A Regular Meeting of the Durham County Board of Health, held September 13, 2012 with the following members present:

Sue McLaurin, M. Ed., PT; Commissioner Brenda Howerton; John Daniel, Jr., MD; James Miller, DVM; Heidi Carter, MSPH; F. Vincent Allison, DDS, Michael Case, MPA , Jill Bryant, O.D, F.A.A.O; Teme Levbarg, MSW, PhD; and Nancy Short, DrPH, RN, MBA

Excused Absence: Stephen Dedrick, R.Ph, MS

Others: Gayle Harris, Attorney Bryan Wardell, Eric Ireland, Becky Freeman, Rosalyn McClain, Tekola Fisseha, Robert Brown, Dr. Jim Harris, Sue Guptill, Dr. Miriam McIntosh, Dr. Arlene Sena, Eric Nickens, Hattie Wood, Steven Garner, Corey Sturmer, Charlie Eades, Kelly McMullen, Jennifer Lazarus, Scott Boggs, Eric Billig and Rachel Godfrey.

CALL TO ORDER: - Chairman Sue McLaurin called the meeting to order at 5:14pm with a quorum present.

DISCUSSION (AND APPROVAL) OF ADJUSTMENTS TO AGENDA: The following budget ratifications were added to the agenda for Board approval.

- $24,338 - NC Department of Health and Human Services for the Tuberculosis Control Program
- $41,500 - NC Department of Health & Human Services, Division of Public Health for the Health Education Program
- $1,525 - NC Department of Health and Human Services, Diabetes Prevention and Control Program to support local health departments participating in the NC Diabetes Education Recognition Programs.
- $5,218 - NC Division of Public Health, Nutrition Services Branch for the Environmental Health Division. The Summer Food Service Program (SFSP) provides free meals to children during the summer months.

REVIEW OF MINUTES FROM PRIOR MEETING/ADJUSTMENTS/APPROVAL: Commissioner Brenda Howerton made a motion to approve the minutes for August 9, 2012 meeting. Mr. Case seconded the motion and the motion was approved.

PUBLIC COMMENTS:
The following citizens of Durham spoke to the board on Fluoride in the Drinking Water in Durham County.

1. Corey Sturmer
2. Charlie Eades
3. Kelly McMullen
4. Scott Boggs
5. Rachel Godfrey

The citizens requested the board to do due diligence in discussing, and evaluating, the information that was presented to them today and to make a recommendation to remove the fluoride in the drinking water in Durham County. The speaker notes and materials are attached to the minutes.

Ms. McClain will e-mail the materials presented at the meeting today to the board for them to review, research and be prepared to discuss at the next board meeting on October 11, 2012.

STAFF/PROGRAM RECOGNITION:
The staff acknowledged the death of Henry Pacheco, a Patient Relations Representative in Central Intake, collapsed on Main Street after leaving our staff meeting on September 5, 2012 and later died in the Duke ED.

The staff acknowledged the retirement of Sue Guptill and Tekola Fisseha effective October 1, 2012. Ms. McClain will e-mail the board invitations to both retirement celebrations.

ADMINISTRATIVE REPORTS/PRESENTATIONS:

- **Medicaid Cost report and Fee Setting Process (*Activity 33.6*) *(Steven Garner*)**

Mr. Garner reviewed the new process for local health department cost and actual time reporting. (A copy of the power-point presentation is attached to the minutes).

- **Community Health Assessment: Action Plans** (***Activity 38.2***) (*Melissa Downey-Piper*)

The Durham County Community Health Assessment culminated with the selection of new health priorities and the document was submitted to the State in December 2011. These priorities include: Access to medical and dental care, HIV and sexually transmitted infections, Education, Poverty, Mental health, Substance abuse and Obesity and chronic illness. Since that time, Community Health Action Plans have been written to address Durham County's health priorities; these were submitted to the State on June 4, 2012. As part of accreditation, the Board of Health must approve the Community Health Action Plans. (A copy of the Community Health Assessment Action Plans are attached to the minutes)

Mr. Case made a motion to approve the Community Health Assessment Action Plans. Dr. Short seconded the motion and the motion was approved.

- **Public Health Vacancy Report**: ***(Activity 33.6)*** *(Marcia Robinson)*

The Board received a copy of the vacancy report which includes information on the currently vacant positions (26.48 FTEs) in August *(15% new positions, 9.48% resignations 1% reclassifications and 1% terminations).* (A copy of the vacancy report is attached to the minutes)

- **FY 11-12 End of Year Financial *(Activity 33.6)*** *(Marcia Robinson)*

The Board reviewed the revenue and expenditures for FY11-12 Year-End Budget and FY12-13 Year-To-Date Budget (A copy of the budget reports are attached to the minutes).

The Durham County Health Department's Bad Debt Policy states the following:

- Bad debts shall be written off at the end of a fiscal year if there has been no activity in an account for one year, and the associated clients and/or the reimbursement providers have been billed three or more times.
- Bad debt accounts will be presented annually to the Board of Health for approval before the amount is written off.

The Durham County Health Department requests that the Board of Health approve FY11-12 bad debt write-off in the amount of $53,695.12.

Dr. Miller made a motion to approve FY11-12 bad debt write off in the amount of $53,695.12. Mr. Case seconded the motion and the motion was approved.

- **Health Director's Report**: **August 2012** ***(Activity 39.2)*** *(Gayle Harris)*

Division / Program: Community Health Division / Communicable Disease

Program description

- The Communicable Disease Control staff of the Durham County Health Department (DCHD) investigates all reported communicable diseases/conditions and ensures that appropriate control measures have been prescribed in accordance with the N.C. Communicable Disease Law and Rules.

Statement of goals

- To conduct thorough reporting and investigation of communicable diseases and implement prompt communicable disease control management to protect the health of the community.
- To provide enforcement of North Carolina's communicable disease statutes and rules through implementation of appropriate control measures.

Issues

- **Opportunities**
  - Pertussis is a reportable disease with specific control measures. The Health Department is responsible for ensuring that those measures are carried out and for eliminating barriers.
- **Challenges**
  - On August 29, the Health Department received a report that 6 members of one family had pertussis: one adult, three school-age children, and two pre-school children.
  - All of the children attended the same private school; their father was a teacher at the same school. None of the children had been vaccinated.
  - This is a developing issue. More information about additional cases will be available in September.

Implication(s)

- **Outcomes**
  - The school administration was notified.
  - Letters were sent to school, church, and other social contacts, notifying them that they should receive treatment (Zithromicin) to prevent pertussis; if they were unimmunized, that vaccination was also advisable.
- **Service delivery**
  - The Health Department extended its hours on August 31 until 8:00 p.m. to allow people to come in for treatment.
  - Members of eight families were treated on August 31.
- **Staffing**
  - Three Public Health Nurses, one administrative support person, and one pharmacist provided treatment on August 31. Ongoing surveillance and control efforts have involved most of the Communicable Disease staff.

