TRAINING FOR THE HEALTH SECTOR

[Date …Place …Event…Sponsor…Organizer]

THE PAEDIATRIC ENVIRONMENTAL HISTORY: A TOOL FOR HEALTH CARE PROVIDERS

Children's Health and the Environment

WHO Training Package for the Health Sector

World Health Organization

www.who.int/ceh

July 2008 version

1

<<NOTE TO USER: Please add details of the date, time, place and sponsorship of the meeting for which you are using this presentation in the space indicated.>>

•In spite of the growing concern about health and the environment, and the demands of communities for advice on environmental matters from health care professionals, environmental health is seldom taught in medical and nursing schools.

•Health professionals in many countries, especially developing countries, lack training in and knowledge of the clinical recognition, management and prevention of diseases linked to the environment. Few clinicians routinely elicit information about the home, the school or the playground as part of the demographic and social history.

•The incorporation of training on health and the environment into medical and nursing curricula is a "long-term" solution. Therefore, immediately applicable solutions are required: taking an *environmental history* is one way in which health professionals can learn and apply basic environmental health concepts immediately.

•In addition to the usual history-taking, the careful and detailed exposure history will allow health personnel to recognize, assess, manage and prevent diseases linked to the environment in children.

<<NOTE TO USER: This is a large set of slides from which the presenter should select the most relevant ones to use in a specific presentation. These slides cover many facets of the problem. A number of slides refer to the specific issues related to indoor air pollution in developing countries, as it represents a major determinant of the burden of disease in children. Present only those slides that apply most directly to the local situation in the region.>>

LEARNING OBJECTIVES

- Recognize and understand the importance of taking the paediatric environmental history
- Review the basic concepts of children's environmental health that should be considered in an environmentally-oriented questionnaire
- Consider when, where and how the paediatric environmental history should be taken – collecting concise data or more detailed information
- Assess the potential barriers to taking the paediatric environmental history, and how to overcome these barriers
- Develop the capacity and expertise to develop, record and use the paediatric environmental history

<< READ SLIDE.>>

Paediatric Environmental History

- Introduction and background
- What is the paediatric environmental history (PEH)?
- Key areas to address
- Developing and using the PEH
- Who takes the PEH? When and how?
- Barriers to taking the PEH
- Case studies

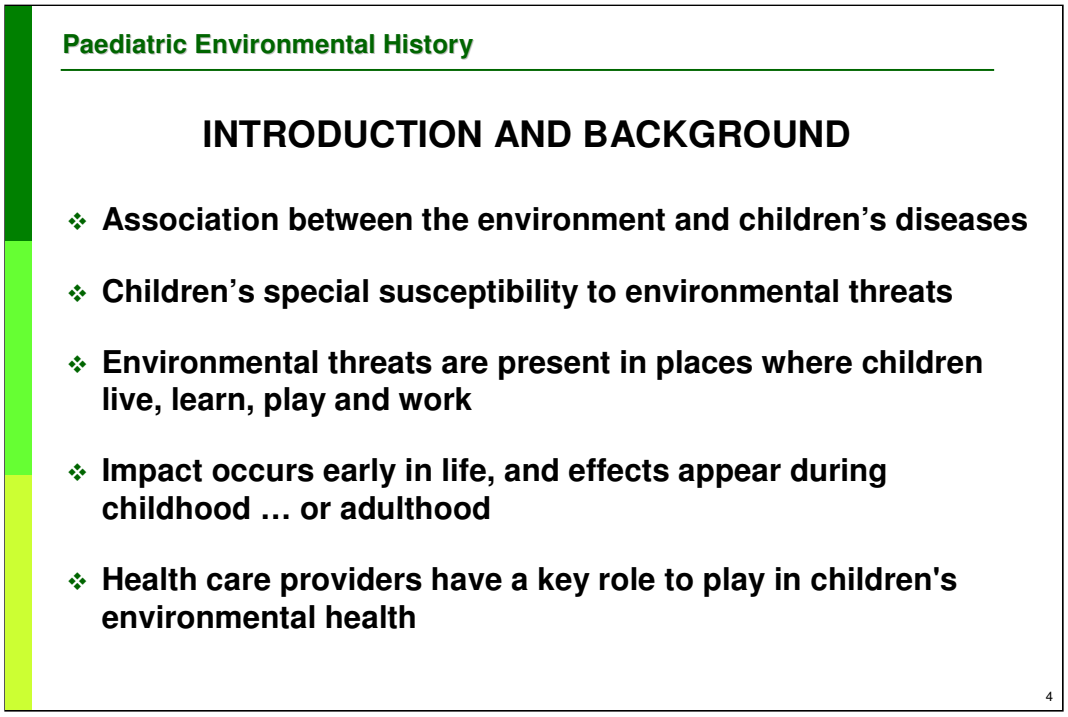
WHO

3

Outline of the module: main points to address.

<< READ SLIDE.>>

Picture: WHO



As an introduction to the subject it is important to review the reasons why children's health and the environment should be considered in more depth.

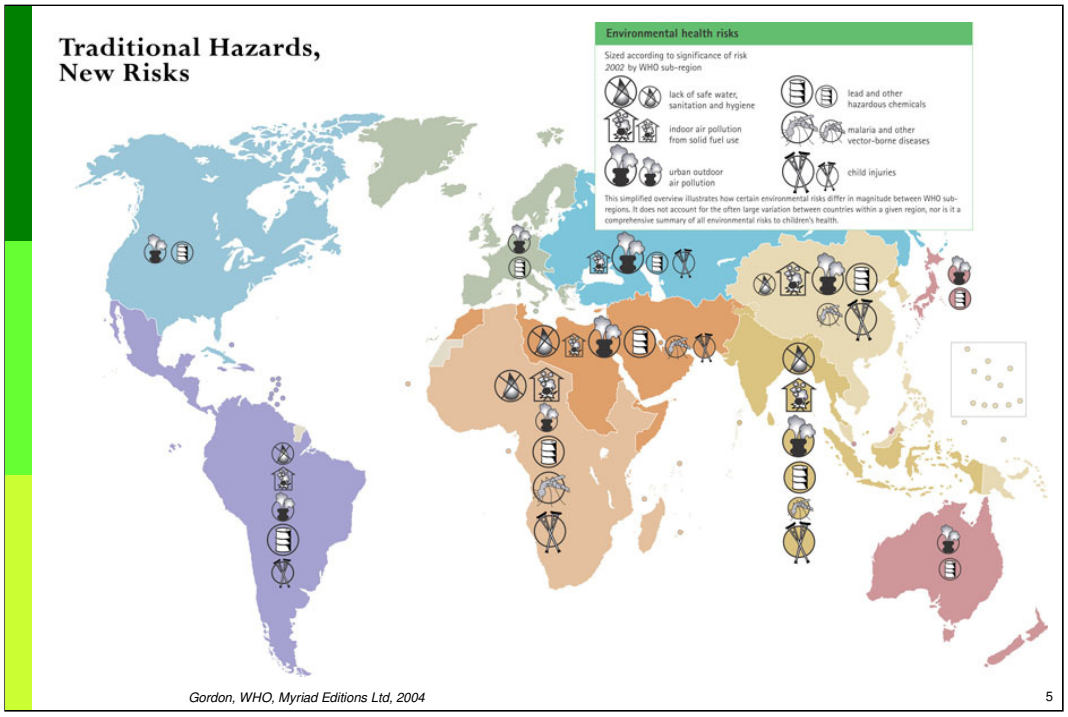
•Over the past decade, the evidence about the association between the environment and children's diseases has increased. A number of chemical, physical and biological risk factors represent a menace to children's health and development – these should be appropriately identified and recorded.

•There is a new recognition of children's special susceptibility to environmental threats. The fetus, the child and the adolescent may be exposed to environmental threats during crucial periods of growth and development, called "windows of susceptibility". These exposures may not only cause disease in childhood, but also have an impact on health during adulthood.

•A number of different environmental threats are present – and coexist! – in the places where children spend most of their time, where they live, grow, play, learn, and even work, in some circumstances.

•The effects of environmental exposures occurring early in life may be clinically evident or may appear later in life – during childhood or even in adulthood. Effects suffered early in life may have consequences in the adult, for example asthma, chronic bronchitis and cancer are linked to exposures to air pollutants early in life.

•Health care providers play a key role, as they are in the "front line", in dealing with children and adolescents; they are in contact with the parents, teachers and communities. Health professionals are in a key position to identify children at risk, advise parents on how to reduce the risk, and recommend actions to policy-makers. Health care providers should be able to recognize and assess the environmental health threats present in the places where children and adolescents live, learn, play and work. They should also know that the threats are greater in low-income populations and marginalized communities, in degraded environments and when children and adolescents are living under extreme stress (e.g. during civil unrest, or in refugee camps).



This map shows the main environmental risks observed in different parts of the world. These should be known to enable a paediatric history-taking that will aim at identifying the concrete environmental problems faced by children.

Children today live in an environment that is vastly different from that of a few generations ago. Global challenges include industrialization, rapid urban population growth, the unsustainable consumption of natural resources, the increasing production and use of chemicals, and the movement of hazardous wastes across national borders.

Homes, schools, streets and fields – the settings where children live, learn, play and work – all present environmental hazards.

