



Chairs: Leah Devlin, DDS, MPH; Steve Cline, DDS, MPH (for Dr. Devlin)

Task Force Members/Steering Committee Members: Paula Collins, John Frank, Greg Griggs, Kathy Higgins, Polly Johnson, William Lawrence, Peter Lehmueller, Meg Molloy, Peg O'Connell, Robert Parker, Fran Preston, Barbara Pullen-Smith, Sen. Joe Sam Queen, Kelly Ransdell, George Reed, Vandana Shah, Florence Siman, William Smith, Lisa Ward, Charles Willson, Alice Ammerman, Steve Cline, Ruth Petersen, Marcus Plescia, Carol Runyan, Meka Sales, Kristie Thompson

Interested Persons and Speakers: David Boerner, Doug Campbell, Caroline Chappell, DeeDee Downie, Karen Knight, Jackie MacDonald, Ed Norman, Kay Phillips, Scott Proescholdbell, Kathy Shea, Walker Wilson

NCIOM Staff and Interns: Pam Silberman, Mark Holmes, Jennifer Hastings, Corey Davis, Christine Nielsen, Thalia Fuller

Overview of Interim Report

Mark Holmes provided an overview of the interim report. The interim report will contain only the priority recommendations identified at the December Task Force meeting. It is scheduled for release in February.

Environment Health Overview: Changing Environments, Changing Health

Katherine Shea, MD, MPH, Adjunct Professor, Department of Maternal and Child Health, UNC Gillings School of Global Public Health

Dr. Shea provided an overview of how the earth is changing and drastically changed over time noting that the earth is a "human-dominated system." She focused on the many ways in which the environment affects human health.

- Human health is linked to the following environmental issues:
 - Stratospheric ozone depletion is associated with increased lifetime risk of melanoma.
 - Global warming is linked to heat-related deaths, air-pollution related illness and death, injury and death from post-traumatic stress disorder (from severe extreme weather events), increased waterborne and foodborne diseases, and changes in distribution and frequency of vector-borne disease
 - Globalization is linked to emerging and re-emerging infections.
 - Chemical toxicities may potentially be linked to hypospadias, autism, and cancers among other health conditions and diseases
- The most vulnerable individuals suffer first, e.g. the very young and the very old, people of low socioeconomic and education status, those who live close to toxic waste, those who work in a high-risk/exposure occupation, and those who have limited access to health care. The fetus is particularly vulnerable.
- North Carolina faces environmental challenges such as those listed below:
 - Air quality: North Carolina has difficulty meeting Clear Air Standards set by the federal government, particularly ozone, which exacerbates asthma.
 - Water quality and water shortages: Water quality issues are likely due to growing population, land development, and chemical use. Water shortage issues are likely due to drought conditions, which are likely to worsen. Additionally, mercury gets into the water supply from coal plants.
 - Chemical toxicities: Pesticides are poisons. There are no data on the quantity of pesticides used in North Carolina.
 - Climate change: North Carolina is at risk for losing a significant number of beaches by 2080. Other environmental impacts include loss of wetlands, damaged fisheries, salt water intrusion, stronger storms, more infections, and worse air quality.

- The four guiding principles offered by Dr. Shea include the following:
 - Public health requires environmental sustainability.
 - Protection of the most vulnerable groups should drive public health policy.
 - Precaution should be the default paradigm for policy and action.
 - People from all groups must be involved in developing and evaluating solutions.

Strategic Planning for Environmental Health Using UNC’s United Arab Emirates Model *Jacqueline MacDonald, PhD, Assistant Professor, Department of Environmental Sciences and Engineering, UNC Gillings School of Global Public Health*

Dr. MacDonald provided an overview of an innovative environmental assessment project from the UNC Gillings School of Global Public Health. The goal of the project is to develop an environmental health strategic plan for the United Arab Emirates. Key components for development of the plan include ranking environmental health risks, categorizing risks to be assessed and ranked, defining characteristics of the risks that affect rankings, and writing risk summary sheets. The summary sheets are used to obtain input from on risk rankings. This project is a model that North Carolina could use for developing a “science-based North Carolina environmental health strategic plan,” which would include estimating the environmental risk burden of disease in the state, ranking environmental threats to public health, identifying risk mitigation strategies, and assessing effectiveness of these strategies in reducing burden of disease.

The Environment and Asthma: Strategies for North Carolina

Karin Yeatts, PhD, Research Assistant Professor, UNC Gillings School of Global Public Health and Center for Environmental Medicine, Asthma, and Lung Biology

- Asthma is the most common chronic disease affecting children. North Carolina has an asthma prevalence rate that is slightly higher than the nation (10.8% versus 9.3%). Hospitalizations with asthma as the primary diagnosis cost North Carolina \$88 million in 2004. The mortality rate for African-Americans is significantly higher than that for whites (30.39 death per million versus 11.21 deaths per million).
- Indoor air and outdoor air affect asthma. We spend 80-90% of our time indoors. Outdoor air affects indoor air.

Dr. Yeatts proposed four recommendations ranging from increasing collaboration among asthma advocates, better utilization of the NC Asthma Program website and creating an inventory of research articles on indoor and outdoor environmental factors for the website; educating health care providers, and supporting asthma-related efforts, such as reducing emissions, pursued by other agencies and groups.

