Commission for Environmental Cooperation (CEC) of North America

Session 03-01 of the Expert Advisory Board on Children's Health and the Environment in North America

February 6-7, 2003
Holiday Inn Old Town Select
480 King Street
Old Town Alexandria, Virginia, USA

Meeting Summary

Overview:

The Expert Advisory Board on Children's Health and the Environment of the Commission for Environmental Cooperation of North America (CEC) met in Alexandria, Virginia, on February 6-7, 2003, with a primary goal to learn about healthcare professional training and education in children's health and the environment and to discern a role for the CEC and the Board in this area.

Highlights:

Dr. Irena Buka, Chair, opened the meeting and offered CEC Secretariat representative, Mr. Doug Wright, Director of Programs, the opportunity to share initial thoughts and direction. Mr. Wright charged the Board members to think in practical terms on how to affect change, working through the institutions and gaining political support for improving healthcare professional training in children's health and environment.

Several presentations on actions around healthcare professional training were then given by experts invited to the meeting. A summary of the presentations follows.

- **International Joint Commission (IJC):** Dr. Alan Abelsohn, Canadian Co-Chair, IJC Health Professionals Task Force, highlighted the fact that doctors have little opportunity to learn about environmental health and, hence, have little knowledge on the subject. A paper written by the Journal of the American Medical Association (JAMA) in 1999 offered advice on effectiveness of physician training, which promoted teaching through action or multiple interventions. Dr. Abelsohn provided copies of the IJC's manual in CD format, Environmental Health in Family Medicine, and highlighted three chapters of particular interest to the Board in their consideration of healthcare professional education: exposure history, risk communication, and where to go for information. Dr. Abelsohn proposed that a program that had been supported by the IJC, called Environmental and Occupational Health Scholars, was an effective way of increasing interest within the medical school experience.

- **Children's Environmental Health Network (CEHN):** Rabbi Daniel Swartz, Executive Director, offered advice, both from experience of the network and through the CEHN manual Training Manual on Pediatric Environmental Health: Putting it Into Practice, available electronically at http://www.children's health and the environmentn.org/children's health and the environmentn/trainingmanual/manual-form.html. Mr. Swartz stated that there needs to be more consistent breadth, more insistent depth, systemic change, better data, intentionality and understanding of the opposition. He stressed the need for breadth of training, to encompass physicians, nurses, researchers, public health professionals, social workers, informal health networks, pediatricians, family doctors and, notably absent from the scene, obstetricians-gynecologists. He noted that there are currently few leaders in the field and that children's health and the environment is neither an established career track nor a prestigious field. He raised the need to adequately fund research and fellowships, and argued that if children's environmental health is not taught as part of the standard curriculum, it will always be ad hoc, unstable, given limited resources and presented only to those who are already interested. He suggested action was needed to work with the boards that develop examinations and competency testing and recommended promoting the development of insider champions, such as deans of medical schools. Mr. Swartz backed environmental history taking and suggested the Board review existing models and offer support for one. Mr. Swartz suggested continued review of the goals of health professional training in children's health and the environment and that the point is to help healthcare professionals be educators. Finally, he reminded the group to know their opposition and to counter it with science.

- **Pan American Health Organization (PAHO):** Dr. Samuel Henao, Regional Advisor and Dr. Maria Alice Roschke, Regional Advisor, Human Resources Development Program, spoke on behalf of PAHO. Dr. Henao introduced the World Health Organization call for a world alliance on children's environmental health, which was initiated at the 2002 World Summit on Sustainable Development in Johannesburg. PAHO developed a program on children's environmental health, called "Healthy Environments, Healthy Children." Included in one of its four objectives is a strategy to strengthen human resources, especially scientists and health professionals, in pediatric environmental health. Dr. Roschke offered recommendations on ways to go about training professionals. She suggested that not only is a goal to teach the healthcare workers but also there is a need for institutional change. Both Dr. Roschke and Dr. Henao offered PAHO's support to the Board.

- **Pediatric Environmental Health Specialty Unit (PEHSU):** Ms. Paula Wilborne Davis, Program Coordinator, Association of Occupational & Environmental Clinics (AOEC) discussed the PEHSU's, which are centers in North America that offer education, consultation, referral and clinical evaluation in the area of children's health and the environment. Ten centers are located across the United States, one center is in Cuernavaca, Mexico, and one center is in Edmonton, Canada. A primary goal of the PEHSUs is education of healthcare providers and in 2001, the PEHSU's hosted at least 500 training and awareness events that reached an estimated ten thousand health professionals. Ms. Davis advised the Board of three challenges: 1) the difficulty of reaching practicing physicians to gain their interest and increase their knowledge, 2) limited inclusion of children's health and the environment in medical school curricula and, 3) inadequate understanding regarding the value of children's health and the environment. Ms. Davis suggested strategies to increase healthcare professional training, such as "detailing," giving presentations to local medical communities and offering guest lectures in medical schools. Ms. Davis highlighted two areas for concentration: support research and build awareness of primary care physicians.

