of controls as with occupational exposures whereas Public Health Physicians might approach it differently
15	Our involvement tends to be in the context of a company whose work is impacting on the environment and possibly health of communities or small groups of individuals. We can work in conjunction with public health, but are more likely to be focussed on the impact of an industry on the environment. Because of our unique knowledge of workplaces we have the capacity to do a "cradle to grave" assessment for a hazard that is impacting the environment and health of communities, whereas public health are more focussed on the bigger picture at the community end. In my opinion our expertise enables us to be more solutions focussed with respect to environmental medicine issues.
16	Many areas of crossover but we have the practise on a day to day basis. Public health are even more reticent than Occupational Medicine
17	More specific to individuals or organisations than populations.
18	I believe that AFOEM fellows and trainees would primarily focus on the relationship between the environment (in an industrial context) and health of employees, their families and the surrounding community. I anticipate that we should be able to focus on the way a specific industrial process effects all the relevant parties involved (e.g. employees, families, community at large) as well as the environment (i.e. air quality, water quality, noise pollution, effluent, radioactive waste, chemical waste, etc.).
19	AFPHM are more likely to practice at the population level while AFOEM fellows are more likely interact or treat directly with individuals, industry and government. We are more likely to (literally) be at the coal face.
20	There is. Once again, we are at times "double agents" working for both sides of industry (for example) who may be causing environmental "problems". We are also much more accustomed to dialogue between the affected parties. Our training in agents other than biological agents is also superior. I think.
21	Public Health physicians usually work at governmental level whilst occupational physicians encounter environmental health issues as a by-product of their occupational health work (this is a generalisation).
22	AFOEM should stick to environmental health risks arising from work places or practices, and leave infectious diseases, global warming etc to AFPHM. But there will of course be overlap, such as the effect that Avian flu epidemic might have on occupational groups, or the occupational health implications from "green" jobs etc. For AFOEM, better to start with a tight manageable definition (and therefore manageable set of skills) and expand as needed in the future.
23	Apart from the occasional professorial high flyer eg McMichael, who in AFOEM actually works in the area? I think the E in AFOEM came about by a pre-emptive professional turf-war strike by AFOM. It has been driven by the Global Warming spectre. Having captured the town/hill/region, what now??
24	Public health more involved with epidemiology and policy and not at the individual person or firm
25	Occupational physicians deal with individuals who have health concerns which may be related to environmental factors. We also look at community implications of these factors. AFPHM fellows do not tend to treat and manage individual patients.
26	PHM is usually concerned with the health of populations whereas OEM is more concerned about individual and group health. PHM has a legacy in microbiological hazards whereas OEM more typically has focused on chemical and physical hazards. PHM is usually practiced out of government agencies whereas OEM is typically practiced out of industry and private consulting practice.
27	In general I believe there to be quite some overlapping in this field. My understanding is that our approach is based on our "occupational health" experience and expertise. It is important however to work as a 'team' in environmental health as it is in my view a subset of both disciplines.
28	public health appears to concentrate more on infectious problems. Also they are not clinicians