Next Steps / Mitigation Strategies

- This is an ongoing issue. Planned steps are:
  - News releases and other public announcements regarding the importance of immunization
  - Continued surveillance and control according to North Carolina Communicable Disease guidelines for this cluster and future clusters

- Notification of local physicians to be alert to signs and symptoms of pertussis

Division / Program: Nutrition Division / Workshops at Durham County Youth Home

Program description

- A Durham County Health Department nutritionist provides hands-on nutrition and culinary workshops to boys living at the Durham County Youth Home.

Statement of goals

- Increase nutrition knowledge.
- Expose participants to healthy, low cost foods.
- Increase self-efficacy around cooking and healthy eating.

Issues

- **Opportunities**
  - The workshops are held at 11:00 a.m. before the youth eat lunch, so they are hungry and very willing to try new foods.
  - The workshops use a kinesthetic mode of learning ("hands-on" learning involving movement) as the youth cook and sample a recipe themselves. This is the preferred mode of learning for most teenage boys.
  - Cooking is something that the youth can see immediate success. Staff commented that such activities lead to a much-needed boost in confidence for the youth.
- **Challenges**
  - The youth are currently not in a position where they can practice the skills learned, as they do not have say in the food served while living at the facility.

Implication(s)

- **Outcomes**
  - Two successful workshops have been held.
    - The first workshop focused on MyPlate and the youth made yogurt parfaits. They were first hesitant to try them but by the end everyone had seconds or thirds. The staff even asked the nutritionist if the parfait would meet federal meal guidelines as a breakfast or snack item so it could be served again.
    - The second workshop covered heart health. The youth cooked a chicken stir fry. Before the class, none of the youth had eaten water chestnuts or sugar snap peas. When asked what they would change, many said they would add more vegetables and less meat. One boy even said he would not add the meat in the future. All the boys agreed they would make the meal for their mothers upon release from the Home.
- **Staffing**
  - A workshop takes one DCHD nutritionist between one and three hours to organize and teach.

Next Steps / Mitigation Strategies

- The Youth Home staff asked the nutritionist to return. The nutritionist plans on making this a monthly program.

Division / Program: Nutrition Division / DINE Program—Clicker Technology

Program description

- DINE has acquired "clickers" to use in the program's pre and post screening and in regular classroom and community interventions.
- "Clickers" are small hand-held devices that individuals in a group setting use to respond to questions shown on PowerPoint slides. Responses are summarized by software that interfaces with the PowerPoint slides giving immediate audience feedback.

Statement of goals

- Increase the efficiency and effectiveness of DINE program evaluation
- Engage groups interactively in DINE educational presentations with real time feedback.

Issues

- **Opportunities**
  - Reduces the amount of time used for computer entry of pre- and post-screening data.
  - Eliminates errors in computer entry of pre- and post-screening data.
  - Increases students' attention during lessons.
- **Challenges**
  - Learning the Turning Technology software associated with clicker use and how it integrates with PowerPoint.
  - Integrating the screening questions and DINE lessons into the software.

Implication(s)

- **Outcomes**
  - Three sets of screening tools have been converted, pilot-tested, and are ready to be used in classrooms.
- **Service Delivery**
  - DINE conducts pre and post screenings with 1,000 students each year to assess the impact of the program. At the end of the school year, numerous hours are devoted to data entry.
  - A DINE nutritionist integrated three Power Point presentations that include all of the screening questions (one for K-1st grade, 2nd -3rd grade, and 4th -5th grade) into the Turning Technologies clicker software.
  - When conducting screenings, a DINE nutritionist can screen the whole class at the same time. Each student receives a clicker and when asked a screening question, students use their clicker to respond.
  - Clickers will be used in regular DINE lessons to make lessons more interactive.
- **Staffing**
  - DINE nutritionists will use this technology.

Next Steps / Mitigation Strategies

- Use clickers to collect evaluation data for the 2012-2013 school year.
- Integrate the clickers into additional DINE classes to make lessons more interactive.

Division / Program: Nutrition Division / Holt Garden Club Cooking Program

Program description

- The Holt Garden Club Cooking Program is a partnership between the City of Durham's Neighborhood Improvement Services, Durham Public Schools, and the Durham County Health Department Nutrition Division.

Statement of goals

- Discuss benefits of eating local/seasonal produce.
- Explore and taste a variety of fruits and vegetables.
- Develop basic culinary skills in elementary school students.

Issues

- **Opportunities**
  - The Holt Garden Club Cooking Program is a skills-based program that allows children to explore and taste fruits and vegetables that may be new or unfamiliar.
  - Students may be more willing to accept novel fruits and vegetables if they participate in growing and then in cooking the harvested produce.
  - The hope is that students will enjoy the taste of fruits and vegetables and will continue their consumption of fruits and vegetables into adulthood. Also, students will learn valuable cooking skills that will spark an interest in preparing foods at home as they age.
- **Challenges**
  - Due to recent changes in county and state environmental health guidelines, the cooking program may not be able to continue as originally designed. At this time, it is not clear if current environmental health codes allow students to prepare and eat food in the classroom.
  - The Nutrition Division is working with the Environmental Health Division to resolve this issue. Unfortunately, if the DCHD nutritionist would not be allowed to facilitate cooking programs in the schools, it would eliminate the experiential learning that is so well received by both students and teachers.

Implication(s)

- **Outcomes**
  - Students were exposed to fruits and vegetables that are at the peak of flavor, nutrition, and lower in cost.
- **Service delivery**
  - Students, along with program volunteers, planted 12 raised garden beds at Holt Elementary School in May 2012.
  - Students met once per week in an afterschool "Garden Club" where they learned about seeds, plants, gardening and wildlife.
  - A cooking component, conducted by a DCHD nutritionist, was added to supplement current Garden Club activities. This cooking component allowed students the opportunity to prepare and eat produce that they harvested from the school garden. Recipes and excess produce from the garden were then sent home with the students.
- **Staffing**
  - The cooking and nutrition education component of the Garden Club is delivered by a DINE nutritionist.

Next Steps / Mitigation Strategies

- Work with DCHD Environmental Health Division to determine appropriate food safety guidelines necessary to continue cooking programs in Durham Public Schools.
- Students from the Holt Garden Club will be involved in the Youth Diversity Carnival on October 6, 2012. Students will be selling produce from the school garden and cookbooks containing recipes prepared in the Holt Garden Club Cooking program.

Division/Program: Health Education and Nutrition Divisions/CDC REACH grant proposal

Program description

- Durham County Health Department (DCHD) collaborated with other partner agencies to write and submit a CDC REACH grant. Collaborating agencies/groups included Duke University Medical Center, the Inter Faith Food Shuttle, Durham Parks and Recreation, Durham Public Schools, Durham Cooperative Extension, El Centro Hispano, Lincoln Community Health Center, The Community Health Coalition, and the Partnership for a Healthy Durham.