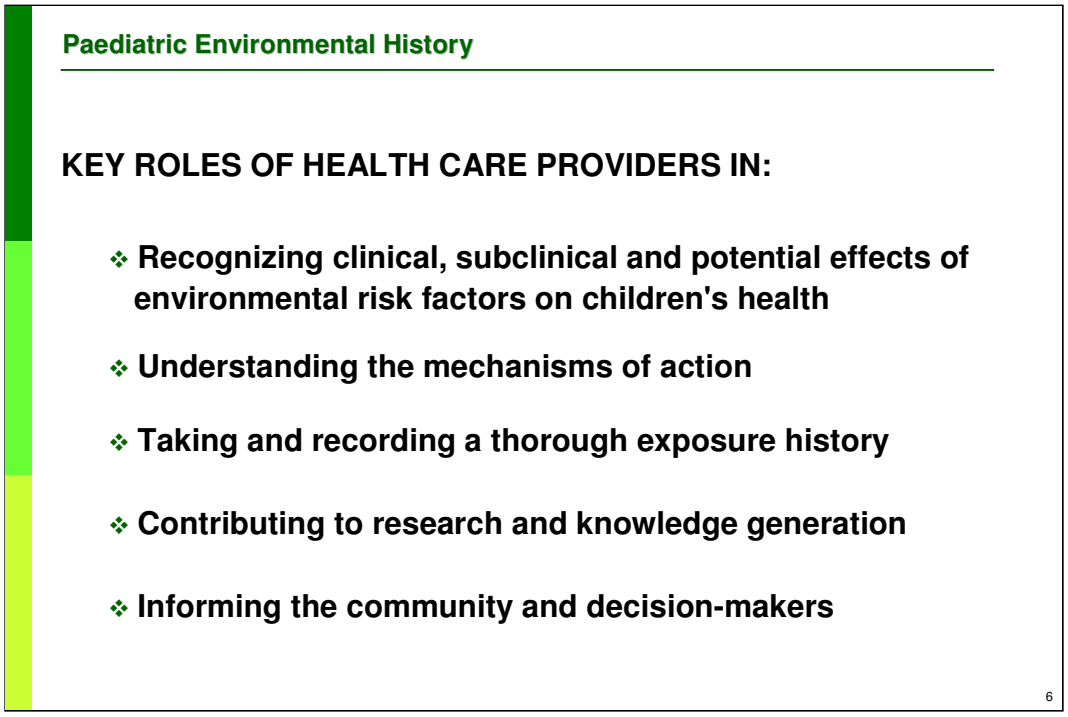
Yet, children born into different countries, cities or rural areas, and even different neighbourhoods, face risks that may be poles apart.

As countries develop, many of the most serious "basic risks" of child health gradually vanish with improvements in water and sanitation, hygiene and cleaner fuels for cooking.

Their decline, however, is accompanied by an increase in "modern risks". Industrialization brings with it an increase in road traffic, air pollution, and the use of chemicals that infiltrate the air children breathe and the food they eat.

It is too early to judge the exact impact of "emerging risks", such as endocrine disruptors and global warming. These add to the challenges we must confront to safeguard our children's health and future.

Ref: Gordon B et al. *Inheriting the world, the Atlas on Children's Health and the Environment.* World Health Organization, Myriad Editions Ltd, 2004



"Front-line" health care providers – those dealing with children's health issues on a regular basis – have specific roles and responsibilities in recording environmental and health data. They should be able to:

•Recognize clinical, subclinical and potential effects of environmental risk factors on children's health. This requires the capacity to identify potential exposure to chemical, physical and biological agents and to determine their effects on children's health and development.

•Understand the mechanisms of action – learn how environmental risk factors cause or trigger different diseases (e.g. respiratory, gastrointestinal or neurological) or how they may be linked to developmental problems or potential reproductive, endocrine and neurobehavioural effects.

•Take a thorough exposure history – ask the right questions and record the information in an appropriate place (the clinical record!).

•Contribute to research and knowledge generation – the data on environment and health that have been collected, collated and analysed provide valuable information to fill knowledge gaps and contribute to research.

Health care providers dealing with children should be able to understand the mechanisms of environmental disease and be familiar with the biomedical techniques available for the study and monitoring of environmental exposures.

All this knowledge will enable more effective primary care of the child and his or her family, improve the quality of medical surveillance, and contribute to the prevention of environment-related diseases.

The health care providers (HCP) – from the paediatrician to the nurse, from the primary health care worker to the family doctor, and other relevant HCPs – are in a privileged position and play a key role in detecting the environmental threats to children's health because they are in direct contact with the child, his or her family and community.

Paediatric Environmental History

- **A TOOL FOR:**
  - **Identifying and assessing children's exposures**
  - **Responding with therapeutic and preventive measures**
  - **Increasing the knowledge base**

WHO

- **AN OPPORTUNITY FOR INTERACTION:**
  - **Parents, family and community**
  - **Colleagues – clinicians, nurses and health care workers**
  - **Environmental professionals, researchers and educators**
  - **Decision- and policy-makers**

7

The paediatric environmental history (PEH) is a set of questions – part of the standard medical history – that focuses on the different environments of the child.

It is both a tool (set of questions) and an opportunity for interaction.

A tool for :

•identifying and assessing children's exposure to environmental threats in the different places where they spend time: home, school, playground or even the workplace or small cottage industry;

•responding with the right therapeutic and preventive measures – as only a good knowledge of potential sources of exposure will guide an appropriate medical diagnosis and treatment; and

•increasing the knowledge base – as the data collected in a harmonized manner, with controlled terminology and definitions will generate a valuable database of knowledge and facilitate research.

An opportunity for interaction:

with the child and his/her family, and with others. The PEH may motivate:

•enquiries – discussions with colleagues about similar cases or observations;

•contacting professionals who may have information on the situation observed; and

•informing the responsible authorities about situations observed.

<<NOTE TO USER: State that the confidentiality of clinical data must always be respected.>>

The PEH is not a NEW idea – all those involved in medical care, throughout the world, have learned to ask questions about the environment. However, in view of the new knowledge and increased concerns about environmental risk factors, the environmental questions are now more detailed and are aimed at collecting and recording information in a more specific manner.

Picture: WHO

Paediatric Environmental History

WHAT IS THE PAEDIATRIC ENVIRONMENTAL HISTORY?

- A set of basic and concise questions
- Part of the standard medical history with additions
  - General
  - Specific
  - Age- and gender-related
- Tailored according to the local situation, needs and capacities of:
  - Industrialized countries
  - Developing regions

WHO 8

The PEH is a set of basic and concise questions, part of the standard medical history, a tool and a mechanism for interaction that covers:

– general issues that are similar throughout the world (e.g. access to safe drinking-water and sanitation; waste disposal and quality of the air);

– specific issues, that depend on the local situation (e.g. pesticide use in agricultural areas and local traditional medicines and practices); and

– age- and gender-related issues (different questions are used when addressing the behaviour, diet or activities of toddlers or adolescents, or of boys or girls).

The questions should be adapted to suit the local situation, needs and capacities of:

– *industrialized countries* where there is concern about heavy traffic, injuries, noise, food additives and diet; where physicians and nurses see the children and may ask the questions; and there are good mechanisms for recording case data (using electronic clinical records).

– *developing regions* where there are concerns about other risk factors such as unsafe water, lack of sanitation, misuse of pesticides and unsafe buildings. Physicians and nurses may not be available and primary health care workers should take the PEH – which may have to be recorded very succinctly on paper or in a notebook.

Picture: WHO

KEY AREAS TO ADDRESS

1. What are the potential environmental hazards?
2. How, when and where are children exposed?
3. What are the main effects?

WHO

<< READ SLIDE.>>

The photo illustrates a typical situation in rural and suburban areas, where children play in creeks, and are exposed to chemical contaminants, to vectors of disease and to the risk of drowning.

Picture: WHO

KEY AREAS TO ADDRESS

1. What are the potential environmental hazards?

- **Physical**
  - Radiation, noise, extreme heat/cold, unsafe buildings, traffic,...
- **Chemical**
  - Pesticides, solvents, lead, mercury,…
- **Biological**
  - Disease vectors, mould, envenoming,…

<< READ SLIDE.>>

<< NOTE TO USER: provide examples of your own experience and/or mention those that are relevant to the area.>>

KEY AREAS TO ADDRESS

2. Where, how and why are children/adolescents exposed?

- **In places where they spend time**
- **Through media that originate or carry the agents**
- **As a consequence of activities**
- **Due to their behaviours**

<< READ SLIDE.>>

Children are exposed:

•in places where they spend time: at home and in the surrounding areas; at school; in playgrounds and recreation areas; in the street; in fields; at the workplace; in rural and urban settings; in hazardous situations and waste-sites;

•through media that originate or carry the contaminating agents (water, air, food, soil or objects);

•as a consequence of their activities: eating, drinking, playing, exploring, testing, learning and working; and

•due to characteristic behaviours including crawling, “hand-to-mouth”, hobbies and recreational drug use.

<< NOTE TO USER: provide examples from your own experience and/or mention those that are relevant to the area.>>

KEY AREAS TO ADDRESS

3. What are the main effects observed?

- **Consider "windows of susceptibility"**

  Preconception, in utero, postnatal, infant, child and adolescent

- **Clinical and subclinical effects on:**
  - **Organs and systems**
  - **Functions**
  - **Development**

A. K. Susheela of Fluorosis Research & Rural Development Foundation of India

The effects will depend on the *dose* and the *timing.* Therefore, it is important to consider the special "windows" of susceptibility. The vulnerability of the embryo, fetus and newborn is quite different from that of an older child or adolescent (see module "Children are not little adults"), as they develop very fast and their organs and systems are maturing rapidly.