	and thus can't deal with environmental exposures on a clinical level.
29	Environmental factors form a significant component in Ergonomic considerations in occupational medicine.
30	Public health physicians favour an examination of groups, populations etc. AFOEM are more defined.
31	We look at health effects on the individual -- clinical as well as the public health factors.
32	AFOEM has an occupational slant on the management of these risk factors
33	don't know
34	minimal difference - essentially same concerns
35	They overlap a lot, but AFOEM fellows may be more likely to have an interest in the effect of the environmental factors on the individual than public health fellows.
36	There are many corporations and statutory authorities who require the occ physician to bridge the interface between their operations and external stakeholders. The occ physician is perfectly situated in this respect and has a distinct role and is able to work hand in hand with public health practitioner if needed.
37	The environmental medicine is the same though public health may be more population focused and occupational health more individual focused
38	I don't have any experience with those in public health but I am sure they do the same sort of things. The only difference argued by the faculty in the past has been our training in occupational hygiene. I am sure both have grounding in toxicology.
39	I don't know.
40	I would have thought that AFOEM would deal with environmental issues related to workplaces
41	I am uncertain how AFPHM fellows practice environmental medicine. Occupational Physicians may have a greater depth of knowledge and experience when the environmental exposures arise from industrial activity or hazards arising from industry
42	AFPHM deal with populations, whereas AFOEM Fellows deal with both populations AND individuals.
43	Touched on in the last answer. Both disciplines require a good understanding and application of epidemiological method. PHM has the greater "visibility" in relation to infectious diseases/epidemics in the community as well as investigation of "cancer clusters", etc. I haven't mentioned the areas of wellness or lifestyle matters, smoking cessation or substance abuse, which have generally been the province of PHM/Community Medicine.
44	I think FAFOEMs deal with workplace hazards than end up outside the workplace fence, which FAFPHMs deal with everything else (ie with no nexus to workplaces) - although there's obviously a lot of overlap. I also think FAFOEMs deal with workplace hazards than end up outside the workplace fence in the short term (hours - months), with the overlap with FAFPHMs in the longer term (years - decades).
45	See my earlier comment about this
46	Both are multidisciplinary dissolving into chemical, physical, biological, social and all possible combinations thereof. Both deploy environmental sciences --- yet the outcome is different on different sides of the field
47	We tend to look more at exposure related environmental health, Public Health look more at lifestyle related health issues (but do some exposure health as well). Occupational physicians have more experience in exposure issues.
48	Traditionally FAFOEMs have had involvement in the effects of industrial pollution (eg lead, oil, asbestos) and AFPHM's on infectious diseases (flu, TB etc)
49	This is difficult to answer since it varies with individual practitioners. Some occupational physicians deal only with workplaces and the concerns with workplaces and therefore function purely in traditional Occupational Medicine. There are other physicians who either because either they hold fellowships in both O & EM and Public Health or they have an interest in both the

	workplace and in the immediate environs of workplaces on which the workplaces may have an effect. The latter tend to practise some form of Public Health which they call Environmental Medicine. The same holds for Public Health Physicians. Their training is in Public Health and Environmental Medicine but sometimes venture into Occupational Medicine. The truth is that there is a significant overlap between traditional Occupational Medicine and traditional Public Health and this overlap has become to be known as Environmental Medicine. The confusion is made worse by other nomenclature such as Community Medicine or Community Health. I myself have worked extensively in both fields and my strong view is that Occupational Medicine is Public Health in the Workplace while Environmental Medicine is Public Health in the Community at large. There is a strong association between the two.
50	Nice to have only two options- this is a bit dichotomous as far as an approach. Hopefully this problem in the first question and this one does not continue. Two important differences are a) the clinical dimension b) occupational and industrial circumstances. For PH regulatory and technical/policy and process issues may be better understood as well as the multiD nature of evidence and skills.. To be highly critical of how this question is posed- environmental medicine/health is multidisciplinary and relegating this to an oem/ph dichotomy also is too simplistic and naive.
51	We are focussed on individuals rather than bigger picture of “environment”
52	I do not know enough about the practice of environmental medicine by AFPHM to make informed comment.
53	Our faculty would be involved primarily at the company/corporate level, i.e. dealing with the specific source of environmental contamination and providing direct advice to company management. The starting point is thus specific industries, processes or environmental contaminants, rather than public health perceptions or health complaints within the general population. For that reason there is also an important difference in the source of funding for services provided.
54	AFOEM has a more occupational/chemical/process cast, whereas AFPHM a more community/disease based cast.
55	AFOEM fellows deal with individual patients/clients in addition to dealing with groups and populations
56	Environmental medicine is more involved with the general human environment and exposure to non work related toxins. It has its own legislation, guidelines and standards which are totally different to occupational environment. So occupational physicians practicing Environmental medicine should follow the same rules and guide lines and standards which are used by Public health practitioners. Both fellows may be involved in environmental medicine, but if the environmental pollution is originated form an industrial activity, then the health of the employees might be in danger.
57	It just appears the AFPHM Fellows are more established in this role and work for government public health units.
58	Occupational physicians have greater understanding of connotations in workplace and PPE...
59	We deal with the "over the fence" type stuff that directly affects the neighbours and workers. Public Health deals with the broader stuff eg air pollution and asthma and cardiovascular disease in the community Fellows of both Faculties could be involved in environmental risk assessment/ environmental impact statements for new developments - Public Health more likely as a regulator as a proposed development with health impacts is meant to be run past the health department (referred by local council) in Qld
60	See response to previous question
61	The occupational slant on environmental medicine relates more to industry and the working population but there is certainly an overlap in regards to health hazards for the general population.
62	Our work is usually contracted by a company or party concerned about the environmental conditions of workplaces and thus the impact studied is PRIMARILY the effects of exposure in the environment to workers on the site. Public Health tends to deal with the communal effects and whole population effects of exposure to environmental risks.

