I. General Concepts

Scope of Pediatric Environmental Medicine
History of Pediatric Environmental Medicine
Environmental Disasters in History
Definition
Epidemiology & Surveillance
  Cluster Investigation
Taking An Environmental History
Medical Assessment
Laboratory Analysis
  Environmental Testing
  Biomarkers of Exposure
  Analytical Methods
Patient Management
Antidotes
Research Methods & Design
Biostatistics
Reading the Scientific Literature Critically

International Issues in Pediatric Environmental Health
Climate Change
Equity & Social Disparities
Ethical Issues in Environmental Health
Legal Issues & Public Policy
Global Solutions
International Agencies and Resources

Pregnancy & Lactation
Developmental Toxicology
  Reproductive Environmental Health & Toxicology
  Placental Transmission of Toxins
  Fetotoxicity, Teratogenicity
  Embryogenesis
Breast Milk Contaminants

Childhood Environments
Household Hazards
Traffic & Pedestrian Hazards
Playgrounds
Water Pollution
Sewage & Hygiene
Hazardous Waste Sites
   Toxic Waste Dumps
   Hospital Wastes
   Military Munitions & Anti-Personnel Devices
   Brownfields
   Scavenging & Waste Dumps
Child & Adolescent Labor, Occupational Toxic Exposures & Injuries
Marksmanship & Lead Poisoning
Noise Pollution
Agricultural Injuries
Arts & Crafts
High Risk Industries
   Smelters
   Agriculture
   Mining & Quarries
   Refineries
   Nuclear Reactors
   Electrical Generating Facilities
Military Munitions & Antipersonnel Hazards
Sick Building (& Sick School) Syndrome

Complex Childhood Environmental Diseases
Allergies & Atopy
Asthma
Birth Defects
Childhood Cancer
Developmental Disorders
   Autism, Pervasive developmental disorders
   Neurobehavioral Conditions
Selected endocrine disorders
Multiple Chemical Sensitivities
Obesity

Environmental Hazard Reduction
Risk Assessment for Toxic Hazards
Risk Management
Risk Communication
Material Safety Data Sheets & Threshold Levels
Poisoning Prevention
Injury Prevention
The Built Environment
Environmental Litigation & Regulatory Remedies
II. Environmental Toxicology

Heavy Metals

Lead

Mercury
  Organics: Methylmercury, Dimethylmercury
  Inorganic Mercury & Mercuric Salts
  Metallic Mercury

Arsenic
  Arsenite
  Arsenate
  Organic Arsenic Compounds
  Arsine Gas

Manganese

Cadmium

Copper

Thallium

Metallic Compounds
  Organometals
  Metal Oxides

Other Metals
  Nickel
  Chromium
  Beryllium
  Zinc
  Aluminum
  Magnesium
  Radium
  Uranium

Persistent Organic Compounds

PCBs, PBBs, Furans, Dioxin

Chlorinated dibenzo-p-dioxins

Perfluoro-alkyl Substances (PFAS or Perfluoro Chemicals “PFCs”)

Hexachlorocyclohexane
Hexachlorocyclopentadiene
Endocrine Disruptors

**Airborne Gases & Toxins**
Smoke & Fumes
Ozone
Oxides of Nitrogen & Sulfur
Formaldehyde & Other Aldehydes
Halogen Gases & Ammonia
Phosgene
Acrolein
Hydrogen Sulfide

**Indoor Airborne Gases & Toxins**
Carbon Dioxide
Carbon Monoxide
Environmental Tobacco Smoke
Dust Mites, Cockroach Antigen, Other Allergens
Indoor Molds & Fungi
Particulates
Asbestos
Formaldehyde

**Flame Retardants**
TRIS
Phosphate esters
Polybrominated diphenyl ethers (PBDE)

**Ionizing & Non-ionizing Radiation**
Uranium, Plutonium, & Radio-isotopes
Radon
Lasers
Non-ionizing Electromagnetic Radiation
Ultraviolet Light

**Pesticides, Herbicides, & Fumigants**
Organochlorine Pesticides
   Chlordane
   Dieldrin
Organophosphate Insecticides
   Methyl parathion
Carbamate Insecticides
DEET
Pentachlorophenol
Pyrethrins
Herbicides
Ethylene Oxide
Fungicides
Biocides
Fumigants
  Phosphine
  Methyl Bromide

Caustic Compounds
Inorganic Acids & Bases
Organic Acids & Bases
Hydrofluoric Acid

Solvents & Organic Chemicals
n-Hexane
Phenol
Methylene Chloride
Phthalates
Carbon Disulfide
Volatile Organic Compounds (VOCs)
  Trichloroethylene, tetrachloroethylene, dichloroethylene
Polycyclic Aromatic Hydrocarbons
  Benzo-a-pyrene (BaP)
Benzene
Toluene, Xylene, Xylol
Gasoline, Other Petroleum Distillates, Hydrocarbons
Ethylene Glycol, Higher Glycols
Toxic Alcohols: Methanol, Ethanol

Biological Agents
Mycotoxins
Fungi
Plants
Legionella
Snakes, Spiders, Stinging or Biting Animals
Foodborne Illness
Herbs, Ethnic Remedies & Dietary Supplements
Natural Fibers, Byssinosis, Baganossis
Manmade Fibers

Chemical & Biological Warfare Agents
Nerve Gases
  Tabun (GA)
  Sarin (GB)
  Soman (GD)
  GF
  VX
Vesicants
- Mustard
- Lewisite

Lacrimators
- CN
- CS
- Capsacin

Other Gases
- Phosgene, Diphosgene
- DM (Adamsite)

Biological Agents
- Bacteria
  - Anthrax, Plague, Tularemia, Brucellosis
- Rickettsiae
  - Q Fever
- Viruses
  - Smallpox
  - Encephalitides, Hemorrhagic Fever
- Toxins
  - Botulinum
  - Ricin
  - Pyrogenic Toxins

Trichotheccene Mycotoxins

Inorganic Chemicals
- Cyanide, Hydrogen Cyanide, Cyanide Salts
- Nitriles, Azides
- Nitrates, Nitrites
- Diisocyanates, Methyl-isocyanate
- Asbestos
- Fluorine, fluorosis
- Chlorine, Bromine
- Sodium
- Potassium
- Phosphorus
- Methemoglobin-Forming Chemicals

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