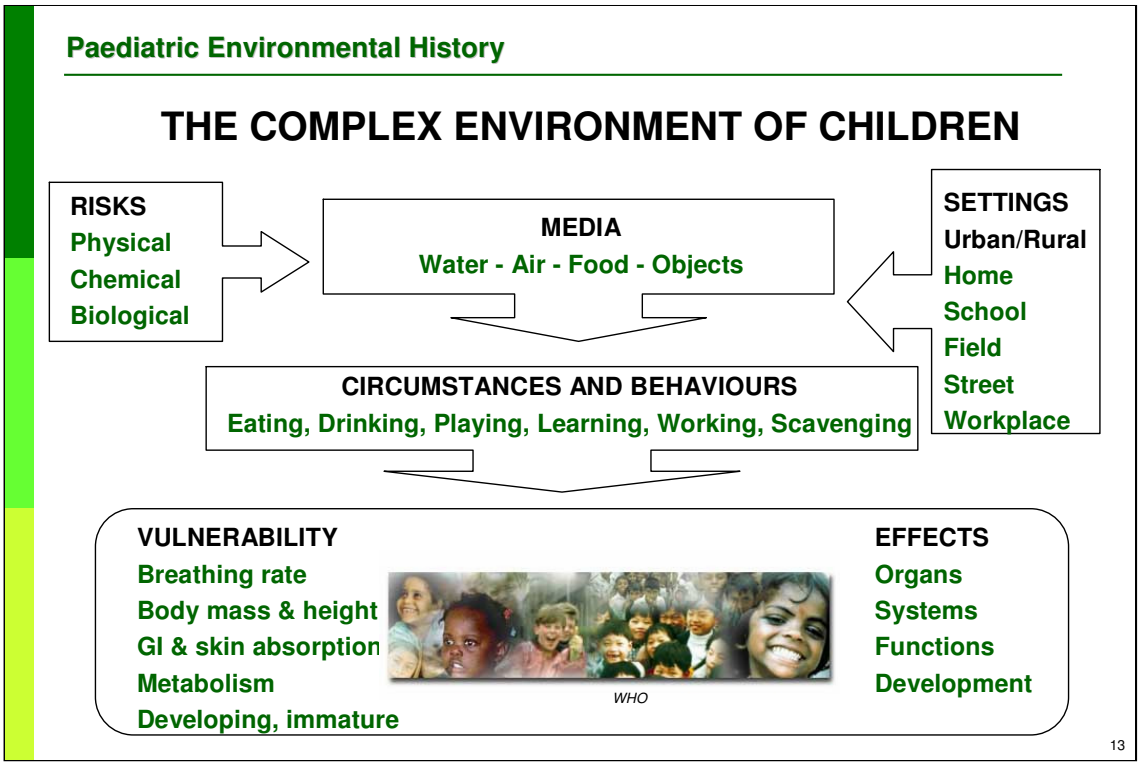
The effects of environmental threats may or may not be clinically evident. The adverse effects of a chemical or physical agent may have an impact on organs and systems (e.g. anaemia due to lead poisoning or hepatic damage due to aflatoxins), cause functional problems (e.g. bronchospasm due to allergenic substances, or malaise and headaches due to inhalation of solvents) or alter development (e.g. learning disabilities due to lead, or low birth weight in children whose mothers were exposed to tobacco).

Picture:A. K. Susheela of Fluorosis Research & Rural Development Foundation of India (used with permission)

A group of children who are fluoride poisoned and revealing deformities/abnormalities including short stature (cretinism), bow-leg, knock-knee; they also suffer from deaf mutism, low intelligence quotient (IQ) and mental retardation. Although adults may suffer the effects of fluorosis, they are more severe in children exposed during periods of rapid growth.

<< NOTE TO USER: provide examples of your own experience and/or mention those that are relevant to the area.>>

<< NOTE TO USER: use next slide to "round-up" the key points already addressed, as it shows a the complexity of children's environments, sources and routed of exposure.>>



<< NOTE TO USER: navigate through the figure summarizing the key points already addressed, stressing the complexity of children's environments, sources and routes of exposure, as well as the complexity of addressing and dealing with those issues.>>

The *risk factors* may be of physical, chemical or biological origin, and we may even add the so-called "social-environmental" risks (e.g. those that arise from living in underprivileged communities, in situations of overcrowding, violence or ignorance).

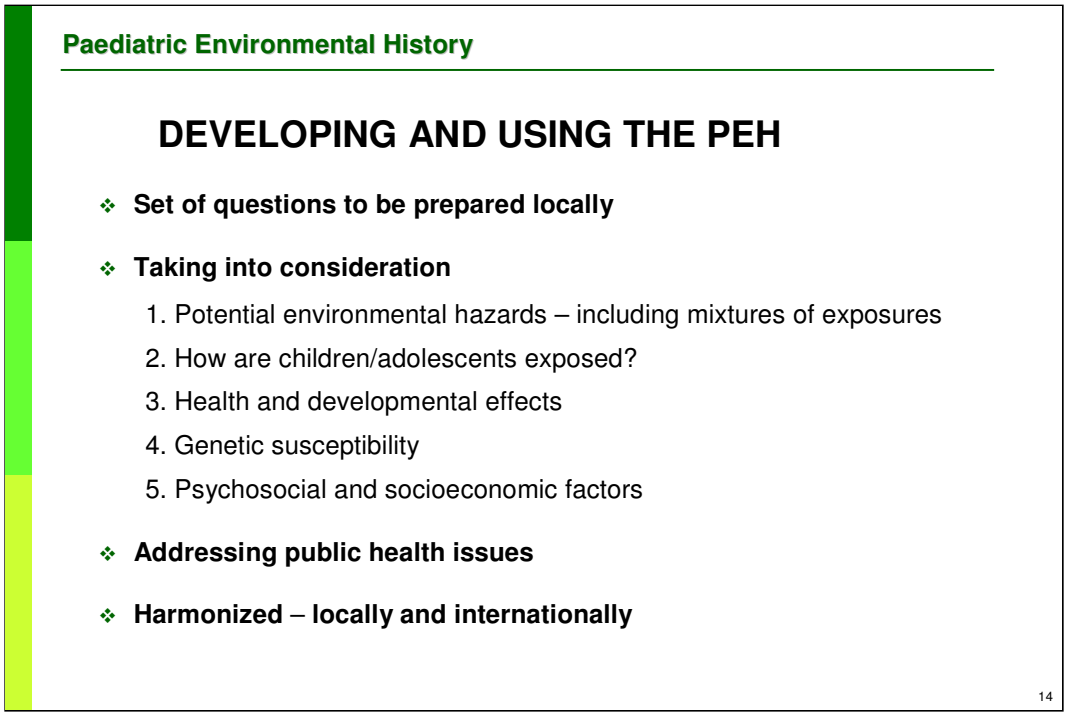
These risk factors enter through specific *media* (the "vehicle" that carries in the risk factors, e.g. water, air, food or objects). The characteristics of the media are strongly related to children's settings: they differ in urban and rural areas (e.g. access to drinking water, type of food, objects present in the area) and should be considered in the context of the places where children spend most of their time: home, school, field, street and workplace (of the parents and/or the child).

Children become exposed through activities such as eating, drinking, playing, learning, working and scavenging. Their behaviours should also be considered (e.g. "hand-to-mouth", crawling and spending hours on the floor.)

The risk factors may affect the child during special "windows of vulnerability" (different dynamic, physiological characteristics) and exert their effects on organs, systems, functions and on the overall growth and development process.

It is important to stress that SEVERAL risk factors may be affecting the child at the same time and in many of the settings where they spend time. This makes the assessment of effects much more complex – but it should always be considered.

GI = gastrointestinal



•The questions should be prepared locally, taking into consideration the three key areas (questions) already mentioned.

It is desirable to prepare the PEH through dialogue among health care providers, in consultation with experts in epidemiology, environment, psychology and informatics, involving the community and informing decision-makers and others.

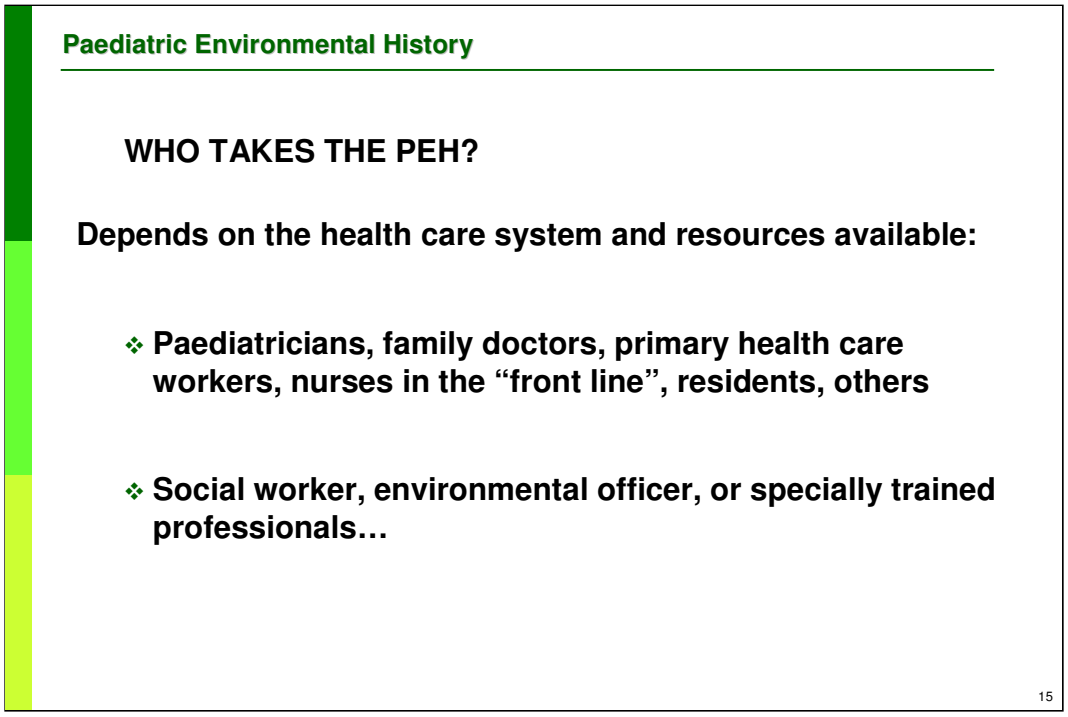
•The questions should address the main environmental threats present in the places where children spend most of their time; the toxicants, physical and biological; risk factors and pathologies most commonly encountered; as well as the unhealthy behaviours and conditions observed. Environmental exposure results from more than one chemical or factor: there is usually exposure to many agents and conditions.