63	AFOEM - occupationally related; usually specific work situations AFPHM - usually broad-based whole of community
64	Environmental Medicine for Physicians is based on assessing causation for environmental health issues related to work sites the same as public health. However, they have more ability to utilise statistical analysis to determine causation for bigger environmental causes than AFOEM who look at often single cases.
65	Not sure of how afp approach this
66	Not as far as I am aware
67	Should not be but there probably is.
68	YES -- AFOEM Fellows will primarily focus on workers -- but may also include healthy adult members of the community. Very rarely children. Public Health Fellows tend to give greater focus to vulnerable members of the community eg children, pregnant women, people with serious immune system disorders etc.
69	Public more greatly concerns health issues, and the prevention/management of health problems on a more societal/community basis. The practice of AFOEM Fellows would encompass management and prevention of health issues on a wider range, being anywhere from individual cases to small groups to wider populations. For AFOEM Fellows, these issues would also be more likely to be connected to occupational/industrial matters or problems.
70	I don't think so.
71	Public Health medicine should encompass environmental issues in non-work related groups. ie. Population based groups rather than occupational based groups of cohorts/individuals.
72	Public health looks at primarily group data whereas we look at individuals.
73	Similar approach but often different clients
74	Public health is essentially environmental as it deals with populations of people and interaction with environmental factors whereas occup medicine is more often clinical and dealing with individuals and their issues
75	Chemical exposure levels are set with a public level and an occupational level and in some cases an emergency level Public health deals more with community clusters whereas we deal with the worker- workplace- task triad
76	The scope of AFPHM is broader.
77	OEM is primarily clinical and focussed on unwanted effects, where public health aspects focus on both positive and negative interactions between health and environment.
78	I think op's understand the work facets better once the effects leave the worksite but we are no better trained in primary environmental matters
79	The scope of practice for public health - is for the identification of hazardous conditions or exposures to trace these and implement control of the noxious environment. They are concerned with the implications for the wider population. OEM - is aimed at patient who presents with initial symptoms of disease caused by environmental exposure, as such they are more concerned with diagnosis and treatment of the disease. There is some cross over between the two as they both work to identify the environmental exposure causing the problem and should both be able to advise on management of this.
80	No idea what FAFPHM do
81	I have said yes but I am not sure as I am not familiar with what the AFPHM are doing. I thought they were more concerned with disease in the community rather than environmental exposures
82	I would expect that FAFOEM practitioners would have a more individual clinical approach.
83	Probably I expect that the AFPHM take an epidemiological approach I expect that we should be taking an approach that encompasses both the individual and the epidemiological
84	While there is overlap, FAFOEM are more likely to be involved when the original source of the problem is industrial rather than natural as we have the experience in dealing with those hazards.