- **Physicians for Social Responsibility (PSR):** Ms. Susan West Marmagas, Director, Environmental Health Programs, highlighted the need to mobilize leaders within the healthcare professional community. She presented the experience of PSR in physician and healthcare professional training as well as a system for identifying audience and levels of learning. Ms. Marmagas reminded the Board that healthcare professionals, in particular physicians, learn through many vehicles, including the effective translation of science and policy concept, from peers, from the community, from informed patients and community members, by speaking out, by speaking with policy makers, through press events and by participating on government advisory committees. She suggested that, in order to increase healthcare professional training in children's health and the environment, the Board would need to define whom they are targeting, develop key messages, and think beyond doctors. Ms. Marmagas identified five key challenges when attempting to train healthcare professionals in children's health and the environment: 1) "It's not my responsibility," 2) physicians are not exposed to environmental health in training, 3) physicians do not understand or accept the science, 4) the targeted person may not hear it from the right messenger and, 5) physicians are busy. Ms. Marmagas suggested using the "Prochaska Model" (a health education theory developed by John Prochaska) as an approach for determining actions to take to increase healthcare professional training. This model focuses on behavior change and identifies five stages of readiness for learning: 1) Pre-contemplation, 2) Contemplation, 3) Decision, 4) Action and, 5) Maintenance. Ms. Marmagas conjectured that probably 80 percent of physicians are at the pre-contemplation stage on children's health and the environment. She pointed out that if the goal is to increase the number of healthcare professionals trained in children's health and the environment, then what is needed are actions to build awareness and motivate (stages 1 and 2). Ms. Marmagas maintained it is necessary to make messages relevant by publishing journal articles, offering grand rounds, building awareness and linking scientific evidence to health. She suggested using peers as role models, providing fact sheets and curricula and developing web-based action.

- **American Society of Hispanic Nurses:** Dr. Nilda Peragallo, President, noted that environmental health is not a priority in nursing and, in the United States, Latino health is confronted with difficulties. It is quite difficult to obtain research grants on environmental health in Latino populations because the interest is low and potential donors few. She pointed out that in areas of poverty, deficiencies in access to health care and basic literacy exacerbate poor health and hinder awareness. Dr. Peragallo suggested publishing in English-Spanish journals, newsletters and websites. She recommended adding sessions on environment and child health to existing conferences and pointed out that in low-income populations, a focus should be on midwives. She stated the need to raise community awareness and to include stakeholders in training events. She believes the requirement of contact hours for nursing licensure is an opportunity for training in children's health and the environment and suggested conferences, partnerships and support for research as three areas for consideration.

Time was allotted for questions and answers and a general discussion. The presenters were thanked for their valuable input and invited to participate in the discussion throughout the day.

Mrs. Martha Shimkin, consultant to the CEC, presented a background paper, "Education and Training on Children's Health and the Environment for Healthcare Professionals: Status and Opportunities," prepared for the meeting. She summarized the need for increased healthcare professional training in children's health and the environment and cited examples of ongoing efforts in this regard. Mrs. Shimkin summarized lessons learned from ongoing efforts and made

seven recommendations for Board consideration, which were: 1) convene a high level meeting to raise the political profile, 2) promote the inclusion of children's health and the environment in healthcare provider curricula, 3) increase opportunities for fellowships across borders of the three countries, 4) seek funding and otherwise promote expansion of PEHSUs, 5) facilitate information sharing, 6) advocate to increase the number of pediatric fellows and, 7) formulate a research agenda on children's health and the environment for North America. A copy of the paper is available at www.cec.org.

An opportunity was given for each government to provide an update on children's health and the environment activities.

- **Mexico:** Dra. Leanora Rojas Bracho of the Ministry of Health, stated that children's health and the environment is a new field for Mexico, noting that it was only in 1985 that a masters program in environmental health research was established. Only a handful of students had been coming to the environmental health unit of the Ministry of Health for information, implying a low level of interest. There are not many ongoing activities for either environmental health or children's health and the environment, other than in isolated spots for specific problems. Dra. Rojas noted that non-governmental organizations (NGOs) do not tend to visit the government and that mostly this was a government effort. Dra. Rojas noted that there was a conference the previous year on environmental health that included a short session on children's health and the environment, but it was not well attended. She saw that there is a need to work hard on building demand for increased attention to children's health and the environment, as not much awareness exists in the health professional community.