•It is also important to consider the genetic susceptibility of the child (e.g. family history of allergies or cancer).

•Psychosocial and economic factors are crucial: exposures tend to be more frequent and/or severe in the more degraded (poor) environments and where there is ignorance about potential risks or lack of means to implement solutions.

•In some special cases, the PEH may be an important tool for addressing public health problems, such as a cluster of paediatric disease, uncommon cases or symptoms, epidemics of unknown origin, or changes in epidemiological trends in a given area.

•The advantage of using a "harmonized" data collection protocol or format is that it facilitates the analysis and interpretation of data collected, enabling epidemiological and other studies (within the country, or even internationally).



The decision about who takes charge of the PEH will depend on the characteristics of the health system, the availability of health personnel and other resources.

Health care professionals dealing with infants, children and adolescents can take the PEH. They may be pediatricians, family doctors, primary health care workers or nurses dealing with children and adolescents, or the residents and medical and nursing students and midwives who follow up pregnant women.

In some instances, part of the environmental history-taking may be done by a social worker or environmental officer who can visit the home, school, playground or other places where children spend their time. Environmentally trained staff in health care facilities could offer tremendous advantages, as they would be in a position to identify and assess the potential threats in the child’s environment, inform the health care providers and authorities, and educate parents, teachers and communities.

WHO TAKES THE PEH?

Possibly a "new" profession within the health care system?

The “environment and health” officer who visits the home and school, records observations, talks with parents, discusses with teachers, informs health care providers, and keeps the “green page” in the case records...

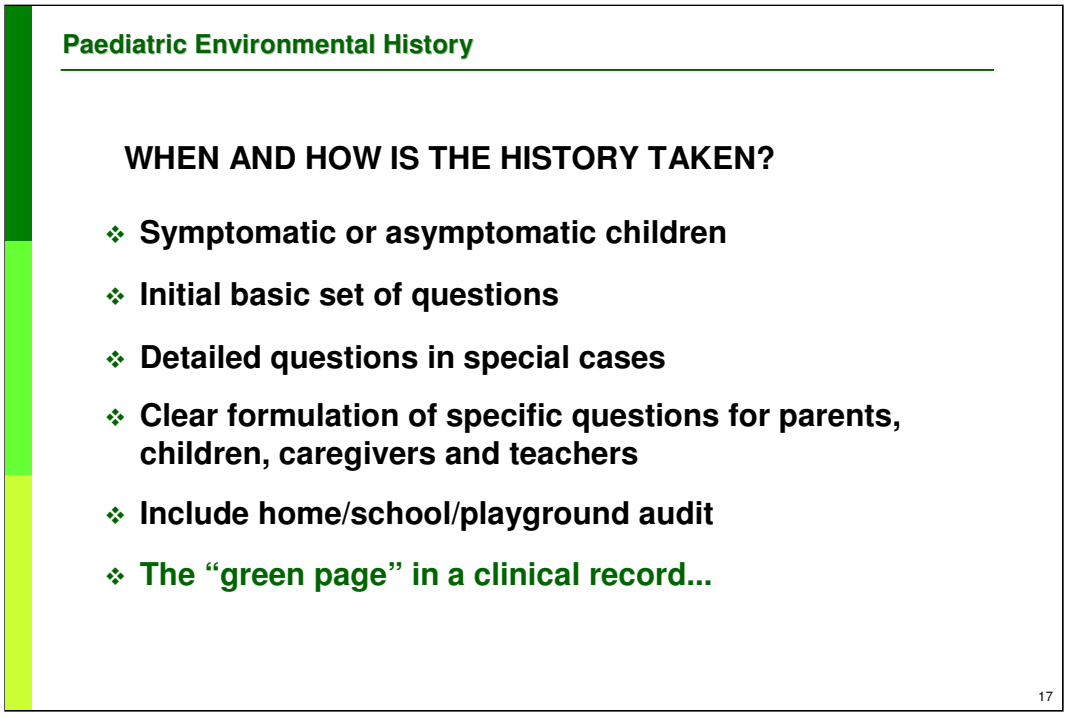
WHO

Possibly a new profession within the health care system?

There is a potential role for an “environment and health” officer who visits the home and school, records observations, talks with parents, has discussions with teachers, informs health care providers, and keeps the “green” file in the paediatric case records.

In some special cases, the PEH may be an important tool for addressing public health problems, such as a clusters of paediatric disease, uncommon cases or symptoms, epidemics of unknown origin or changes in epidemiological trends in a given area.

Picture: WHO, JP. Hubley. Primary health care - India.



A PEH may be taken when children, whether symptomatic or asymptomatic, are seen at a medical facility or during a home visit.

It may be done in several stages.

It is crucial to take a PEH when children with acute or chronic disease come to emergency departments, outpatient clinics, primary health care centres or private medical offices.

It is also a highly significant preventive tool when used during routine health surveillance visits.

A "complete" PEH includes visits to the places where the child spends most of his or her time (e.g. home, school, playground and neighbourhood).

The GREEN PAGE will be presented as an example of the concise PEH – where a core set of basic details is recorded.

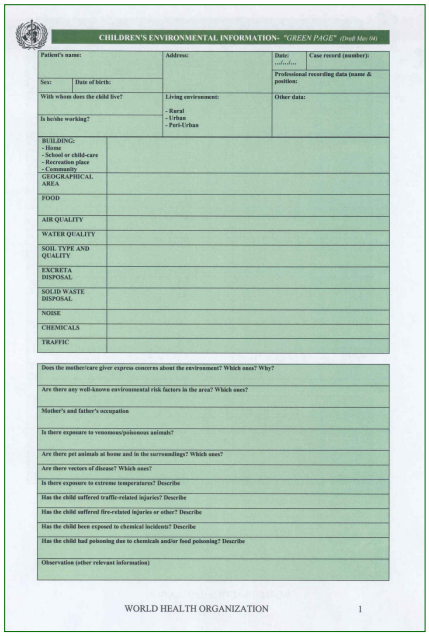
More information on how to take an environmental history is available at:
www.neetf.org/Health/Env.%20history%20NEETF.pdf

Ref:

Kilpatrick N et al. The environmental history in pediatric practice: a study of pediatricians' attitudes, beliefs, and practices. *Environ Health Perspect. 2002 Aug;110(8):823-7.*

We conducted a mail survey of practicing pediatricians in Georgia to assess their knowledge, attitudes, and behaviors regarding recording patients' environmental histories. Of 477 eligible pediatricians, 266 (55.8%) responded. Fewer than one in five reported having received training in environmental history-taking. Pediatricians reported that they strongly believe in the importance of environmental exposures in children's health, and 53.5% of respondents reported experience with a patient who was seriously affected by an environmental exposure. Pediatricians agreed moderately strongly that environmental history-taking is useful in identifying potentially hazardous exposures and in helping prevent these exposures. Respondents reported low self-efficacy regarding environmental history-taking, discussing environmental exposures with parents, and finding diagnosis and treatment resources related to environmental exposures. The probability of self-reported history-taking varied with the specific exposure, with environmental tobacco smoke and pets most frequently queried and asbestos, mercury, formaldehyde, and radon rarely queried. The pediatricians' preferred information resources include the American Academy of Pediatrics, newsletters, and patient education materials. Pediatricians are highly interested in pediatric environmental health but report low self-efficacy in taking and following up on environmental histories. There is considerable opportunity for training in environmental history-taking and for increasing the frequency with which such histories are taken.