85	I think that this is an area of significant overlap between the two faculties - the key difference is that we may be involved in health effects at individual as well as population levels. But this is an opportunity for both Faculties to contribute to a joint training programme in this area - building on the strengths of both - including ours of understanding working populations and toxicology
86	AFOEM have closer focus on the working population; OPs have a greater understanding of toxicology
87	Public health physicians consider population based health effects
88	Different framing and responsibilities / expectations (corporate vs public) and some grey / overlap areas
89	AFPHM is much more focused on communicable diseases in the environment and environmental impacts from non-workplace sources, such as traffic emissions or road trauma.
90	occupational physicians look at an individual in a clinical sense
91	Maybe the public health guys deal more in biologically transmissible diseases, and the environmental guys deal more in man-made problems?
92	I think there is considerable overlap. I suspect FAFOEMs are more commonly involved in issues relating to individual industrial plants and their nearby communities, whereas FAFPHMs are likely to be engaged in broader policy issues - e.g. the effects of urban air pollution on whole cities or the impacts of climate change.
93	not sure, just have a vague idea ! maybe AFOEM more for non-communicable diseases and AFPHM more for communicable diseases
94	Public Health is Population focused around the determinants of health, while the AFOEM Environmental Medicine is population and individual focused, often in an area of Environmental risk assessments and Mitigation/Management that Public Health doesn't address.
95	In general AFOEM fellows are concerned with issues that are the direct result of industrial processes (eg emissions from factories etc) while AFPHM fellows are more concerned with "natural environment" hazards (eg arsenic in drinking water) or man-made things that belong to society as a whole such as a freeway or other environmental issues such as safe housing etc
96	AFPHM work involves the broader community, and is usually government activity. AFOEM work often relates to external factors affecting workers.
97	I suspect we are involved with the aspects of environmental medicine that derive from industrial pollutants.
98	There is much overlap but I think we should focus on substances emanating from industry. However in my experience FAFOEM have a much better understanding of chemical and physical agents (and FAFPHM of infectious causes). Therefore we can complement each other.
99	In practice, NO.
100	I feel it is specifically those issues which have arisen from occupational factors such as industrial pollution but also including amenity impact.
101	Occupational and Environmental physicians are looking at the health impacts of industrial operations and the way to mitigate the negative impacts and enhance the positive impacts by understanding the industrial operation and how companies can be appropriately influenced and how stakeholders can be more effectively involved and how they can more effectively consult with industry. I think our focus is more industrially based but without losing sight of the community concerns. We also use many of the skills learnt in assessing occupational exposures when assessing environmental exposures, building on what we know in the occupational setting without forgetting the different sensitive receptors in the community. I don't think Public Health Physicians are as experienced or as trained in assessing exposures.
102	More often, AFOEM practice relates more to the individual or workforce than the general population
103	Wider issues than PHM and the effects on work and employment

3. Examples of other environmental medicine activities

(Some correction of spelling and typographical errors has been made but otherwise these responses are verbatim)