Statement of goals

- The grant proposal has the following goals:
  - Increase access to healthy foods among minority children ages 0 to 19 years old.
  - Increase awareness of healthy food choices among the target population.
  - Increase engagement in policy, systems and environmental change.
  - Increase connectivity between resources, individuals and health providers.
- Partnering with community agencies and potential partners for grant implementation at the beginning of the grant writing process affords better planning of grant deliverables and funds allocation.

Issues

- **Opportunities**
  - If funded, this grant provides a creative and timely opportunity to connect and expand current programming around healthy food access in Durham County.
- **Challenges**
  - The grant writing team had less than a month to write and submit the grant.
  - The grant is very competitive with only two awarded throughout the country.

Implication(s)

- **Outcomes**
  - Eight policy and environmental improvement strategies will be employed in this effort that will lead to sustainable improvements in children's diet, weight and blood pressure as well as reductions in racial/ethnic disparities.
- **Service delivery**
  - Grant activities will focus on the eight strategies below:
    - Improve healthy food access and awareness in child care centers
    - Enhance the nutritional quality of food offered in Durham Public Schools

- Expand youth education, job training, and social entrepreneurship in nutrition, culinary arts and urban agriculture
- Implement and expand healthy snack and vending policies in schools and community sites
- Expand healthy food options in retail outlets
- Develop neighborhood "potluck" system that supports healthy youth environment
- Develop youth-driven, coordinated outreach and media campaign
- Connect providers, patients and community in obesity and hypertension reduction

- **Staffing**
  - Duke University Medical Center will be the lead agency for the grant and subcontract with partner agencies including the Health Department.
  - The grant will fund four new DCHD nutrition positions including a policy nutritionist, a DINE for LIFE school nutritionist, a childcare nutritionist, and a virtual classroom nutritionist (to create an online DINE for LIFE program).
- **Revenue**
  - The total budget for the grant is $6,317,570 over three years.
  - The three year allocation for the Health Department is $879,349.

Next Steps /Mitigation Strategies

- The grants will be awarded in October 2012. If Durham is not awarded the grant, we will submit all or parts of the grant to other funding agencies.

Division / Program: Dental Division /Stakeholder Focus Group

Program description

- During the summer of 2012, the Dental Division solicited input from parents of children treated in the clinic. In the past, the Division learned about its services through direct feedback or by completion of surveys (DCHD completed survey in March, 2012).
- On August 3rd, Dental held a Stakeholder Focus Group, with nine families participating.

Statement of goals

- The Dental Division hoped to learn about how it was providing services, the quality of those services, and discern areas where improvement is needed, or services are lacking.
- The face-to-face session would allow for more pertinent/personal information as opposed to individuals simply completing a survey and checking off answers.

Issues

- As the clinic and Tooth Ferry continue to see an increase in patients, it is important that service quality and array of vital services are not compromised.
- Dental Division must continue to avail itself not only as a viable health option for the community, but also a partner within the community.

Implication(s)

- **Outcomes**
  - The participants expressed satisfaction with the care they received, from being welcomed in the clinic, to their children

receiving good dental care. Staff members also received high marks for providing courteous service. Some parents expressed that wait times and the registration process could be improved. The majority expressed that these focus groups should continue every six months.

- **Service delivery**
  - Questions asked of parents included: How would you rate the way you are welcomed upon entering the clinic? What are your thoughts on the registration process? How would you rate the wait times in the clinic? How do you feel the dental staff treats you? What are your thoughts on the services/treatment your child receives? What is the clinic doing that is working well? What is the clinic not doing that we could be doing? Do you have anything else to add?
  - As a benefit for parents, during the focus group a nutritionist engaged their children in another room, providing an activity aimed at healthy food choices.
- **Staffing**
  - Division Director, two front desk staff members, nutritionist, and student intern.

Next Steps / Mitigation Strategies

- The next Stakeholder Focus Group will convene during the winter, 2013.

Division / Program: Dental / Healthy Smiles and Wellness Day

Program description

- The Dental Division organized a "back to school" clinic for students to offer free dental exams.
- In addition to Dental, staff from Health Education, Nutrition, and Community Health joined the effort, and the first *Healthy Smiles and Wellness Day* event was held on August 24, 2012.

Statement of goals

- Provide youth, who were preparing to return to school, basic dental care and/or health services and information.

Issues

- It can be difficult for parents to bring their children in for appointments, especially at the start of the school year.
- Families are not always aware of the wide range of health information/services offered within the Durham County Health Department.

Implication(s)

- **Outcomes**
  - The Department served dozens of families during the event. In addition to direct services, DCHD provided pertinent health information to individuals arriving at the Department.
- **Service delivery**
  - The following services were delivered:
    - Dental Clinic treated 39 patients; 25 new patients to DCHD Dental (six additional had previously been seen on the Tooth Ferry). Thirty-six patients were school-aged youth; three were OB patients.
    - Dental offered exams for 38 patients (30 patients' scheduled follow-up appointments for treatment); one patient received sealants.
    - Three families received initial nutrition consultations.
    - Seven children received lead screenings.

        - Thirty-one children were immunized (Tdap, Meningo, HPV, MMR, Varicella).
    - Informational booths were set up in the main walk-way on the first floor and included the following:
        - Dental: *Taking Care of Your Teeth*
        - Nutrition: *Rethink Your Drink*
        - Health Education: *Good Touch, Bad Touch*
        - Community Health: *School Nurses Help Students Stay Healthy and Learn*
        - NC Pediatric Society Foundation: *Children's Health Insurance*
        - National Children's Study – Durham: gave backpacks, toothbrushes, toothpaste
- **Staffing**
    - Staff from various Divisions participated in this event.
- **Revenue**
    - Dental provided services valued at $4,850.

Next Steps / Mitigation Strategies

- Follow up meetings have been scheduled and the team will begin planning the 2013 event just after the start of the New Year.

Division / Program: Administration / Information and Communications

Program description

- The Information and Communications program provides timely information to the public on key health issues.

Statement of goals

- Increase the public's awareness and understanding of important health information and the Health Department's programs and services availability
- Increase the public's utilization of Health Department programs and services.

Issues

- **Opportunities**
    - With staff dedicated to information and communications, the Health Department can provide more information to the public on health issues
    - Media/reporters are eager to use information provided to them by the Health Department for their viewers/readers.

- **Challenges**
    - Prioritizing the topics to publicize
    - Responding back to media inquiries for follow-up in a timely manner, although with dedicated staff to this issue, this challenge is now an opportunity.

Implication(s)

- **Outcomes**
    - Information and communications about health issues and Department programs and services are being publicized in a timely, organized manner and with greater frequency.
    - Visibility of public health information from the Department has substantially increased
- **Service delivery**
    - Health Department staff worked closely with county public information staff to host a successful Free Your Lungs - Board

of Health Smoking Rule kickoff celebration at the American Tobacco Campus on August 1.