Paediatric Environmental History



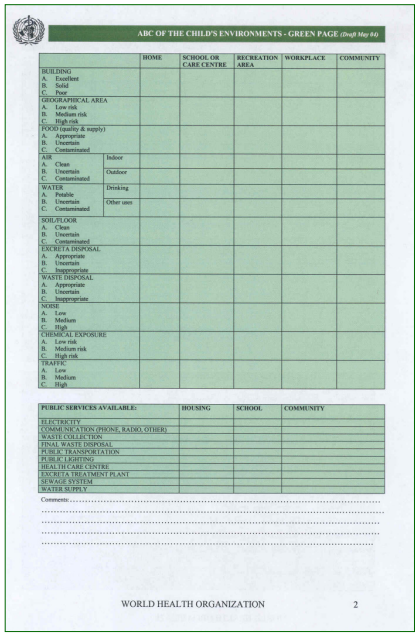
CHILDREN'S ENVIRONMENTAL INFORMATION- *"GREEN PAGE"* *(Draft May 04)*

Patient's name:	Address:	Date:	Case record (number):
Sex: Date of birth:		Professional recording data (name & position):	
With whom does the child live?	Living environment:	Other data:	
Is he/she working?	- Rural - Urban - Peri-Urban		

BUILDING: - Home - School or child-care - Recreation place - Community	
GEOGRAPHICAL AREA	
FOOD	
AIR QUALITY	
WATER QUALITY	
SOIL TYPE AND QUALITY	
EXCRETA DISPOSAL	
SOLID WASTE DISPOSAL	
NOISE	
CHEMICALS	
TRAFFIC	

Does the mother/care giver express concerns about the environment? Which ones? Why?
Are there any well-known environmental risk factors in the area? Which ones?
Mother's and father's occupation
Is there exposure to venomous/poisonous animals?
Are there pet animals at home and in the surroundings? Which ones?
Are there vectors of disease? Which ones?
Is there exposure to extreme temperatures? Describe
Has the child suffered traffic-related injuries? Describe
Has the child suffered fire-related injuries or other? Describe
Has the child been exposed to chemical incidents? Describe
Has the child had poisoning due to chemicals and/or food poisoning? Describe
Observation (other relevant information)

WORLD HEALTH ORGANIZATION 1



ABC OF THE CHILD'S ENVIRONMENTS - GREEN PAGE *(Draft May 04)*

		HOME	SCHOOL OR CARE CENTRE	RECREATION AREA	WORKPLACE	COMMUNITY
BUILDING A. Excellent B. Solid C. Poor						
GEOGRAPHICAL AREA A. Low risk B. Medium risk C. High risk						
FOOD (quality & supply) A. Appropriate B. Uncertain C. Contaminated						
AIR A. Clean B. Uncertain C. Contaminated	Indoor Outdoor					
WATER A. Potable B. Uncertain C. Contaminated	Drinking Other uses					
SOIL/FLOOR A. Clean B. Uncertain C. Contaminated						
EXCRETA DISPOSAL A. Appropriate B. Uncertain C. Inappropriate						
WASTE DISPOSAL A. Appropriate B. Uncertain C. Inappropriate						
NOISE A. Low B. Medium C. High						
CHEMICAL EXPOSURE A. Low risk B. Medium risk C. High risk						
TRAFFIC A. Low B. Medium C. High						

PUBLIC SERVICES AVAILABLE:	HOUSING	SCHOOL	COMMUNITY
ELECTRICITY			
COMMUNICATION (PHONE, RADIO, OTHER)			
WASTE COLLECTION			
FINAL WASTE DISPOSAL			
PUBLIC TRANSPORTATION			
PUBLIC LIGHTING			
HEALTH CARE CENTRE			
EXCRETA TREATMENT PLANT			
SEWAGE SYSTEM			
WATER SUPPLY			

Comments: .....

WORLD HEALTH ORGANIZATION 2

WHO

"A green page in the clinical record"

The GREEN PAGE is presented as an example of a concise PEH – where just a core set of basic details is recorded.

This format is being tested by WHO/PAHO with health care providers in a small health care centre in Argentina (2003).

The data collection form is GREEN, to make it clearly visible within the clinical records (which are still kept in paper form in most primary health care centres).

The GREEN PAGE has about 50 fields for recording information about the child, his or her built and ambient environments, the characteristics of the community and other data. It also allows a basic assessment to be made of the state of the child's environment (the "ABC" of environmental risks).

CHILDREN'S ENVIRONMENTAL INFORMATION- *"GREEN PAGE" (Draft May 04)*

Patient's name:	Address:	Date: …/…/…	Case record (number):
Sex: / Date of birth:		Professional recording data (name & position:	
With whom does the child live?	Living environment: - Rural - Urban - Peri-Urban	Other data:	
Is he/she working?			

BUILDING: - Home - School or child-care - Recreation place - Community	
GEOGRAPHICAL AREA	
FOOD	
AIR QUALITY	
WATER QUALITY	
SOIL TYPE AND QUALITY	
EXCRETA DISPOSAL	
SOLID WASTE DISPOSAL	
NOISE	
CHEMICALS	
TRAFFIC	

Paediatric Environmental History

Does the mother/care giver express concerns about the environment? Which ones? Why?
Are there any well-known environmental risk factors in the area? Which ones?
Mother's and father's occupation
Is there exposure to venomous/poisonous animals?
Are there pet animals at home and in the surroundings? Which ones?
Are there vectors of disease? Which ones?
Is there exposure to extreme temperatures? Describe
Has the child suffered traffic-related injuries? Describe
Has the child suffered fire-related injuries or other? Describe
Has the child been exposed to chemical incidents? Describe
Has the child had poisoning due to chemicals and/or food poisoning? Describe
Observation (other relevant information)

ABC OF THE CHILD'S ENVIRONMENTS - GREEN PAGE *(Draft May 04)*

		HOME	SCHOOL OR CARE CENTRE	RECREATION AREA	WORKPLACE	COMMUNITY
BUILDING A. Excellent B. Solid C. Poor						
GEOGRAPHICAL AREA A. Low risk B. Medium risk C. High risk						
FOOD (quality & supply) A. Appropriate B. Uncertain C. Contaminated						
AIR A. Clean B. Uncertain C. Contaminated	Indoor					
	Outdoor					
WATER A. Potable B. Uncertain C. Contaminated	Drinking					
	Other uses					
SOIL/FLOOR A. Clean B. Uncertain C. Contaminated						
EXCRETA DISPOSAL A. Appropriate B. Uncertain C. Inappropriate						
WASTE DISPOSAL A. Appropriate B. Uncertain C. Inappropriate						
NOISE A. Low B. Medium C. High						
CHEMICAL EXPOSURE A. Low risk B. Medium risk C. High risk						
TRAFFIC A. Low B. Medium C. High						

Paediatric Environmental History

PUBLIC SERVICES AVAILABLE:	HOUSING	SCHOOL	COMMUNITY
ELECTRICITY			
COMMUNICATION (PHONE, RADIO, OTHER)			
WASTE COLLECTION			
FINAL WASTE DISPOSAL			
PUBLIC TRANSPORTATION			
PUBLIC LIGHTING			
HEALTH CARE CENTRE			
EXCRETA TREATMENT PLANT			
SEWAGE SYSTEM			
WATER SUPPLY			

Comments: .....

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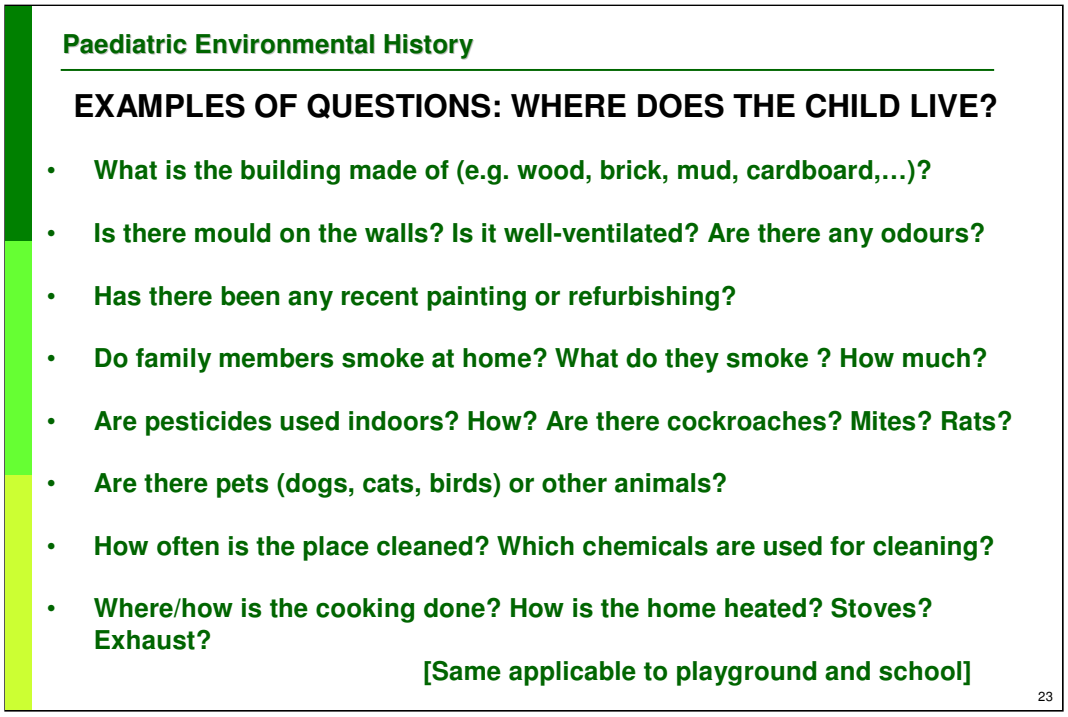
WORLD HEALTH ORGANIZATION 2