1	Toxic effects of plants such as camphor laurel
2	Giardia found in company provided accommodation swimming pool Legionella found in water of Dental equipment Noise in company provided accommodation
3	(i) Psychological stress in social situation (ii) Social deprivation affecting health (iii) Cultural inequities (iv) Health services inequities
4	Lead / asbestos concerns within populations of workers. Perceived illness resulting from fear / lack of understanding of effects of low concentration - but high odour of fugitive emissions ethyl acrylate - affected a large population of workers, resulting in unnecessary temporary closure of large waterside site, inappropriate media response, massive and unnecessary costs. But worse still - ongoing workplace disability for a few workers that was totally unnecessary (due to poor medical management?). Investigation of Dioxin emissions from chemical plant - with perceived widespread fears from local communities and media. Elevated mercury levels in environmental worker.
5	Conduct Health Impact Assessments as part of Environmental & Social Impact Assessment. Monitor and advise on Emerging Infectious Diseases (including pandemic), the potential impact and mitigation strategies. Set up public and environmental health programs for developments and operations in remote, tropical and developing countries (including, food, water, sanitation, communicable disease and vector control etc) Advise on health effects of Climate Change.
6	Effects of the environment on the health of a community with social justice issues Effects of goods transport on health Effects of hazardous waste sites. Impacts on a community of lack of recreational facilities and appropriate food supplies. Effects of water pollutants on health Building mould and other building air issues. Contamination of food supplies by pollutants. Effects of stress on communities after disasters. and more...
7	PTSD/mental injury cases 'blamed' on conflict/war/police activities, 'medical' effects of migrant labour (social & mental impacts blamed on being way from the home environment for extended periods)
8	Other comments: I believe it will always be extremely difficult for the faculty to get credibility in environmental health matters with the general public until we are recognised as consultant physicians for Medicare benefits (rather than specialists) as the rebate for private patients is less than for GP's. This needs to addressed as a priority as it is currently a massive disincentive for OP's in private practice to seeing patients where there is no third party responsible for costs.
9	I haven't dealt with these issues in my occupational medicine practice.
10	Contaminated (heavy metals) water supply to staff dining room High voltage lines under office space Hypersensitivity pneumonitis; secondary to work or non-work exposure? Dust and noise from adjacent building staff affecting staff child care
11	Assessment risks of elevated mercury levels from eating fish
12	spray from crop-duster planes. heavy metal in soil samples in built up area heavy metal in mining town causing "damage" to water supply Magnetic field exposure in a workplace Acid mist aerosol and effect on dentition Community lead levels and environmental exposures
13	Advising in exposure to wind turbine noise
14	Sick building syndrome Chronic fatigue syndrome Cancer
15	The above examples, plus cancer, respiratory, or other clusters just about cover the field AFOEM would be expected to work in.
16	none the "multiple chemical sensitivities" I have seen have been personal illness masquerading as environmental illness
17	Individuals with concerns about exposures to lead, cadmium, mercury, etc Individuals with various cancers attributing these to environmental exposures. Advising industry on effects of emissions on community health and community health complaints.

18	when doing a work-site visit on behalf of a worker, not infrequently I comment on the environment eg dust being blown into the workplace from a nearby earth moving operation
19	Ergonomic assessments associated with environmental factors
20	Banning of plastic bags for SA government: protocol, method developed by me.
21	Policy for hia Training hia Strategic plan for environmental health protection
22	I have only recently started and practice entirely occupational medicine
23	avian influenza risk to parks workers; mercury contamination in fish; Legionnaires disease/cooling tower protocols; sewer monitoring and discharges; asbestos in the workplace and implications for public; aerosols from sewerage treatment plants; blue green algal blooms in the workplace and public areas; misplaced radioactive canister; Q fever in farm workers, risks of anthrax PCB's in waste treatment plants The position/role the occ physician is contracted to undertake will determine the extent of environmental medicine issues.
24	Asbestos Fumes Influenza/SARS Ergonomics Hypoxic environments Airport security screening Industrial noise
25	Heat stress Noise exposure
26	Airport emissions. Lung lead and zinc hair analyses copper zoonosis high temp and humidity. Co in aircraft cabins visibility and pearl diving
27	1. Pollution of local watercourse from effluent (dye and surfactant) from a client company's premises. 2. Release of toxic metal fumes and dust from a lead smelter into the growing surrounding community that was quite distant from the plant years earlier. Contamination with cadmium, arsenic and lead rendered the home growing of vegetables dangerous. 3. Apparent loss of radioactive material from our only nuclear reactor into the local environment. 4. The possible health effects of both asbestos and photolytic enzyme containing detergent on the family members of workers, carried home by the worker on work clothes for laundering (three different prominent companies). 5. Smoke stack emissions from a number of plants. These were of community concern because of the nature of the plant (hospital incinerator; scrap metal processing). 6. Accidental significant releases of chlorine because of defective storage and fracture of a dropped cylinder. Also massive release of ammonia gas from a large refrigeration plant failure. These are ones that come to mind now.
28	The foregoing are very good examples of the dovetailing of Occupational Medicine and Public Health and the overlap has been called Environmental Medicine. Other examples are the effects of Asbestos mined in Wittenoom and the occurrence of mesothelioma in women and children who have been exposed to the dust from neighbourhood contamination or from the dust taken to the home by the asbestos miner on his clothing. Children playing in the grounds of a lead battery industry which has contaminated the surrounding environment. Discharges of effluent laden with toxic chemicals (including pesticides) into neighbouring streams. These are instances when Public Health and Occupational Medicine physicians have to work together.
29	ionising radiation, non-ionising radiation- clinical, regulatory and standard setting aspects. Patients with exposure to IR, NIR exposure to occupational toxicants in non occupational settings.
30	I have assisted in a risk assessment and communication of issues surrounding exposure to asbestos in a group of architects working on the demolition and building of a hospital.
31	Nil in my case
32	Evaluating health impacts of fire-fighter exposure to chemical fire at waste management plant, ongoing epidemiological cohort study
33	Infectious disease
34	Cancer clusters (interpret reports from environmental sampling as well as risk communication) EIA for sandstone quarry in urban area SHE audits Developing an environmental management system and audit tool for a client EMF in buildings - reference group which wrote some guidelines Risk assessment of using recycled water following a chemical fire Safe work procedures for those undertaking site remediation after a chemical fire Hazardous workers health screening protocols and medical examinations Product stewardship advice and MSDS preparation (journal reading, searching Australian and International standards, incorporate environmental degradation