- The Information and Communications Manager attended the CDC's 2012 National Conference on Health Communication, Marketing, and Media, held in Atlanta, GA, from August 7-9, bringing back a wealth of valuable information and data driven strategies that will further enhance our developing Information and Communications program.
- Four media releases/advisories were disseminated during the month of August on the following:
  - Durham Health Officials Keeping Watchful Eye on West Nile Virus (August 24)
  - Durham's First Healthy Mile Trail to be Unveiled Near NCCU (August 27)
  - Changes are on the Menu for Restaurants Beginning Saturday (August 29)
  - Patients Over Politics Tour Rolls into Durham (August 31)
- In a continuing effort to forge partnerships with local media, Information and Communication staff met with key newsroom staff and management at WRAL-TV. Station staff viewed our visit as extremely positive, as it helps them put faces with the names on a media release or advisory. Such relationships are invaluable during breaking news events.
- Planning and scripting is underway for the Durham Diabetes Coalition television show, scheduled to debut in November 2012.
- Information and Communication staff are working very closely with county public information staff, as the launch of the county's new branding and website moves closer (scheduled for October 22). This branding will significantly impact the Health Department from logos to forms and stationary.
- Subject Matter Experts (SMEs) from various divisions of the health department have been identified and will soon be oriented on how to respond to questions from the public and media. Deploying the SME system will allow the Health Department to respond to inquiries more quickly, thus increasing our responsiveness to the community and further building credibility.

- **Staffing**
  - The Information and Communications Manager joined the Health Department in April 2012. Since his arrival, he has collaborated with numerous Health Department staff to initiate, organize and deliver information and communications to the public and our partners.
  - The Information and Communications Specialist (Diabetes) joined the Health Department in May 2012. Since her arrival, she has played in integral role, working with internal and external partners, to build the framework and foundation for diabetes-related media activities.

Next Steps / Mitigation Strategies

- Continue building/developing various communication channels as well as the Health Department's delivery of information and communications.

Division / Program: Environmental Health/ General Inspections/Healthy Homes Mini Conference

Program description:

- The Durham Healthy Homes Mini-Conference was held at the DCHD on August 30, 2012 as a culmination of the Durham

Healthy Homes Coalition's efforts. The Healthy Homes grant ended on August 31, 2012.

- The DCHD has been a sub-grantee of Healthy Homes funds that the NC Children's Environmental Health Branch (CEHB) received from the Centers for Disease Control (CDC). DCHD subcontracted with Reinvestment Partners, a nonprofit, for Healthy Homes education and outreach. Jan Jackson, Environmental Health Program Specialist, and Lorisa Seibel, Reinvestment Partners, formed the Durham Healthy Homes Coalition. The Coalition has been meeting monthly since February 2012.

Statement of goals

- To affirm the role of Healthy Homes in maintaining a healthy population
- To highlight the accomplishments of the Durham Healthy Homes Coalition
- To disseminate information regarding availability of Healthy Homes resources to members of the Durham community
- To engage community members in thoughtful discussion of how to integrate Healthy Homes into their work and pursue the continuation of coalition activities through partner agencies and volunteer activities.

Issues

- **Opportunities**
  - The Durham Healthy Homes Mini-Conference provided an opportunity for partner agencies and other interested persons to discuss the continuation of Healthy Homes initiatives.
- **Challenges**
  - Due to Federal budget reductions, Healthy Homes grant funding ended after one year of a planned three year commitment.
  - Finding alternate funding sources and/or venues for future Healthy Homes-related activities is an ongoing challenge.

Implication(s)

- **Outcomes**
  - Forty-six (46) attendees participated including employees of DCHD, Durham County Cooperative Extension, Lincoln Community Health Center, UNC, and various nonprofit organizations.
  - County Commissioner Brenda Howerton also attended.
- **Service delivery**
  - Participants heard several presentations on Healthy Homes topics and participated in break-out sessions to discuss integration of Healthy Homes into their work.
  - Participants received a folder of Healthy Homes information and resources.
- **Staffing**
  - Four health department staff presented topics at the conference. The Health Director opened the meeting with a presentation that emphasized the importance of Healthy Homes activities.
- **Revenue**
  - No effect on revenue is anticipated.

Next Steps / Mitigation Strategies

- The Durham Healthy Homes Coalition will meet in September to discuss the future of the coalition.

Division / Program: Environmental Health/On-site Water Protection (OSWP)

Program description:

- The OSWP program continues to work collaboratively with the County Managers Office, the County Engineering Department, and the County Soil and Water Department toward compliance with the Falls Lake Nutrient Management Strategy (FLNMS) as they affect Durham County.

Statement of goals:

- Fair implementation of the Falls Lake rules

Issues

- **Opportunities**
  - Approximately two thousand discharging sand filter systems are located within the Falls Lake Watershed of Durham County. The DWQ Falls Lake Model found that effluent discharged from these systems has a negative effect upon the water quality of the lake. Proper design and management of these systems will reduce nutrients levels discharged.
- **Challenges**
  - The NC Division of Water Quality (DWQ) Discharging Sand Filter Systems have been the topic of substantial discussions recently. The Falls Lake rules mandate nutrient reductions from multiple sources, including these DWQ systems.
  - The City of Raleigh attorney requested that DWQ be required to address the DWQ systems in a manner consistent with the Falls Lake Rules. The judge ordered the parties to work together to accomplish this end. To date, the Court Order has not been completed.
  - Implementation of the FLNMS from start to finish will cost the Falls Lake jurisdictions several billion dollars.
  - Most of the existing sand filters in Durham were permitted prior to the mid-1970s and were not designed for nutrient reduction. Municipal sewer is available to approximately seven hundred systems, but DWQ has refused to order connection of these systems to sewer, allowing them to discharge. The remaining systems must be upgraded or replaced to accomplish nutrient reduction.

Implication(s)

- **Outcomes**
  - The final outcomes of this controversy are unknown at this time.
- **Service delivery**
  - There are no current impacts upon service delivery at this time.
- **Staffing**
  - A new position was approved for this budget year to assume the On-Site Water Protection program responsibilities associated with the FLNMS. This position is advertised but has not yet been filled.
- **Revenue**
  - The FLNMS Rules are an unfunded mandate and compliance with these rules will produce no revenue for the county.
  - Failure to reduce nutrient levels in the lake may result in fines/penalties assessed against Durham.

Next Steps / Mitigation Strategies

- Await the completion and content of the court order pursued by the City of Raleigh and assess needed actions at that time.

OLD BUSINESS:

- **Smoke-Free Initiative Update** ***(Activity 34.5)*** (Gayle Harris/Attorney Bryan Wardell)

Signs have been installed on County properties. Communications continue with the City Manager regarding schedule for postings on City properties. Residents report violations daily. If there is a "no smoking" sign in the area, staff is deployed to the site to provide education regarding the Smoking Rule. If there is no signage, the complaint is documented.