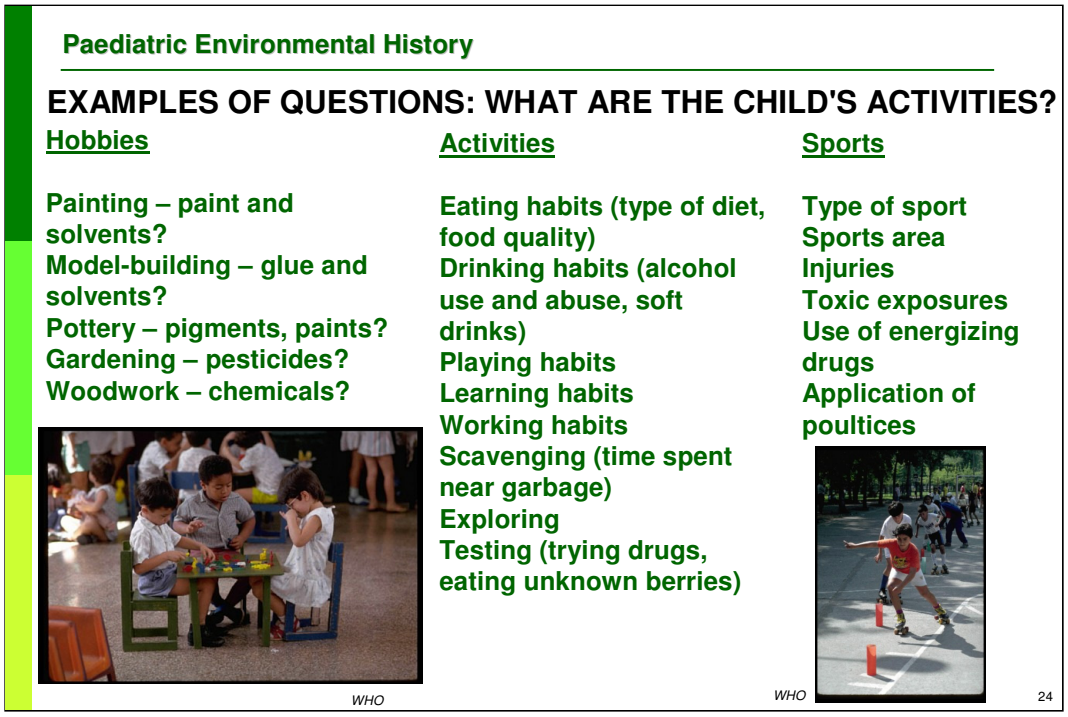


Example of the detailed questions on HOUSING that may be asked while taking the PEH.

Many more questions may need to be asked and the answers recorded. These represent a few examples.

<< READ SLIDE.>>

<< NOTE TO USER: give examples of questions that are applicable to the country or local community.>>



Example of the detailed questions on ACTIVITIES that may be asked by those in charge of collecting environmental information at the health care centre, while taking the PEH.

<< READ SLIDE.>>

<< NOTE TO USER: give examples of questions that are applicable to the country or local community.>>

Pictures: WHO

Paediatric Environmental History

EXAMPLES OF QUESTIONS: CHILD'S BEHAVIOURS?

Personal hygiene and habits

How often does the child bathe?
Hand and face washed? How? Where? With what?
Are clothes washed regularly?
What type of diapers are used?
Does the child have lice? How is it treated?
Does the child play on the floor? Carpet? Soil?
How and how often are the child's bedroom and play area cleaned?
Which chemicals are used to clean the home?
Does the child have pica?

Cultural history

Use of alternative medicines or cosmetics
Cultural practices
Religious practices
Traditions involving the use of chemicals

Transport

What transport does the child use?
- individual or collective;
- bicycle;
- motorcycle;
- horse; or other?

Characteristics of bus?
Bus stop?

WHO

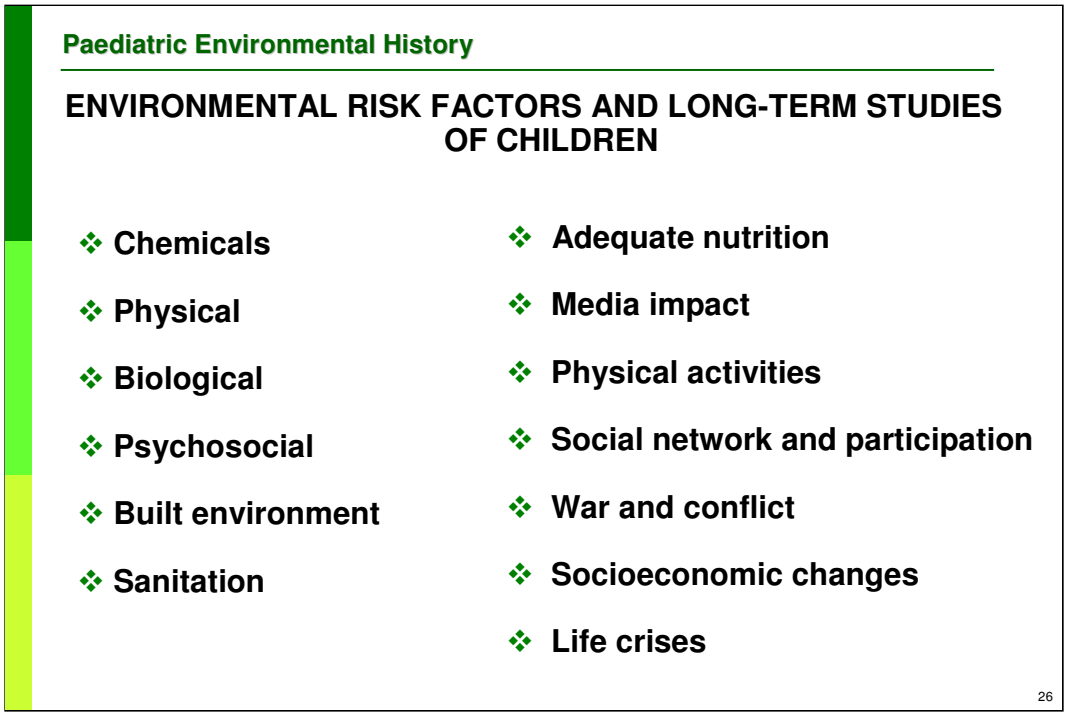
25

Example of the detailed questions on BEHAVIOURS AND HABITS that may be asked while taking the PEH.

<< READ SLIDE.>>

<< NOTE TO USER: state examples of questions that are applicable to the country or local community.>>

Pictures: WHO



Another example of the relevant information that may have to be collected is provided here.

These are the environmental risk factors under consideration by the WHO project on long-term studies, that is being undertaken in collaboration with the National Children's Study in the USA and studies in about 15 other countries.

The Working Group, with participants from more than 15 countries, compiled this initial list with the core set of environmental risk factors that should be considered when collecting data on children's environments and health.

•Chemicals: lead, mercury, PCBs, pesticides, POPs, manganese, chromium, vanadium.

•Physical factors: noise, radiation, air, water, soil pollution, food contamination, mycotoxins and unintentional injury.

•Biological factors: vector-borne diseases.

•Psychosocial factors: poverty, child abuse/neglect, violence, parental mental illness and substance abuse.

•Built environment factors: housing, overcrowding.

•Sanitation factors: lack of potable water.

•Adequate nutrition factors: food safety, food security, food additives.

•Media impact factors: television, Internet.

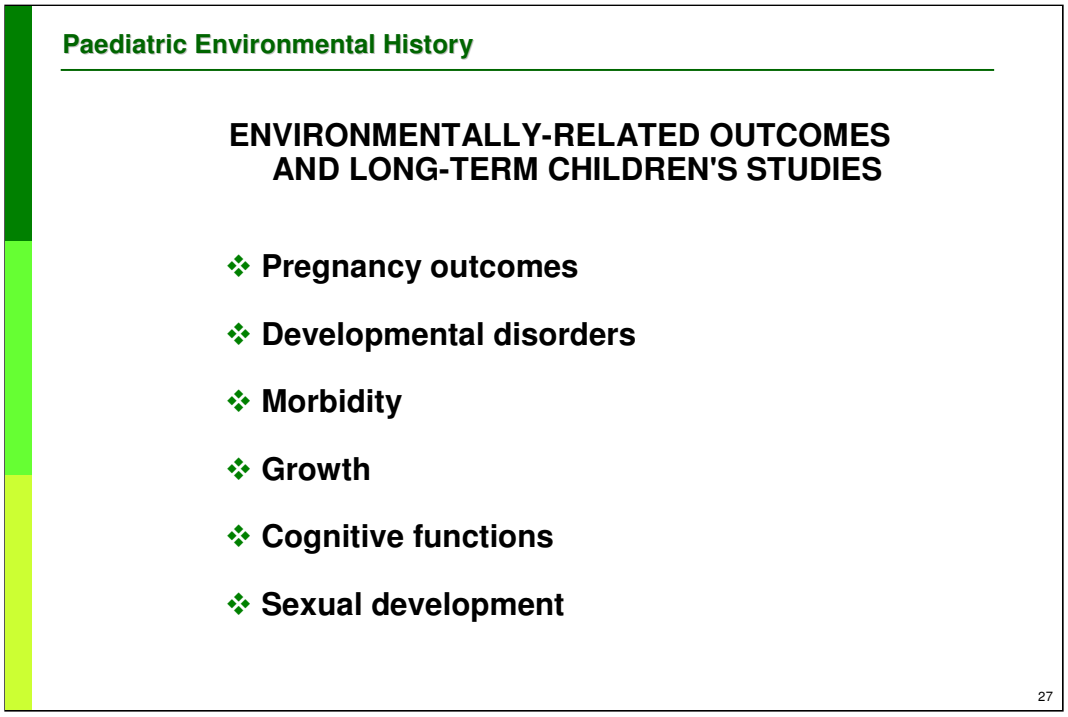
•Physical activities factors: time and location, playground, toys.

•Social network and participation factors.

•War and conflict factors.

•Socioeconomic changes: individual household and community.

•Life crises factors: natural disasters; maternal death; access to health/social services.



These are the environmentally-related health outcomes under consideration by the WHO project on long-term studies that is being undertaken in close collaboration with the National Children's Study in the USA and about 15 other countries.