- **United States:** Ms. Elizabeth Blackburn of the Environmental Protection Agency (EPA) presented three areas in which EPA is promoting healthcare professional training: 1) supporting efforts of non-governmental organizations, 2) creating visible partnerships and, 3) finding leaders within the government to champion children's health and the environment. Ms. Blackburn maintained that there is interest in children's health and the environment. She suggested that CEC consider whether it would be more important to strengthen existing PEHSUs or expand to new ones. Ms. Blackburn suggested the CEC consider partnerships across borders, noted that high level support is needed and proposed that the development of champions is key to future funding and buy-in. Ms. Blackburn pointed out the success of a chief pediatric residents training project and suggested that this could be an area for cross-border collaboration. She thought that an appropriate role for CEC would be to seek out and support increased funding for programs in healthcare professional training.

- **Canada:** Ms. Nicki Sims-Jones from Health Canada stated there are hot spots of focus in the area of children's health and the environment in Canada, such as in the Great Lakes region. She mentioned the high level of interest from McMasters University and the work of Dr. Pierre Gosslin in Quebec. She noted a structural barrier, in that education in Canada is a provincial responsibility. (Note: another participant later on commented that this is not necessarily the case.). Ms. Sims-Jones noted active participation on the part of NGOs, in particular the Canadian Institute of Child Health and the Canadian Association of Physicians for the Environment. She highlighted an exercise of priority-setting within Health Canada in 2000 and suggested this may again take place. Ms. Sims-Jones also noted that the PEHSU in Edmonton supports education of healthcare professionals in children's health and the environment, and noted her interest in increasing the number of PEHSU's in the country.

An opportunity for open discussion and information sharing was given, in which a discussion on adverse health effects reporting ensued. It was mentioned that Canada will begin reporting on pesticide health effects. The problem at hand is that if healthcare providers do not know about children's health and the environment, they are not certain of what to do or what to report so the system does not really work. A CEC role in helping to integrate models would be helpful. The United States National Association of City and County Health Professionals was mentioned as a group that has developed protocols for assessing communities and environment, available in both English and Spanish. The focus is on working with community representatives to describe environmental health risks at the local level. Materials on this are available.

The meeting continued with a session on opportunities for healthcare provider education/training in children's health and the environment.

- **Dr. Barbara Sattler, Director and Associate Professor, Environmental Health Education Center, University of Maryland School of Nursing**, talked about the importance of various professions within the healthcare sector, with an emphasis on nursing. She reminded the Board that the most teachable moment for parents on care of children is at the first pregnancy visit – and therefore stressed the importance of nurse-midwives and of obstetricians-gynecologists. She highlighted that nurse practitioners often provide primary care in poor communities and that school nurses have a particularly important role to play. Dr. Sattler referred to a 1995 document by the United States Institute of Medicine, called *Nursing, Health and Environment,* that promotes nursing education in environmental health. She emphasized the importance of consistent and continued support and the need to sustain champions. Dr. Sattler mentioned that a set of on-line courses is available to train nurses in environmental health and she encouraged the Board to select a few sets of materials for translating. She conveyed that the National League of Nursing and the American Academy of Colleges of Nursing regulate curriculum. Dr Sattler concluded that the art to acceptance of children's health and the environment in nursing schools is to build the program piece by piece, by thinking strategically, using contacts and growing with an organization at its pace.

- Dr. Bruce Lanphear addressed researcher training in children's health and the environment, offering a broad definition of children's health and the environment that implicates the environment as a contributor to every prevalent disease in humans. He maintained there are many gaps in knowledge on the impacts of child health and pointed out that protecting children from environmental hazards involves advocacy, research and policy, and he maintained that it is especially important to balance advocacy and research. Dr. Lanphear stated that education is key to all three themes but cautioned that it could be overemphasized. He suggested that the most effective means of intervention is changing the environment. He offered three tools for preventing environmental harms to children: education, enforcement and engineering. He mentioned the University of Cincinnati research fellowship program on prevention and offered other ideas to support researcher training, such as training for clinicians and scientists, a mentors program and an intensive summer program.

A discussion followed Dr. Lanphear's presentation, focusing on the importance of balance between research, advocacy and policy. Dr. Irma Rosas Perez, Board member from Mexico, strongly supported the importance of research, stating that it is basic to enabling doctors and nurses to progress, and that it is interesting for use in medical school classes. Dr. Lanphear suggested the Board support supplementing ongoing research by adding an international component.

Dr. Buka was particularly interested in learning of the process for teaching doctors, determining curricula, setting examinations and deciding core competencies of physicians in the three countries of North America. Presenters were invited to give overviews of these systems.