- **Strategic Plan** ***(Activity 15.1)*** (Gayle Harris)

The Board requested to table the discussion on the draft strategic plan until the next board meeting.

- **Weight of the Nation** ***(Activity 41.1)*** (Becky Freeman)

Mrs. Freeman provided the board with an update on the Weight of the Nation Initiative.

- More than 2/3rds of adults and about 1/3 of children are overweight or obese, leading to type 2 diabetes, cardiovascular disease, stroke and cancer. Obesity costs the United States about $147 billion in medical costs annually. Causes of this epidemic are complex: solutions are not simple…there's no silver bullet.
- Weight of the Nation is a four part documentary series that looks at the causes and possible solutions to stop the growing numbers of obese Americans. The series was produced by HBO in collaboration with the Institute of Medicine, CDC, National Institutes of Health and others. Featured at the 2012 Weight of the Nation conference in Washington, DC in May, the intent of the series is to launch a public health campaign.
- Weight of the Nation series is packaged in screening kits containing four DVD's and a discussion guide with that enables groups to sponsor screenings and engage groups in discussions that will stimulate or increase positive community actions to reverse the obesity trend.
- BOH members Sue McLaurin (chair), Heidi Carter, and Teme Levbarg and Health Department staff have met several times to discuss hosting community screenings of Weight of the Nation. These meetings included participating in a national webinar on the use of the screening kits and reviewing reports from screenings hosted in other locations in the US. In consideration of hosting an/some event(s), the group also discussed issues such as target audience, which DVD(s) to use, outcomes desired and identifying a champion for this initiative.

Next steps include surveying the public at a large community event on October 6 to inform the planning group of public opinion and support for Weight of the Nation community screenings and discussion events in Durham.

NEW BUSINESS:

- **TB Clinical Study (TB Study 33)** *(Sue Guptill)*

Ms. Guptill provided the Board with information regarding the multi-center randomized control trial "Study of the Adherence to Three Months of Once Weekly Isoniazid and Rifapentine Taken as Self-administered Therapy (SAT) versus Direct Observed Therapy (DOT): TBTC Study 33 iAdhere.

- The objective of this study is to evaluate adherence to a three-month (12-dose) regimen of weekly rifapentine and isoniazid given by DOT compared to SAT. The subjects will be adults with latent TB infection (LBTI), not those with active infection. The study will also evaluate the use of weekly short messaging service (SMS) reminders as an intervention to maximize adherence to SAT.

- The study will be conducted by the Duke TB research team. Duke is requesting that the TB clinic nurses work with their study personnel to identify potential study participants, obtain permission from these patients for the study nurse to contact them, and to communicate with study staff regarding the treatment of these participants.

- **Agenda Items October 2012 meeting)**
  - Fluoridation in the Drinking Water (discussion)
  - Strategic Plan (discussion)

- **Budget Ratifications** (Gayle Harris)

The health department requests approval to recognize the following budget ratifications.

- $24,338 - NC Department of Health and Human Services for the Tuberculosis Control Program
- $41,500 - NC Department of Health & Human Services, Division of Public Health for the Health Education Program
- $1,525 - NC Department of Health and Human Services, Diabetes Prevention and Control Program to support local health departments participating in the NC Diabetes Education Recognition Programs.
- $5,218 - NC Division of Public Health, Nutrition Services Branch for the Environmental Health Division. The Summer Food Service Program (SFSP) provides free meals to children during the summer months.

Ms. Carter made a motion to approve the budget ratifications. Dr. Levbarg seconded the motion and the motion was approved.

INFORMAL DISCUSSION:

Ms. McLaurin informed the board that NALBOH requested the board's participation in a national performance field test. The board declined at this time.

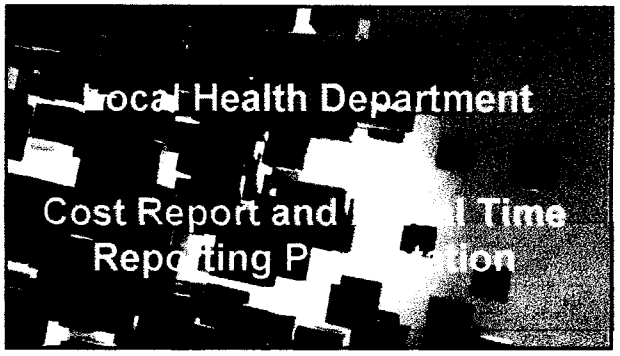
Ms. Carter made a motion to adjourn the meeting at 8:03pm. Dr. Miller seconded the motion and the motion was approved.

_____

Sue McLaurin, M. Ed., PT-Chairperson

_____

Gayle B. Harris, MPH, Health Director



Cost Report Comparison Summary

- **Old Cost Report**
  - Cost Reported By Program Activity
  - Daily Time Study Accounting for 100% of Staff
  - Settlement By Program and Service Detail
  - Aggregate Settlement
- **New Cost Report**
  - Cost Reported By Discipline Activity
  - Actual Daily Time Reporting for Clinical Nurses, SW, Nutritionist & Health Educators
  - Settlement By Clinical Summary Activity
  - Individual Settlement

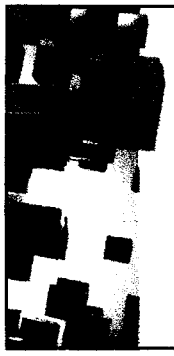
Personnel Cost Pools

1. **100% Clinical Activity Cost** (No Time Reporting)

   Physicians, PE, Billing, Dental, etc
2. **Actual Daily Time Reporting**

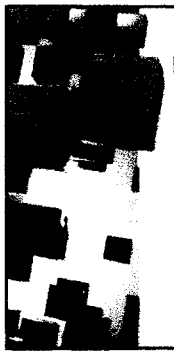
   Nurses, SW, Health Ed., Nutritionist
3. **100% Non Clinical Activity Cost** (No Time Reporting)

   Environmental Health, Home Health/CAP, etc



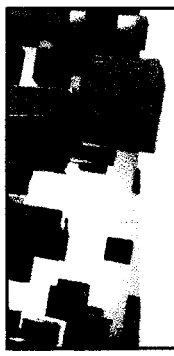
Operating Cost Categories

1. **Supplies** – Medical, Office and Drugs
2. **Capital Expenditures** – Capitalized equipment that will be depreciated
3. **Contract Services** – Physician or interpreter contracts, etc.
4. **All Other Operating Cost** – Employee Travel, Insurance, non Capitalized Equipment, etc.