	data etc) Fugitive emissions from a foundry affecting workers in a transport depot - investigation, medical screening, risk communication, working with other disciplines and with EPA Agricultural spray drift complaints
35	Pertussis outbreak in mine camp
36	New or aggravated respiratory problems due to workplace dusts/fumes Skin problems from workplace substances
37	Chemical weapons disposal contaminated site clean-up radioactive leaks of low level sources eg Tritium Concerns of possible family impacts from exposure to workers clothing etc
38	Community exposed to flood waters with cluster of illness Community concerned over possible exposure to heavy metals from local mine
39	mainly educational
40	Principally lead
41	Neurotoxicity - due to printing ink Leukaemia - due to benzene exposure
42	Health surveillance of people working on contaminated sites.
43	Contaminated land sites Smelter fluoride emissions Japanese nuclear emergency - risks to health from ionising radiation
44	Assisting (with FAFPHM) in monitoring of local population in proximity to high temperature incinerator used for decontaminating polluted industrial site
45	Issues with engagement as a trainee vs Fellow in the areas I have worked vs the client requests!
46	Risk assessment and communication - usually in relation to air emissions - less often due to water issues. Interaction with regulatory agencies - e.g. EPA and Department of Health Media Research
47	can't recall
48	Dust effects related to a local community (PM 2.5)
49	Setting national standards for electro-magnetic fields (ie RF and ELF)
50	Chemical Weapons clean-up; large scale asbestos remediation programs; accidental low-level radiation releases; large scale accidental release of Chlorine; environmental and occupational health impacts of high levels of mercaptans in odorous fuel oil; safety of new buildings constructed on previous contaminated chemical sites, including former gas work, petroleum refineries, pesticide plants, lead chromate factories, hexachorobenzene etc
51	field calls from concerned community members provide educational material for GPs concerning EMF impact near schools, lead levels in community near lead smelter, emission impact from aluminium smelter see patients with range of health impacts they have attributed to proximity to industry
52	Health impact assessments for projects, involvement in the health aspects of social impact statements, involvement in community liaison groups, giving talks on environmental medicine to university students and in Short Course on Environmental Medicine and AFOEM conference.
53	Effect of emissions on workers locally

Appendix 2 - Letter from ACOEM

October 19, 2011

James Ross, MBBS, MPH
The Australasian Faculty of Occupational & Environmental Medicine
145 Macquarie Street
Sydney, New South Wales 2000
Australia

Dear Dr. Ross,

We are happy to share with AFOEM our input regarding the issues involved in incorporating "environmental" into one's name. In fact, the issues AFOEM has more recently encountered closely mirror the experiences of the American College of Occupational and Environmental Medicine (ACOEM) over the last two decades.