United States: Ms. Brownelle Anderson, of the American Academy of Medical Colleges, presented the structure of physician training in the United States. Medical school programs in the United States are a minimum of four-years, and most students enter medical school after having earned a Baccalaureate degree. There are several "BA-MD" programs which students enter directly from high school and earn their bachelor's degree and M.D. in six to eight years. To practice medicine in the United States, a physician must complete a minimum three-year residency, although many specialize and are in residency an additional two to ten years. Education to become a medical doctor, then, is at a minimum seven years after the undergraduate college degree. Each curriculum is unique, determined by the medical school faculty. Standards for medical education are set by the Liaison Committee on Medical Education (LCME), which is sanctioned by the United States Department of Education. The LCME is partnered with AAMC and the American Medical Association. The LCME standards are available on line at www.lcme.org. In the United States, medical schools are accredited by the LCME.

Ms. Anderson noted that in 1996 a group began to develop core competencies for medical professionals, resulting in a document that could be useful to the CEC in addressing healthcare professional education in children's health and the environment. Various other groups have also put together competencies for undergraduate medical school students.

Physicians who practice in the United States pass the United States Medical Licensure Examination in order to practice medicine. Then they may go on to be board-certified in a specialty. There are three parts to the examination: 1) the pre-clinical sciences and 2) clinical sciences, typically taken before the student graduates from medical school and step 3 – clinical medicine. In order to enter a residency, the student must pass the first two parts. Ms. Anderson pointed out that there are a lot of groups advocating to incorporate special topics into this examination process. The examinations are written by a committee of medical school faculty under the aegis of the National Board of Medical Examiners and the Federation of State Medical Boards. While there are questions on environmental health on the examination, the topic does not take a predominant role.

In response to a question by the chair on how the mix of questions on these examinations could change, Ms. Anderson suggested that who is on the testing committee makes a difference, as those who make up the examination will push certain interests. She also mentioned that societal pressures are a great influence. Ms. Anderson suggested the Board look at the role of medical school faculty as potential actors for increasing training in children's health and the environment, and suggested that it is not just the examination that will make a difference. She agreed with previous statements that having a champion is key, and she suggested that the champion be a dean or associate dean or someone empowered by the dean to be a champion. That way, if the champion goes away, the dean or associate dean will continue the program and assign a new champion.

Upon being asked by the chair who the influential people in affecting the curricula of medical schools were, Ms. Anderson contended the Dean, the Senior Associate Dean or the Associate Dean, also the chair of the curriculum committee, faculty members of curriculum committees

and department chairs. Ms. Anderson concluded by stating that the United States and Canada are in close collaboration on accreditation of medical schools and the Canadian schools are members of the Association of American Medical Colleges. The LCME accredits Canadian medical schools in conjunction with the Association of Canadian Medical Colleges. In addition, she mentioned the AAMC's new international health initiative which is looking at how to work more with other countries.

Ms. Leyla McCurdy, Senior Director, Health and Environment Programs, of the National Environmental Education and Training Foundation (NEETF) offered a brief intervention regarding physician training in children's environmental health in the United States and recommended the Board consider participation in NEETF activities aimed at institutional change on healthcare provider training. She shared a specific example of healthcare professional training on pediatric environmental health, of which the first training session will take place in June, 2003. The NEETF training is based on the recommendations of the Institute of Medicine, and focuses on physician and nurse training and curriculum. Information on the program is available electronically on the NEETF website at www.neetf.org/health/providers/implplan.shtm. The NEETF approach to resources is similar to what has been recommended for the CEC: inventory existing programs, evaluate them, and create an information gateway. She also noted that a pilot study done by NEETF tested the knowledge and learning style of pediatric healthcare providers. A national forum on pesticide training for healthcare providers will take place in Washington, D.C. on June 10-11. It will be an invitation only, working meeting and will result in commitments. Ms. McCurdy offered CEC participation in this forum as support for the CEC initiative.

Mexico: Dr. Alvaro Roman Osornio Vargas, Chief of the Environmental Health Department, National Autonomous University of Mexico (UNAM), presented background on physician training in Mexico. He pointed out that there are 74 medical schools in Mexico, across 31 states and 1 Federal District. Three of these states have no medical schools and Mexico City has 12 medical schools. UNAM is the leader in the medical schools across the country. For the last 30 years, other states and private universities have established medical schools but they are always motivated by UNAM. Medical students are accredited by their schools. Each school designs its curriculum and has its academic requirements. Each school has its medical specialties. As soon as the student passes the final examination, he/she can practice medicine. In order to follow a specialty, a national examination, developed by all the schools in collaboration, is required. Specialties require from 2 to 6 years and, at the end, the university administers an examination. There is a parallel exam administered by the Specialty Mexican Medical Council . While the Mexican Medical Council examination is not required, it is prestigious so doctors want to pass it. Mexico has worked to unify the medical education system and in 1992 established an accreditation system (Sistema Nacional de Acreditación), created by the association of medical schools (Asociación Mexicana de Escuelas y Facultades de Medicina). One challenge before the association is to determine what kind of doctors Mexico wants to have: generalists or specialists. One of the goals is to influence the curriculum design, which may be a point of influence for CEC.