The Working Group, with participants from over 15 countries, compiled this initial list with the core set of environmentally-related outcomes that should be considered when collecting data on children's environments and health.

•Pregnancy outcomes: perinatal mortality and morbidity, birth weight (BW), birth height (BH), birth defects.

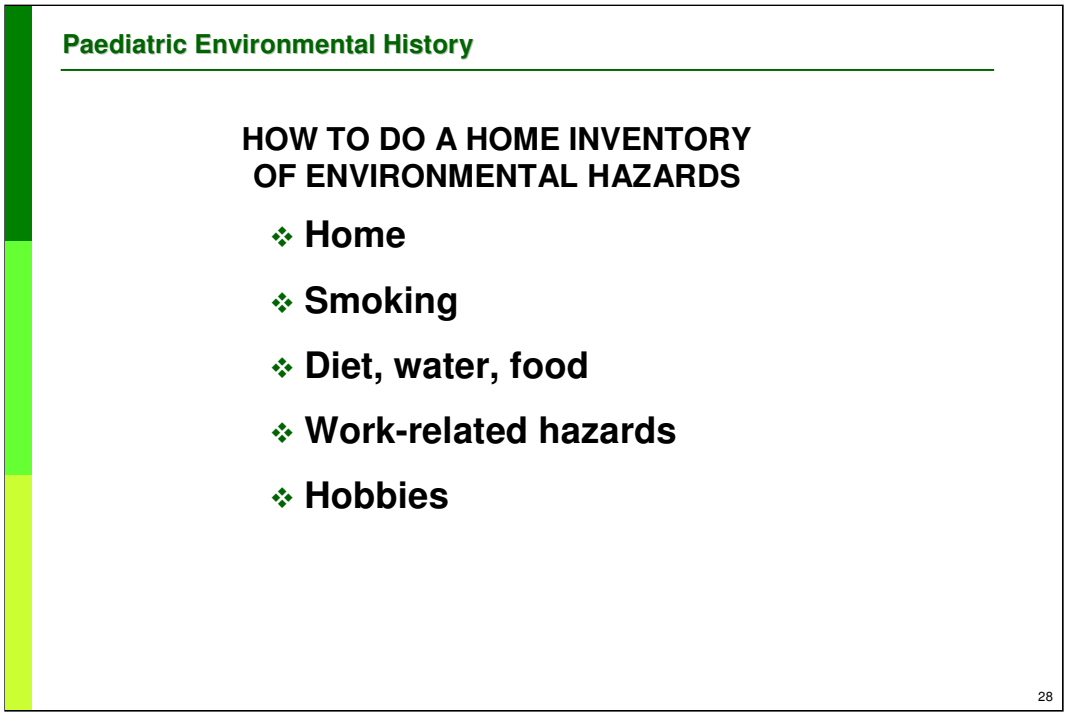
•Developmental disorders.

•Morbidity: respiratory diseases, asthma, allergy/atopic dermatitis/hay fever, diarrhoea, diabetes, cardiovascular disease (CVD), depression, cancers, dental caries/problems, vector-borne diseases.

•Growth: malnutrition, stunting, obesity.

•Cognitive functions: behaviour disorders, delinquency, high-risk behaviour, unintentional injuries, intentional injuries.

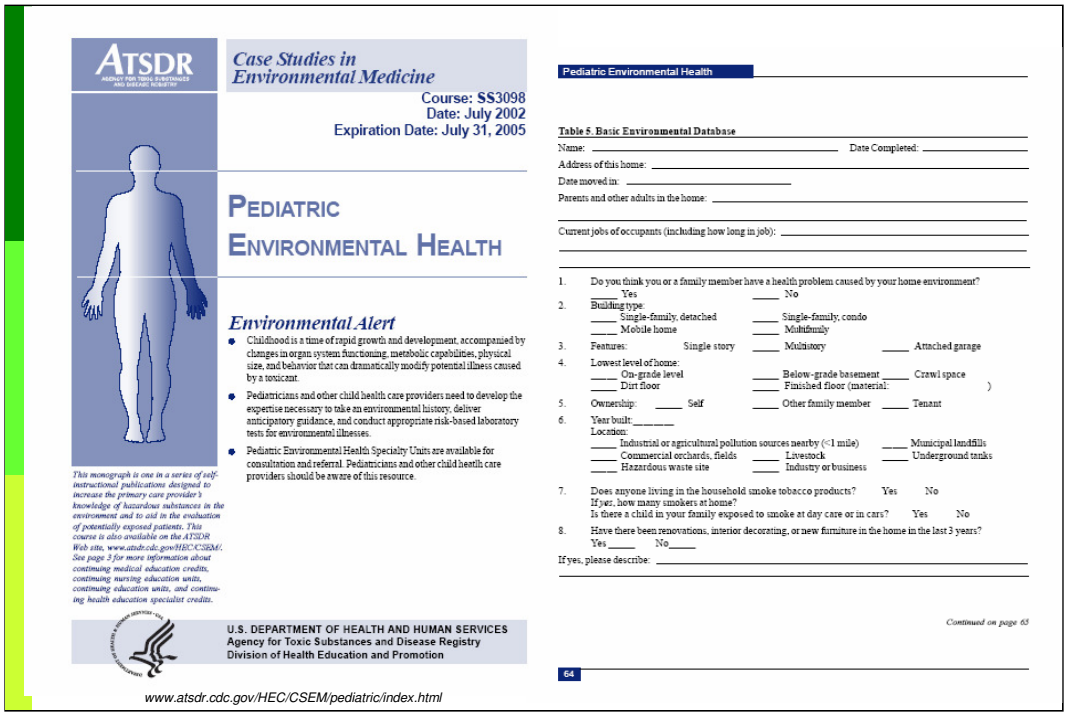
•Sexual development and reproductive behaviour: (teenage pregnancy), maternal death up to 1 year after birth.



Another approach is to ask systematic questions about hazards in the home. These could include questions about the age and structure of the home, habits such as smoking, routine diet choices, water source and food handling, hobbies and work-related exposures. An example of a home inventory as recommended by the American Academy of Pediatrics, which is appropriate to the USA, can be found in chapter 5 of the following reference:

Ref:

•American Academy of Pediatrics Committee on Environmental Health. *Pediatric Environmental Health, 2nd ed.* Etzel RA, Ed. Elk Grove Village, IL: American Academy of Pediatrics, 2003.



ATSDR

Case Studies in Environmental Medicine

Course: SS3098
Date: July 2002
Expiration Date: July 31, 2005

PEDIATRIC ENVIRONMENTAL HEALTH

This monograph is one in a series of self-instructional publications designed to increase the primary care provider's knowledge of hazardous substances in the environment and to aid in the evaluation of potentially exposed patients. This course is also available on the ATSDR Web site, www.atsdr.cdc.gov/HEC/CSEM/. See page 3 for more information about continuing medical education credits, continuing nursing education units, continuing education units, and continuing health education specialist credits.

Environmental Alert

- Childhood is a time of rapid growth and development, accompanied by changes in organ system functioning, metabolic capabilities, physical size, and behavior that can dramatically modify potential illness caused by a toxicant.
- Pediatricians and other child health care providers need to develop the expertise necessary to take an environmental history, deliver anticipatory guidance, and conduct appropriate risk-based laboratory tests for environmental illnesses.
- Pediatric Environmental Health Specialty Units are available for consultation and referral. Pediatricians and other child health care providers should be aware of this resource.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Health Education and Promotion

www.atsdr.cdc.gov/HEC/CSEM/pediatric/index.html

Pediatric Environmental Health

Table 5. Basic Environmental Database

Name: _____ Date Completed: _____
Address of this home: _____
Date moved in: _____
Parents and other adults in the home: _____
Current jobs of occupants (including how long in job): _____

1. Do you think you or a family member have a health problem caused by your home environment?
   ____ Yes ____ No
2. Building type:
   ____ Single-family, detached ____ Single-family, condo
   ____ Mobile home ____ Multifamily
3. Features: Single story ____ Multistory ____ Attached garage
4. Lowest level of home:
   ____ On-grade level ____ Below-grade basement ____ Crawl space
   ____ Dirt floor ____ Finished floor (material:)
5. Ownership: ____ Self ____ Other family member ____ Tenant
6. Year built: _____
   Location:
   ____ Industrial or agricultural pollution sources nearby (<1 mile) ____ Municipal landfills
   ____ Commercial orchards, fields ____ Livestock ____ Underground tanks
   ____ Hazardous waste site ____ Industry or business
7. Does anyone living in the household smoke tobacco products? Yes No
   If yes, how many smokers at home?
   Is there a child in your family exposed to smoke at day care or in cars? Yes No
8. Have there been renovations, interior decorating, or new furniture in the home in the last 3 years?
   Yes ____ No ____

If yes, please describe: _____

Continued on page 65

Another example: the *Case Studies in Environmental Medicine* series of the Agency for Toxic Substances and Disease Registry (ATSDR) devoted to PEDIATRIC ENVIRONMENTAL HEALTH, which presents interesting case-studies (on mercury and lead) and provides a summary of questions for an environmental history.

This ATDSR document focuses not so much on the history to be taken at the clinician's office, but rather on the details of an exposure history.