ACOEM changed its name on January 1, 1992, when the then named American College of Occupational Medicine was expanded to include "environmental." The general consensus among the membership, both in 1992 and now, is that the change was necessary to reflect the breadth of the College's expertise and the importance of environmental issues within occupational medicine.

While this change was relatively seamless, we have also encountered, as has AFOEM, some "challenges" regarding our role during a natural disaster. However, many of the recent disasters (Haiti, the Japanese tsunami, etc.) have been on such a massive scale that they have required major governmental, humanitarian, and immediate acute medical care interventions. In our experience, it is after this period, when concerns over occupational and environmental health risks arise, that occupational and environmental medicine (OEM) takes precedence. As OEM physicians, we are uniquely trained and positioned to address the impact of these disasters on workers and their environment particularly in situations where environmental toxins may result.

For ACOEM and the United States, the aftermath of 9/11 is a prime example of where the "E" in "OEM" played a major role and still continues to add to the medical literature. In fact, we have recently published a free on-line collection of major articles from our *Journal of Occupational and Environmental Medicine* (yes, we also added an "E" to our journal's name) that deal with the medical and environmental impact of 9/11 (the 9/11 collection is available free on line at http://journals.lww.com/joem/pages/collectiondetails.aspx?TopicalCollectionId=4). In particular, I call your attention to the excellent editorial by Marc Wilkenfeld, MD, which introduces the collection. The article, *9/11 and Occupational/Environmental Medicine*, succinctly lays out the case for why the "E" belongs as part of our identity.

To speak to your first three questions:

1. For the purposes of ACOEM, what is the definition of environmental medicine?
2. For the purposes of ACOEM, what is the definition of an environmental physician?
3. Do you differentiate between an occupational physician, an environmental physician, and an occupational and environmental physician?

In 1992, we defined environmental medicine as "that branch of medical science which addresses the impact of chemical or physical stressors on the individual or group in a

community or dwelling through evaluation, diagnosis, treatment and control." Our *OEM Competencies* (www.acoem.org/OEMCompetencies.aspx) also define "*Environmental Health:* The physician has the knowledge and skills necessary to recognize potential environmental causes of concern to the individual as well as to community health. Environmental issues most often include air, water, or ground contamination by natural or artificial pollutants. The physician has knowledge of the health effects of the broad physical and social environment, which includes housing, urban development, land-use and transportation, industry, and agriculture." And, the Competencies define "*Clinical Occupational and Environmental Medicine:* The physician has the knowledge and skills to provide evidence based clinical evaluation and treatment for injuries and illnesses that are occupationally or environmentally related." We do not differentiate between OM and EM – we refer to ourselves as OEM physicians.

Regarding environmental activities, our scope has included climate change, emissions, and radon (we published a position paper on this issue in the 1990s). We have not (yet) focussed on the environmental effects of windfarms. However, we are following the issue of fracking, among others.

As environmental medicine is part of the *ACOEM Competencies*, it is incorporated into our educational offerings. (We are not a Board-certifying entity, so we cannot address the exams.)

In summation, we believe that environmental medicine is a natural fit with occupational medicine. This is becoming even more apparent, as world issues indicate. In fact, it is becoming more difficult to explain any differences between the two when the similarities are so evident.

I hope you find this information helpful. I have also enclosed a copy of the 9/11 editorial and a flyer that ACOEM disseminated to its membership in 1992, to address questions about the change. In addition, please feel free to contact me or ACOEM staff (particularly our Executive Director Barry Eisenberg and our Director of Communications Marianne Dreger) if you have any further questions or require additional details.

Sincerely,

T. Warner Hudson, MD, FACOEM

ACOEM President

cc: Barry Eisenberg

Marianne Dreger