Dr. Osornio suggested that both the association of medical schools and the director of the medical school faculty of UNAM would be two key points of influence to gain an academic consciousness on children's health and the environment. He pointed out that the health authorities of the country also should motivate this initiative. If more work were done to build awareness in the society, increased perception of the risks relating to children's health and the

environment may influence the medical school educational system. Dr. Osornio suggested that the Board consider such an awareness activity. Dr. Osornio maintained that in Mexico, the required one year of community practice for physicians could be instrumental in recognizing the problems associated with children's health and the environment and evaluating interventions. After completing medical school, all new physicians are required to work for one year in rural communities.

Upon being asked how the health ministry in Mexico could motivate the process, Dr. Osornio maintained that the topic of children's health and the environment is not being discussed by politicians, as it is not seen as a necessity. He stated that a multifaceted approach, not only dependent upon health ministry action, would be needed.

Canada: In advance of the meeting, Mrs. Shimkin had drafted an overview of the structure of physician training in Canada which Dr. Margaret Dukes of the Canadian Medical Association reviewed and approved. Medical students in Canada study what is termed undergraduate medicine. Successful students earn the MD degree upon completion of this program. Undergraduate medical schools are accredited by the Committee on Accreditation of Canadian Medical Schools (CACMS), which is coordinated by the Association of Canadian Medical Colleges (ACMC). CACMS sets broad standards including everything from content requirements to accounting practices. Individual medical schools determine their own curricula, provided that they meet the standards set by the CACMS and the Association of Medical Colleges, and prepare students for examination by the Medical Council of Canada (LMCC). Testing committees determine the content of the board examinations and there is a pediatric committee that provides input on competency in pediatrics.

Several professional organizations have influence on the content of medical school curricula and, to some degree, on the accreditation standards. Organizations such as the Canadian Medical Association provide input to the Association of Canadian Medical Colleges regarding core competencies for medical students. In addition, certain initiatives may cause an organization to make recommendations to medical schools on content of curriculum. In one instance some years ago, for example, there was a need to increase training in the area of physician-patient communication. Based upon findings of a committee and some study, the Canadian Medical Association made recommendations to undergraduate medical schools to enhance study in this area.

Once graduated from medical school, doctors must earn a postgraduate medical certificate from either the Royal College of Physicians and Surgeons of Canada or the College of Family Physicians of Canada in order to qualify to practice medicine. The content of post-graduate work required for this certification is set by specialty committees. The Royal College has a pediatrics specialty committee. As many children in Canada are attended to by family physicians, both colleges play important roles. Although less direct, professional organizations such as the Canadian Medical Association have some influence on the curriculum of these post-graduate programs, through a council on education and human resources.

Dr. Alan Abelsohn added to this discussion on the Canadian system. He mentioned a recent push by the accreditation committee to require students to go to the community and focus on community epidemiology, although environmental health is not a priority on that. He also mentioned that the University of Western Ontario has a successful program for medical students on ecosystem health. Finally, he noted that in teaching, occupational health takes precedence

over environmental health. Dr. Abelsohn questioned the wisdom of pushing for children's health and the environment instead of the broader field of environmental health, and suggested the Board consider this when moving forward. He noted that academic training is already a crowded agenda and that in order to add a topic, another one would have to be removed. Considering this, he questioned how much influence the Board could have.

Dr. Ti Guidotti from The George Washington University was welcomed at the meeting and he offered additional information on the University of Western Ontario ecosystem health program. He noted that the University has been able to pull into the medical school program the understanding that ecosystem degradation affects the medical status of the population, through both direct medical effects and through social and sustainability effects. The University of Western Ontario program looks at these issues broadly and it has turned out to be a very popular course among students. Dr. Guidotti suggested that the CEC consider reviewing this program to learn how a medical school course focused on environmental issues can remain popular.

The session concluded with key points: People don't teach what they don't know. The Board should look at programs such as environmental scholars programs that increase the environmental health knowledge of faculty. One role for the Board is to identify and acknowledge where programs are successful in order to gain acceptance. The Board should not try to develop a course in environmental health medicine.