BARRIERS TO TAKING A PEH

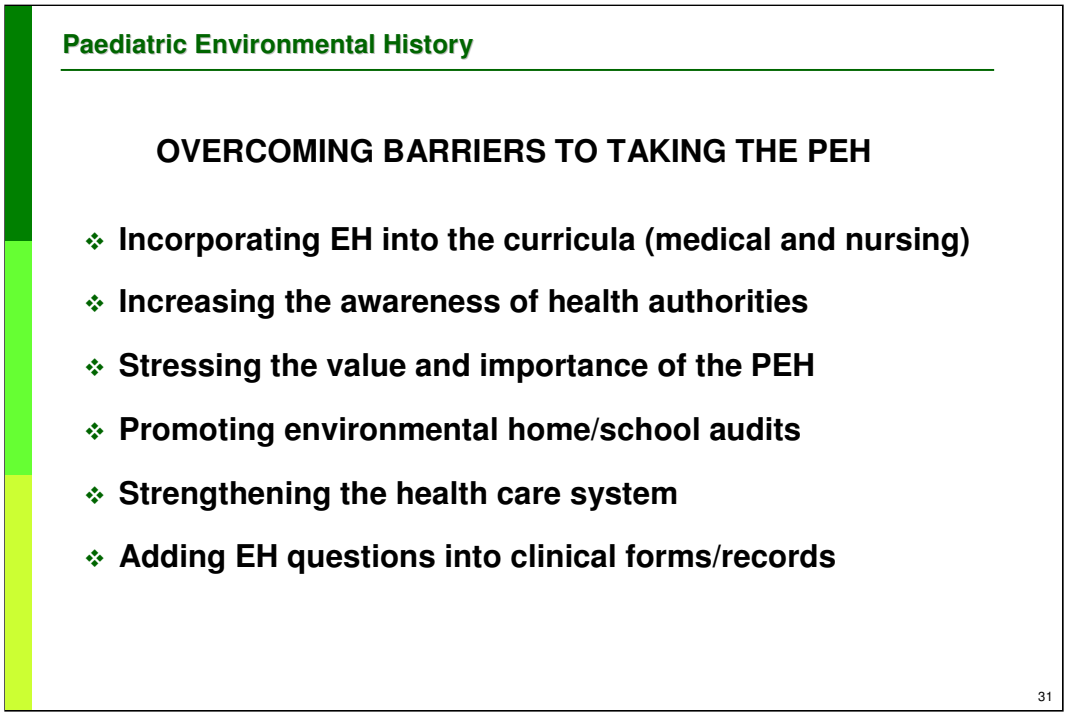
- Unawareness about environmental factors
- Lack of training and information
- Limited time available
- Overstretched health facilities and lack of personnel
- Lack of reimbursement
- Lack of motivation
- Frustration

WHO

The main obstacles to the use of the PEH include:

- lack of awareness of the health professionals and decision-makers about the importance of the effects that environmental factors have on the health, development and well-being of children;
- lack of training and information on environmental health issues (e.g. no formal training, no access to sources of data);
- limited time available for the paediatric consultation – children may have to be diagnosed and treated in a very short time;
- overstretched health facilities and lack of personnel;
- lack of reimbursement for the time required for taking an environmental history; and
- lack of motivation and/or frustration – linked to the limited ability or capacity to intervene clinically in environmentally-related diseases (e.g. ozone and asthma).

Picture: WHO



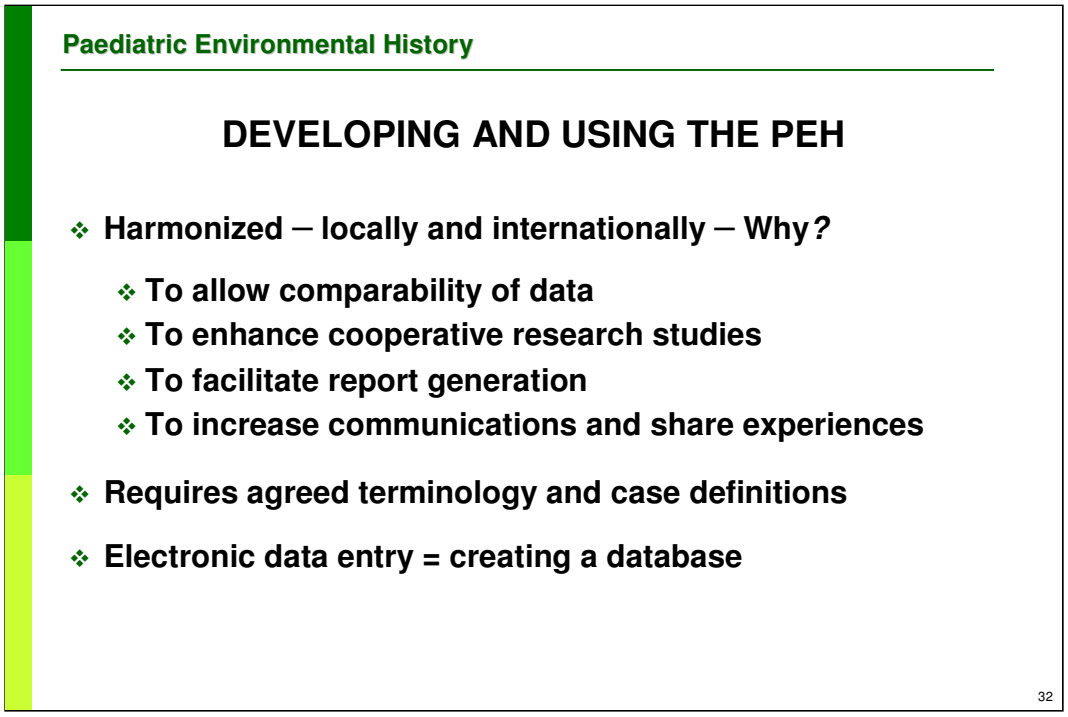
EH, environmental health.

These barriers may be overcome by incorporating environmental health into the curricula of medical and nursing schools, increasing the awareness of health authorities, disseminating information on environmental issues and strengthening health facilities.

In addition, health workers could carry out home and school visits while training.

Many developing countries require newly graduated medical students to work for some years in a rural setting before practicing in urban areas. These graduates could be excellent agents for promoting the use of environmental home audits in rural areas.

Environmental health questions could be added to health intake forms, periodic visit forms, same-day visit progress notes and other forms used by clinicians.



The harmonization of these questionnaires in the health sector offers a number of advantages.

•It allows comparability of the data collected and the potential to aggregate data offers the potential for their use in cooperative research studies and scientific publications.

•The potential for generating reports could be enhanced (e.g. by producing annual reports on the status of children's environmental health, and the use of indicators of children's environmental health).

•The use of a common language may facilitate communications, the sharing of experiences and more awareness about local environmental problems and may "accelerate" actions.

•The harmonization of the PEH requires a common terminology and case definitions: a clear understanding of the terms used (and possibly the need for a glossary).

•If feasible, electronic data entry offers the possibility of creating a database that could provide valuable information for interventions and for the follow-up of environmental health problems in the area covered.

Paediatric Environmental History

WHO

Asthma is the leading cause of school absenteeism due to chronic illness. Schools are overcrowded and unventilated; bugs nest in broken walls; toxic cleaning supplies have provoked some school rashes. "Why is there no system to protect children?" she asked. "Fresh air and sunshine at school is a back-to-basics fundamental for healthy schools."

A teacher (USA)

33

•This is the statement of a teacher concerned by the health of her students in a school in the USA.

•Similar concerns – and many more – may be expressed by thousands of teachers around the world.

•Are physicians, family doctors, paediatricians and nurses asking the right questions about the school settings?

•Are they able to detect that asthma (or other diseases) may be caused or triggered by environmental risk factors in the school?

Picture above: WHO, H. Amenden. India

Picture below: WHO, C. Gaggero. Cuba

CASE STUDY

Schoolchildren suffered headaches, dizziness and malaise, and some vomited while in class – this was occurring regularly in one specific classroom, and not in others.

No cause was identified…

…until the school nurse observed that the classroom was next to the place where school buses would deposit the children

**By asking the right questions,
the health care provider
identified the problem
and proposed a solution**

<<NOTE TO USER: INCLUDE A CASE STUDY FROM YOUR EXPERIENCE AND GUIDE TRAINEES THROUGH THE DISCUSSION.>>

Ref:

•Mike Shannon, Boston, USA (personal communication).

•Related article: Johnson CJ et al. Carbon monoxide in school buses. *Am J Public Health,* 1975, 65:1327.

Following an incident in which eight children became ill from carbon monoxide in a school bus, an investigation was made of CO levels in school buses in the Seattle area. The procedure selected for the evaluation was to test a large number of buses at a nearby ski resort. On the day selected for the sampling, over 200 buses arrived, bringing schoolchildren from a number of school districts in the Seattle area for skiing lessons. As they arrived, 33 buses were checked immediately to determine in-transit levels of CO. Four of the 33 buses had CO levels in excess of Environmental Protection Agency maximum allowable concentrations for an 8-hr exposure. As the buses sat idling in the parking lot, 65 of them were tested – during the lunch hour when the students returned to the buses to have their lunch and to rest. Two buses had nearly three times the concentration of CO permitted by the EPA for a 1-hr exposure. A total of seven buses (10 per cent) had concentrations of CO not permitted by the EPA for more than a 1-hr period. Altogether there were 24 buses (36 per cent) that had levels of CO in excess of EPA standards for an 8-hr exposure. As a result of these determinations and other observations a number of recommendations were made to reduce the hazard of exposure to carbon monoxide in school buses.

RESOURCES AVAILABLE ON THE PEH

- American Academy of Pediatrics: www.aap.org
- ATSDR: Agency for Toxic Substances and Disease Registry: www.atsdr.cdc.gov
- Children's Health and the Environment: www.who.int/ceh

POINTS FOR DISCUSSION

<<NOTE TO USER: Add points for discussion according to the needs of your audience.>>

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