Cancer and the Environment in North Carolina

Karen Knight, MS, Director, North Carolina Central Cancer Registry

- The North Carolina Cancer Registry monitors the state’s cancer burden. Cancer registry data come from hospitals and not from physicians’ offices. Increasing the data available will help increase the base of knowledge for incidence related to exposure.
- There are 45,000 new cases of cancer annually. Seven of the top 10 cancer incidence rates for the state are for cancers that are potentially related to the environment. These cancers include prostate, female breast, lung and bronchus, urinary bladder, melanomas of the skin, non-hodgkin lymphoma, and kidney and renal. Seven of the top ten cancers causing mortality in North Carolina are potentially related to the environment. This includes lung and bronchus, female breast, prostate, pancreas, leukemias, non-hodgkin lymphoma, and liver. North Carolina’s prostate, colorectal, and lung cancer rates are higher than those for the nation.

Ms. Knight proposed a recommendation to increase prostate cancer reporting from urologists and pathology labs and to increase spatial analysis resources.

The North Carolina Childhood Lead Poisoning Prevention Program

Ed Norman, MPH, Environmental Program Supervisor, Children's Environmental Health Branch, Division of Environmental Health, North Carolina Department of Environment and Natural Resources

- Lead exposure in children affects mental development and leads to poor academic achievement and delinquency and criminal behavior. One-hundred percent of the disease is attributable to environmental exposures. While there are many ways in which children are exposed to lead, the leading cause is lead-based paint, dust (especially house dust), and soil.
- North Carolina ranks 17th in childhood lead poisoning cases. The highest prevalence is in the eastern part of the state. Since 2001, there has been a 50% increase in lead poisoning due to increased testing. Cost to the state result from (in order of highest cost to lowest) the following: lost future earnings, juvenile justice, special education, and direct medical and public health costs.
- The North Carolina Department of Environment and Natural Resources does environmental assessments in homes.
- State law requires lab reporting and requires investigation of child's home if his/her blood lead level is 10 µg/dL or greater. The property owner must remediate the problem.

Mr. Norman recommended increasing the Medicaid testing rate to meet the national goal of 85%. He also recommended providing lead-safe work practices training to renovation and remodeling contractors.

Environmental Exposures Causing Risk to Human Health

Doug Campbell, MD, MPH, Head, Occupational and Environmental Epidemiology Branch, NC Division of Public Health

- Air Pollution
 - Ambient outdoor air pollution can cause respiratory and cardiovascular problems. Summertime ozone levels in central North Carolina often exceed EPA standards. Compliance is made difficult by the fact that there are many sources of pollution including fixed sources (e.g. power plants), mobile sources (e.g. autos), and emerging sources (e.g. poultry manure incineration).
 - Pollutants of concern include particulate matter and ozone. Particulate exposure causes premature death, respiratory/cardiovascular hospital admissions, asthma attacks, missed work days, and restricted activity days.
- Indoor Air Pollution
 - Health problems associated with poor indoor air quality include asthma, allergic reactions, and lung cancer. Indoor air compounds that can cause health problems include mold, allergens, radon, volatile organic compounds, carbon dioxide, carbon monoxide, humidity, and odors.
 - Many compounds are difficult to regulate and it is difficult to tell homeowners how to regulate their indoor air environment.
- Water Pollution
 - There are many sources of water pollution; however, they can be divided into two groups: those associated with human activities and those that are naturally occurring. Standards exist for some pollutants and safety levels are not known for many types of water pollution (e.g. pharmaceuticals).

Dr. Campbell recommended decreasing emissions of pollutants into air and water, improving methods to detect or treat contaminated drinking water, and combining legislation and education to detect and decrease indoor air pollutants (especially within schools).

Environmental Risks Recommendations Discussion—Key Points

1. North Carolina should have an environmental assessment performed by the UNC Gillings School of Global Public Health that links environmental exposures/risks and outcomes and provides strategies.
2. The Air Quality Flag Program and coalition efforts should be expanded to reduce asthma.
3. The Healthy Homes Program, which conducts lead inspections, should be expanded to include the assessment of other environmental risks such as air quality, XX, and YY.
4. Licensed Home Inspectors should be required to inspect homes for lead, radon, and other environmental hazards.
5. Environmental risk survey items should be incorporated into the Behavioral Risk Factor Surveillance System, the North Carolina School Health Profiles, and the Youth Risk Behavior Survey.
6. The state should have a Healthy Communities interagency consortium that includes environmental experts to encourage strategic collaboration to address environmental risks and health outcomes.
7. Urologists and pathology labs should increase electronic reporting to better identify prostate cancer cases.
8. Existing state code should be re-written to require all residences with fossil fuel burning appliances or attached garages to have carbon monoxide testers.
9. Health care providers should be encouraged to increase the number of children covered by Medicaid and NC Health Choice who receive blood lead testing.
10. The Environmental Protection Agency's Tools for Schools Program should be expanded to address and improve the indoor air quality in all North Carolina schools.
11. A social marketing campaign should be developed and implemented to raise awareness and educate North Carolinians about environmental risks, energy consumption, and exposure-specific interventions. Training materials should be integrated in this communications effort.
12. The North Carolina General Assembly should raise vehicle emissions standards
13. The North Carolina General Assembly should require vehicles with diesel engines made before 19XX to be retrofitted with particulate filtration systems and to use low sulfur fuel.
14. The development of green energy should be encouraged by denying permits for coal-fired power plants and promoting clean coal technology.
15. Mass transit opportunities should be developed in major metropolitan areas.
16. Opportunities for telecommuting among state employees should be increased.