Heraline Hicks, Senior Environmental Health Scientist, Agency for Toxic Substances and Diseases, summarized activities by the United States Agency of Toxic Substances and Disease Registry. In regards to providing information that helps health practitioners learn about environmental exposures, Ms. Hicks highlighted the 270 toxicological profiles that are available on web and CD-ROM, written at a low education level but conveying scientific data. She also pointed out that professional scientific societies may be good champions, such as societies of toxicology, teratology, and endocrine disruptors. In briefings she has presented before these societies on behalf of ATSDR, Ms. Hicks has noted a high interest level that could turn into a point of influence in medical schools.

Dr. Buka initiated a discussion for a potential CEC role in healthcare professional training and education.

First it was suggested that there is a need for researcher training on children's health and the environment in all three countries in order to improve research capacity. It was also noted that the PEHSUs were considered effective in promoting research and education. There might be discussion on where to place additional PEHSUs. There was some question on whether or not there has been sufficient evaluation of the PEHSUs in order to know how effective they are. While there are quarterly reports and administrative evaluations, there has not been an independent evaluation of the PESHUs. If they are effective and an evaluation shows this, then investment in additional PESHUs may be called for. The environmental health scholars chosen and funded by the IJC were brought up as champions in their community who promoted education on children's health and the environment at all levels, not only for health care professionals but also for the coummunity. It was suggested that the CEC look at strategies for getting to practicing physicians, possibly through continuing medical education. Financing was introduced and the notion that, to get investment, one must make an attractive proposal. Whether for education, a training project or research, in writing a proposal one must address what value investors will give to the idea. How will investors evaluate a result and who will be approached

for the investment? It was suggested that a pilot project could initiate interest. It would need to have stated and clear indicators and could lead to an attractive package to gain investment. Some discussion of where to start ensued, focusing on identifying needs and goals. Based on these, the Board could make recommendations. It was suggested that the Board consider the NEETF outcomes and borrow from these to develop next steps. Some practical first steps, such as translation of materials, were suggested. The Board decided to develop an Advice to Council. It was also suggested that the Board return to the presenters at some point and ask for partnerships in specific activities.

Dr. Buka suggested that the Board consider the day's presentations, discussion and recommendations and that the day adjourn, with a return to discussion of next steps in the morning.

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Dr. Buka called the meeting of the Board plus government representatives to order and, based on the information presented the previous day, summarized her vision of a role for the Board. Dr. Buka suggested five key areas of concentration: 1) maximize a "high profile" force, 2) convene a high level meeting of key players, 3) act as a conduit for communication and information, 4) support programs that show outcome evidence, 5) advise Council of issues and progress. Dr. Buka summarized the presentations and comments of the previous day:

- broaden the scope of training, noting that most healthcare providers in North America are at the pre-contemplative stage;
- increase depth for those healthcare providers already contemplating the topic;
- develop an attractive plan to interest partners and investors;
- develop long-term objectives, to include: training researchers to produce evidence-based science applicable to policy development with an emphasis towards prevention of environmentally related diseases in children. The training of clinicians to identify, investigate and treat these disorders. The training of educators of health care professionals, families, communities and policymakers and the education of individuals to advocate effectively at all levels but including policymakers to effect protection of children and especially prevention of environmentally related diseases. Dr. Buka empahsized that roles by individual health care professionals were shared among these four categories. Researchers need to be trained to be advocates and educators. Clinicians were often involved with clinically based research, working in teams with environmental laboratory based research. Clinicians are often educators and advocate for their patients on a daily basis.
- continue outcome evaluation; and
- reduce inequalities among the three countries.

Dr. Buka summarized that there was some training in the area of research, little or no training in undergraduate medical and nursing programs and some training at the postgraduate level, masters in nursing, medical residency and pediatric fellowship. There was also some continuing medical education and nursing education available at regional conferences or workshops. Dr. Buka's comments included the broadening of scope to identify other institutions that are involved with health care professional education of the environmental health of children which may include student organizations, social work, pharmacy, traditional doctors, etc. To broaden the scope it had been suggested the previous day to influence competency bodies, medical and nursing school associations and especially examination setters.

To increase the depth of health care provider training, it was necessary to promote education and research, especially preventative research in children's environmental health, to promote fellowship programs and develop models for specific vulnerable groups.

Providers could be influenced by increased awareness through the media and through articles in children's environmental health journals. Providers could also be influenced by champions who would need to be identified, educated and supported in the universities but also in communities.

Changes could be affected by educating society and thereby allowing societal pressure to influence health care professional training. Also by developing partners within universities and other educational institutions. Funding was a key issue in order to identify, educate and support champions and other health care education experts.

The list of opportunities and partners, including the PEHSU's, current available educational materials, health and environment government ministries, paediatric organizations for example the American Academy of Pediatrics, medical school with successful environmental health programs, current community scholars or champions, research training programs e.g. Cincinnati, organizations such as the World Health Organization, the Pan-American Health Organization and the United Nations Environmental Program, and the Public Health Research Sciences Program.