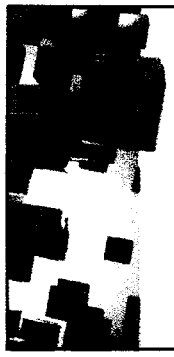
Medicaid Population Identifier

- Charges
  - Will be required as of 7/1/2012
- Encounter Report
  - May be used as an interim approach for a 2 year period (SFY 2011 and 2012)



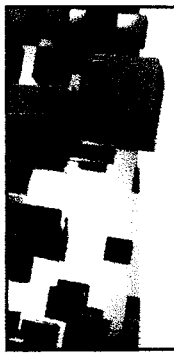
Emphasis on Charges

- In order to determined the Medicaid population, CMS considers charges to be the most appropriate methodology.
- If your charge is less than cost, Medicaid may cap the settlement at the lesser of charge or cost.
- It is essential that you set your charges at full cost which may include an additional risk factor of 1% to 5%.



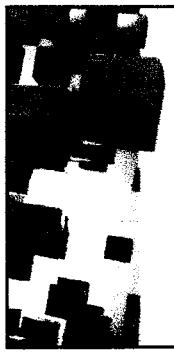
Settlement Comparison

Total Cost	$23,253,501.07
Clinical Cost	$9,234,836.61
Settlement Paid SFY 2010	**$965,163.50**
Total Cost	$20,206,408.87
Clinical Cost	$8,904,304.06
Medicaid Population	25%
Medicaid Cost	$2,243,077.76
Payments	$434,389.99
Settlement	$1,762,177.78
Settlement Paid SFY 2011	**$1,301,737.97**
Settlement Gain	**$336,574.39**



Determining Cost Per Service

1. Identify all services provided
2. Assign an RVU (Relative Value Unit) to each service
3. Calculate a weighted value for each service based on its relative value
4. Allocate the total clinical cost to each service based on the percentage outcome of the weighted value of each service
5. Divide the cost allocated to each service by the number of units provided by that service
6. The outcome of these 5 steps will be the unit cost per service.



THANK YOU!

For all questions, please contact:

Steven W. Garner
919-302-0127 office
919-618-3200 cell
Steven.Garner@dhhs.nc.gov

DCHD
Durham County Health Department
Prevent. Promote. Protect.

Partnership for a Healthy Durham

2011- 2014 COMMUNITY HEALTH ACTION PLANS

Health priorities

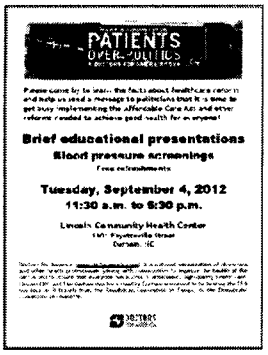
Previous health priorities	New health priorities
Obesity and chronic illness	Obesity and chronic illness
Access to medical care	Access to medical and dental care
Mental health and substance abuse	Mental health and substance abuse
HIV and sexually transmitted infections	HIV and sexually transmitted infections
Injury prevention	Poverty
Teen pregnancy	Education
Infant mortality	

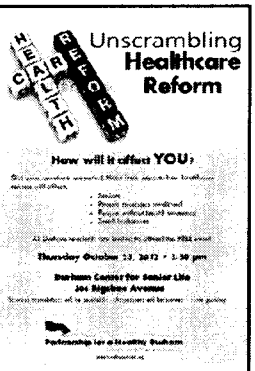
Action plans submitted June 1, 2012

Accreditation: Board of Health must formally approve plans

Access to medical and dental care

- Coordinated Access To Care for the Homeless (CATCH): connect the hospital to community and housing services when homeless patients are discharged
- Transportation: improve knowledge of transportation options and bus access to healthcare services
- Expanded dental care access for low income and uninsured adults
- Health literacy: Re-write patient forms and materials to a third grade reading level
- Affordable Care Act: community learning sessions, materials and more TBD





October: Article series in Durham Herald Sun

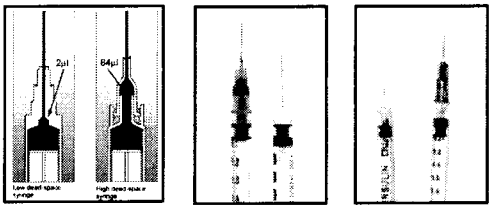
Social determinants of health

- Poverty, Education (and housing)

Monday, October 1:

Dr. Victor Dzau and Gayle Harris are hosting a Health Summit follow-up meeting to discuss poverty, education and housing.

Syringe Design Influences Fluid/Blood Retention*



*High Dead Space Syringes retain more fluid and blood than other syringes retain.
*Low Dead Space Syringes that retain less blood reduce HIV transmission risk.

*Courtesy of William Zule, RTI International

High Dead-Space Syringes and the Risk of HIV and HCV Infection Among IDUs

- This study examines the association between using and sharing high dead-space syringes (HDSSs)—which retain over **1000 times** more blood after rinsing than low dead-space syringes (LDSSs)—and prevalent HIV and hepatitis C virus (HCV) infections among injecting drug users (IDUs).
- A sample of 851 out-of treatment IDUs was recruited in Raleigh–Durham, North Carolina, between 2003 and 2005.
- HIV prevalence was **5%** among IDUs who had never used an HDSS compared with **16%** among IDUs who had shared one.
- Use and sharing of HDSSs were also associated with increased odds of HCV infection.

*Slide courtesy of Robert Child, NC Harm Reduction Coalition

Obesity and Chronic Illness

- Create Healthy Aisles in grocery/convenience stores: healthy foods, beverages and toys that promote physical activity in check out areas
- Create mobile farmers' market
- Offer evidence-based diabetes and chronic disease self-management classes
- Continue Bull City Open Streets
- Create Healthy Mile Trails: stencils on sidewalks/roads in neighborhoods

Education

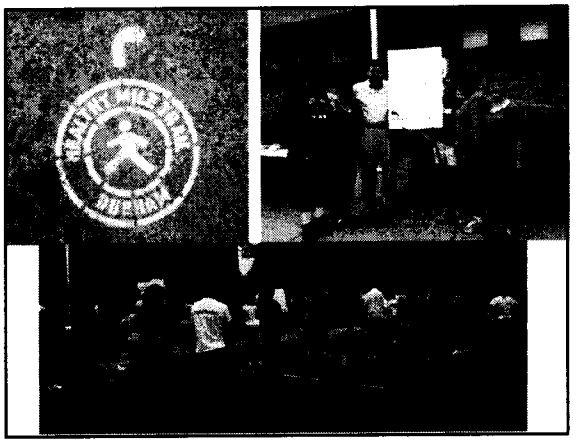
- Implement Durham Public School Strategic Plan
  - Increase alternatives to out of school suspension
  - Increase students receiving free/reduced lunches (now healthier meals)
  - Behavioral framework: consistency in suspensions, reducing suspensions

Poverty

- Host Faith Summit on Childhood Poverty with End Poverty Durham: generate next action steps
- Hospital diversion homeless plan pilot: System and protocol change so that hospitals identify homeless individuals and connect them with housing
- Create Summer youth positions