Dr. Buka addressed the meeting by posing the following two decisions that needed to be made. These decisions including putting efforts into broadening the scope and therefore dealing with people in the precontemplative state of decision making or putting efforts into increasing the depth and thereby dealing with people already in the contemplative stage. She emphasized that this decision needed to be made before the end of the day in order to look at resources for the coming year.

Dr. Buka reported that whatever the plan or package to be proposed to Council, it needed to be attractive and appealing, with long term objectives taking into mind economic health and societal issues and there needed to be a continuing outcome evaluation with appropriate means for ongoing revisions to partners, funders and users.

The overall plan was to reduce the inequalities between the three countries.

The Board gave overwhelming support for the presentation, congratulating Dr. Buka on a good summary, a good framework for discussion, a solid base for prioritizing and decision-making. Board members acknowledged there was a lot of work ongoing in the area of healthcare professional training. At the same time, they felt the need to think from a tri-national, North American perspective and the need to increase leadership on the issue. Increases in training and fellowships across borders are two ways to address these. It was stressed that the Board should choose an activity of a short timeframe, such as convening a high level meeting and conducting an evaluation of the PEHSUs. There was also encouragement by individual board members for next steps at the national level.

Ms. Erica Phipps, of the CEC Secretariat, reminded the group that the Board is budgeted C$55,000 for all activities for the year and that there may be a need to find partnerships in order to make certain activities feasible from a financial perspective. Mr. Wright suggested that the Board develop ideas and that the Secretariat could then assist in seeking the necessary funding.

Ms. Martha Berger of EPA asserted that while research is needed, it is also important to build champions and advocates. An appropriate role for CEC would be to build champions who could speak eloquently on the topic across North America and take advantage of existing programs. Ms. Berger suggested some practical steps for action by the Board, namely participation by Canadian and Mexican doctors in the AAP Chief Pediatric Residents training in May, and participation by all three countries in the June NEETF training for healthcare professionals. It was also noted that PAHO is sponsoring a workshop on children's health and the environment in the Americas, to take place in Lima, Peru, April 9-11, 2003.

Other points made were that over the long term, serious fellowships are the way to build champions, and there is a need for early action to stimulate the formation of leaders. However, it is important to take into account the infrastructure these champions will have and the need to maintain the leaders and people being trained. It is important to think through support mechanisms, networks, follow-up, and strategy. Dr. Mariano Cebrian Garcia suggested that research centers could develop courses or majors in environmental health and that collaboration among research centers on a trinational basis could promote working on common problems and research. Dra. Rojas Bracho suggested a need to help institutions develop the infrastructure needed to make changes, and that leaders could be invited to the CEC meeting on risk assessment to be held in Oaxaca in February, 2003.

The remainder of the session was a closed meeting of the Board, supported by the Secretariat.

Update on Implementation of the Cooperative Agenda

Joanne O'Reilly, consultant to the CEC, provided an update on the Sound Management of Chemicals (SMOC) program of the CEC. She noted that North American Regional Action Plans (NARAPs) have been developed for several chemicals, including mercury, PCBs, chlordane and DDT. NARAPs for Lindane, for Dioxins, Furans and Hexachlorobenzene, and for Enviromental Monitoring and Assessment, are under development. Updates on the overall program, as well as the specific chemicals under review, were provided to the Board in a background document. Ms. Phipps noted the participation of Dr. Buka in the recent SMOC meeting and suggested that continued involvement of the Board in SMOC would be beneficial. Roles for the Board were suggested as 1) involvement in the SMOC meetings, 2) provide comments on draft NARAPs, 3) keep CEC Council updated through the Advice to Council mechanism.

A project proposal for US$100,000 to increase capacity and conduct biomonitoring for persistent organic pollutants and metals in North America has been submitted to the World Bank and looks positive for funding. The goal of this project is to establish a baseline profile of population exposure to POPs and metals and to identify environmental hotspots. A background document on this project proposal was also provided to the Board. Discussion of the proposal ensued. It was suggested that this work be linked with the United States National Children's Study. Participants discussed the pros and cons of waiting for the large cohort study vs. pursuing shorter-term, smaller studies like the proposed bio-monitoring study. Some suggested proceeding on both tracks, gaining information while recognizing findings will be limited. Other points made

included the need to help Mexico implement a national implementation plan for persistent organic pollutants and that too much data from too many points creates complication. It was also suggested that a greater portion of the funds should go to Mexico, as the United States has already conducted similar studies and thus the proposed project would not add great value.

Ms. Phipps reported that, as part of the annual *Taking Stock* series, a special feature report presenting an analysis of pollutant release and transfer register (PRTR) data on chemicals of concern to children is scheduled for release in May 2003. The report will cover carcinogens, developmental toxicants and neurotoxicants, utilizing matched data from the Canadian and United States PRTRs. The report will also take a special look at lead, mercury, PCBs and dioxins/furans, and will provide general information on children's vulnerabilities, exposures, impact and the current state of knowledge. Ms. Phipps thanked Board members who had contributed to the review of the draft document, and suggested that the Board may wish to advise Council on the findings and/or participate in the report's release as expert commentators.

Ms. Phipps gave an update on the indicators project, reminding the Board that this was among the priority set by the Council in 2002. Given the global calls for development of children's health and the environment indicators, notably at the World Summit on Sustainable Development and in the work done by the World Health Organization, the CEC is positioned as a leader in the development of such indicators. Phase I, development of a feasibility study, was completed in 2002. The project steering group has made its recommendations on which indicators should be included in the first report. Phase II--compilation of the indicators and preparation of the first report--will be undertaken in 2003, with a view to publishing the first report in 2004. The feasibility report will be available to the Board shortly. The discussion on children's health and the environment indicators highlighted its importance relative to healthcare professional training, given its potential to enhance communication and public awareness. A role for the Board is to review and help promote the CEC indicators project, including its use to support global children's health and the environment indicator initiatives.

Mention was made of the risk assessment and children's environmental health workshop, to take place in Oaxaca, Mexico, 19-21 February. An agenda for the workshop was shared.

Ms. Phipps indicated that a series of reports on the economic impacts of environment-related diseases in children is under development, with a the first in the series, a report on asthma and respiratory ailments, due to be released in April/May 2003. The report takes a cost-of-illness approach and, while facing data challenges, will likely become a useful tool. The Board indicated interest in the report, with a request to review a draft before publication. In addition, it was suggested that the Board make recommendations on other health effects to be considered for future reports in the series.
On the topic of increasing trilateral collaboration on longitudinal studies, Ms. Phipps noted that an international consultation was held in conjunction with the meeting of the National Children's Study in December in Baltimore. A number of countries reported on ongoing longitudinal cohort studies. The meeting resulted in the establishment of an international interest group. The Board discussed the potential of having coordinated national studies and agreed to include this in its Advice to Council.

Ms. Phipps introduced Dr. Paul Miller, Air Quality Program Manager, who gave a brief update on the results of a 14 January 2003 meeting in Montreal on exposure technologies to assess impacts of diesel exhaust related to transportation. The meeting was held in the context of the

ongoing project to assess the effects of diesel exposures at congested border crossings, which has is looking at asthmatic children in Ciudad Juarez. It was suggested that the Board wait until results were available and then write an Advice to Council on next steps. Dr. Miller offered to send the Board the web link to the information presented at the 14 January meeting.

Ms. Phipps shared the preliminary results of a study commissioned by the CEC on opportunities and constraints to the adoption of lead-free glazes in Mexico. Based on interviews with potters and other relevant sources, the study indicates that there are likely high exposure of children to lead in cottage pottery industries, that potters have some knowledge of lead-free glaze alternatives, that there is a low level of lead risk perception and a relatively low level of ability or desire to change to alternatives.

A Trilateral Workshop on Lead in Consumer Products is scheduled for Fall 2003. The aim is to learn about the situation in each country with respect to products containing lead and resulting exposures among children, as well as existing institutional and regulatory mechanisms to address the problem. Members showed high interest in participating in the development of the workshop, and suggested their next regular session be held back-to-back with this event.

The Board then set out to write advice to Council on healthcare professional education and training, and on the progress made in implementing the Cooperative Agenda. Much of the discussion time centered around the idea of a high-level meeting, with questions on the meaning of a high level meeting, whether or not it was do-able, who would be invited and what would be the goal. Advice to Council was drafted and included several concrete actions. It encouraged immediate, practical actions, such as participation in the upcoming Chief Pediatric Residents training in May, the NEETF meeting in June, support for PESHU evaluation, and seeking support for science and research. A separate Advice to Council was drafted on the implementation of the Cooperative Agenda. The Board requested that the Secretariat further develop both drafts based on the Board's discussions, with final consensus by the Board to be reached via email and telephone conference.

A question was posed on how to replace the United States Board member who recently resigned. The secretariat responded that the United States is working on identifying a replacement. The Secretariat also mentioned that there is interest among the governments in extending the mandate of the Board, perhaps until the June 2004 Council meeting. Members seemed to be supportive of the possibility of extension.

Dr. Buka adjourned the meeting, stating she was pleased with the content of and participation in the discussions. She believes the Board had made strides towards key accomplishments and foresaw an active agenda over the coming year.