HIV and STI

- HIV/STI testing: expand, reduce redundancy, identify new positive and link to treatment
- Organize World AIDS Day
  - November 29, 2102; Hayti Heritage Center
- Advocacy: increase overall and specifically promote low dead-space syringes (reduces HIV and Hep C transmission)



Substance abuse and mental health

- Organize Recovery Celebration block party
- Opoiod dependence: increase treatment, decrease number of prescriptions written
- Create and market prescription drug drop boxes
- Train Durham Public School staff on substance abuse, mental health, suicide and LGBT issues

Partnership for a Healthy Durham

Summary of 2012-15 Committee Action Plans

Access to Care	• Coordinated Access To Care for the Homeless (CATCH): connect the hospital to community and housing services when homeless patients are discharged • Transportation: improve knowledge of transportation options and bus access to healthcare services • Expanded dental care access for low income and uninsured adults • Affordable Care Act: community learning sessions, materials and more TBD • Health literacy: Re-write patient forms and materials to a third grade reading level
Education	• Implement Durham Public School Strategic Plan • Increase alternatives to out of school suspension • Increase students receiving free/reduced lunches (now healthier meals) • Behavioral framework: consistency in suspensions, reducing suspensions
HIV/STI	• HIV/STI testing: expand, reduce redundancy, identify new positive and link to tx • Organize World AIDS Day • Advocacy: increase overall and specifically promote low dead-space syringes (reduces HIV and Hep C transmission)
Obesity and Chronic Illness	• Create Healthy Aisles in grocery/convenience stores: healthy foods, beverages and toys that promote physical activity in check out areas • Create mobile farmers' market • Offer evidence-based diabetes and chronic disease self-management classes • Continue Bull City Open Streets • Begin Fitness Days • Create strategy to better coordinate resources, organizations and collaboratives • Worksite wellness: work with businesses /orgs to create policy and environmental changes at their worksites • Create Healthy Mile Trails: stencils on sidewalks/roads in neighborhoods
Poverty	• Host Faith Summit on Childhood Poverty with End Poverty Durham: generate next action steps • Hospital diversion homeless plan pilot: System and protocol change so that hospitals identify homeless individuals and connect them with housing • Create Summer youth positions
Substance Abuse / Mental Health	• Organize Recovery Celebration block party • Opoiod dependence: increase treatment, decrease number of prescriptions written • Create and market prescription drug drop boxes • Train Durham Public School staff on substance abuse, mental health, suicide and LGBT issues

DCHD
Durham County
Health Department
Prevent. Promote. Protect.

Partnership for a Healthy Durham

North Carolina
Public Health

Community Health Action Plan 2012

Designed to address Community Health Assessment priorities

County: Durham **Partnership, if applicable:** Partnership for a Healthy Durham **Period Covered:** 2012– 2015

LOCAL PRIORITY ISSUE

- Priority issue: **Access to medical and dental care**
- Was this issue identified as a priority in your county's most recent CHA? _X_ Yes __ No

LOCAL COMMUNITY OBJECTIVE Please check one: __ New _X_ Ongoing (was addressed in previous Action Plan)

- By (year): 2015
- Objective (specific, measurable, achievable, realistic, time-lined change in health status of population) Reduce the percentage of non-elderly uninsured individuals (aged less than 65 years) from 32.9% to 25.7%
- Original Baseline: 32.9%
- Date and source of original baseline data: US Census Bureau. Table S2701: Health insurance coverage status, 2010 American Community Survey 1-year estimates. US Census Bureau website. http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_1YR_S2701&prodType=table
- Updated information (For continuing objective only):
- Date and source of updated information:

POPULATION(S)

- Describe the local population(s) experiencing disparities related to this local community objective: Persons with a "high school or less" education, minorities, person living in households earning less than $50,000 per year, persons 18-44 years old, males, persons employed by a small business, undocumented residents
- Total number of persons in the local disparity population(s): 88,036 individuals = 32.9% of persons under 65 years old in Durham County (267,587)
- Number you plan to reach with the interventions in this action plan: dependent on healthcare reform

HEALTHY NC 2020 FOCUS AREA ADDRESSED

__ Tobacco Use
__ Physical Activity and Nutrition
__ Substance Abuse
__ STDs/Unintended Pregnancy
__ Environmental Health
__ Social Determinants of Health (Poverty, Education, Housing)
__ Maternal and Infant Health
__ Injury
__ Mental Health
__ Oral Health
__ Infectious Diseases/ Food-Borne Illness
__ Chronic Disease (Diabetes, Colorectal Cancer, Cardiovascular Disease)
_X_ Cross-cutting (Life Expectancy, Uninsured, Adult Obesity)

- Check **one** Healthy NC 2020 focus area: Which objective below most closely aligns with your local community objective?
- **List HEALTHY NC 2020 Objective**: (Detailed information can be found at http://publichealth.nc.gov/hnc2020/ website)

Reduce the percentage of non-elderly uninsured individuals (aged less than 65 years)

RESEARCH RE. WHAT HAS WORKED ELSEWHERE*

List the 3-5 evidence-based interventions (proven to effectively address this priority issue) that seem the most suitable for your community and/or target group. **Training and information are available from DPH. Contact your regional consultant about how to access them.*

Intervention	Describe the evidence of effectiveness (type of evaluation, outcomes)	Source
Affordable Care Act (federal health care reform)	"After the bulk of the coverage programs are enacted in 2014, 11.4% of nonelderly North Carolinians are projected to be uninsured, compared with the projected 19.2% if the health reform coverage initiatives were not implemented. Thus, the number of uninsured will be cut roughly in half.	NC Institute of Medicine
Free /low cost primary medical care, specialty medical care, and prescription medications	When patients have access to coordinated care through a patient-centered medical home, they are more satisfied and costs are reduced. Research has shown that patients with varied circumstances and needs benefit from high-quality coordinated care – while the community saves money and other resources.	Project Access of Buncombe County http://www.bcmsonline.org/
Sub-acute care for the homeless	In one study (Sandowski, et al), offering housing and case management to a population of homeless adults with chronic medical illnesses resulted in fewer hospital days and emergency department visits, compared with usual source of care. Another study (Buchanan at al.), found that clients provided respite services had fewer hospital admissions the following year.	Buchanan D, Doblin B, Sai T, Garcia P. The effects of respite care for homeless patients: a cohort study. *Am J Public Health.* 2006; 96(7):1278-81. Epub 2006 May 30. AND *JAMA.* 2009 May 6;301(17):1771-8. Sadowski LS, Kee RA, VanderWeele TJ, Buchanan D. Effect of a housing and case management program on emergency department visits and hospitalizations among chronically ill homeless adults: a randomized trial. *JAMA.* 2009 May 6;301(17):1771-8.

(Insert rows as needed)

WHAT INTERVENTIONS ARE ALREADY ADDRESSING THIS ISSUE IN YOUR COMMUNITY?

Are any interventions/organizations currently addressing this issue? Yes X No If so, please list below.

Intervention	Lead Agency	Progress to Date
Free / low-cost primary medical care	Lincoln Community Health Center, CAARE, Inc., Samaritan Health Center	Open to the public, eligibility varies
Free specialty medical care	Project Access of Durham County	Fully implemented since July 2008 for all medical specialties except dentistry and oral surgery and psychiatry and mental health
Free / low cost prescription medications	Senior PharmAssist, Lincoln Community Health Center, CAARE, Inc., Samaritan Health Center, Durham County Health Department	Open to the public, eligibility varies
Free / low cost dental care	Durham County Health Department, Lincoln Community Health Center, CAARE, Inc., Samaritan Health Center, Missions of Mercy	Open to public, eligibility varies
Project Homeless Connect	Durham County Health Department, Department of Social Services, Duke Medicine, Durham VA Medical Center	Annual event
Duke Financial Assistance Policies	Duke Medicine	DUHS offers the following: Financial care counseling, payment plans, charity care, uninsured patient discount, and small balance adjustments.
Transportation and seniors	Durham CAN Durham County Access	CAN priority: To ensure proposed bus service changes consider the needs of seniors and disabled in Durham County Provides demand-response shared-ride transportation to persons who are age 60 or older through working with the general public and human service agencies who work directly with this age group.
Transportation and persons with disabilities	DATA	Provides fare-free service on its fixed route bus system to seniors as well as provides ADA/paratransit service to persons with a qualifying disability

(Insert rows as needed)

WHAT RELEVANT COMMUNITY STRENGTHS AND ASSETS MIGHT HELP ADDRESS THIS PRIORITY ISSUE?

Community, neighborhood, and/or demographic group	Individual, civic group, organization, business, facility, etc. connected to this group	How this asset might help
Uninsured individuals	Lincoln Community Health Center, CAARE, Inc., Samaritan Health Center, Project Access of Durham County, Duke Medicine, Durham County Health Department, The Durham Center	Healthcare providers for the uninsured in Durham County
Network of providers of low-cost / free medical care	Care Share Health Alliance	Technical assistance: work with state and local partners to facilitate and foster Collaborative Networks that improve the health of underserved people in North Carolina
Transportation	UNC School of City and Regional Planning, DATA, Triangle Transit,	Knowledgeable about Durham bus and para-transit, transportation policies

	Durham CAN, City of Durham, Cooperative Extension Community Transportation Program, Project Access of Durham County, LATCH, Senior PharmAssist, Durham Center for Senior Life	

(Insert rows as needed)

INTERVENTIONS: SETTING, & TIMEFRAME	COMMUNITY PARTNERS' Roles and Responsibilities	PLAN HOW YOU WILL EVALUATE EFFECTIVENESS
INTERVENTIONS SPECIFICALLY TARGETING HEALTH DISPARITIES		
Intervention: Sub-Acute Care for the Homeless Intervention: __ new _ X _ ongoing __ completed Setting: Throughout Durham County Start Date – End Date (mm/yy): 01/12 – 6/2015	**Lead Agency:** Sub-Acute Care for the Homeless (SACH) Coalition. The Partnership for a Healthy Durham's Access to Care committee will partner with this existing coalition to implement action plan. **Partner agencies and roles:** Coalition Members: Lincoln Community Health Center, Health for the Homeless Clinic, Project Access of Durham County, Housing for New Hope, Urban Ministries of Durham, Duke Medicine, Faith Community, VA Medical Center, The Durham Center *Additional Partners*: Homeless Services Advisory Committee **Marketing:** Communicate with key audiences through various mediums, including but not limited to: faith communities, nonprofit and civic organizations, homeowners associations, professional associations, city and local government boards, committees, and commissions; news releases, government access channel, public service announcements, list serves, e-mail newsletters, Partnership for a Healthy Durham,(and stakeholder) web sites, and news media. **Evidence:** Buchanan D, Doblin B, Sai T, Garcia P. The effects of respite care for homeless patients: a cohort study.*Am J Public Health.* 2006; 96(7):1278-81. Epub 2006 May 30. AND *JAMA.* 2009 May 6;301(17):1771-8. Sadowski LS, Kee RA, VanderWeele TJ, Buchanan D. Effect of a housing and case management program on emergency department visits and hospitalizations among chronically ill homeless adults: a randomized trial. *JAMA*. 2009 May 6;301(17):1771-8.	**Quantify what you will do** a. Monthly Sub–Acute Care for the Homeless meetings with key stakeholders and additional participation from Duke Medicine and Access to Care committee. b. Convene quarterly meetings with colleagues in Orange and Wake County interested in developing a triangle wide respite system c. Conduct needs assessment with local hospitals (Duke, DRH and possibly UNC-Chapel Hill and the VA Medical Center) to: I. Obtain baseline data regarding number of homeless patients using services, diagnoses, length of stay, readmissions, and emergency room use II. Identify scope of care (rest, medication management, or dressing changes) and range of services (benefit acquisition, transportation, or housing placement) d. Hold one community forum facilitated by the National Healthcare for the Homeless Council e. Design program with input from key community partners f. Identify potential facilities with input from key community partners g. Create budget h. Identify potential funding sources **Expected outcomes** a. Reduction in avoidable bed days and reduction in readmissions or emergency room use by homeless individuals due to the implementation of a sub-acute care for the homeless program. b. Increased service coordination and improved collaboration within existing programs to make organizational, policy, and process changes and to respond effectively to consumer needs – particularly in relationship to provision of key services linking clients to benefits (social security disability, Medicaid), mental health and substance abuse treatment, and housing. c. Identification of opportunities to coordinate strategies and sustain partnerships through targeted funding opportunities

Intervention: Transportation Intervention: _X_ new __ ongoing __ completed Setting: City of Durham Start Date 01/2012 – End Date (mm/yy): 06/2013 Level of Intervention - change in: __ Individuals _X_ Policy &/or Environment	**Lead Agency:** Partnership for a Healthy Durham's Access to Care committee Role: Coordinate work of the subcommittee **Partners and roles:** UNC Department of City and Regional Planning will provide a student team. DATA and Triangle Transit provide expertise on Durham transit and possible solutions. Durham CAN provides advocacy. Duke Medicine, Lincoln Community Health Center, Project Access of Durham County, Senior Pharmassist, Durham County Cooperative Extension, and The Durham Center are engaged in subcommittee along with Triangle Transit. **Marketing:** networking and outreach to community service providers **Evidence:** Peipins, L, et al.: Time and Distance Barriers to Mammographic Facilities in the Atlanta Metropolitan Area, *J. Community Health*, 2011, 36 (4): 675-83 Modares, A. A Case Study of East Los Angeles and The West San Gabriel Valley, *Theory and Practice*, 2010.	**Quantify what you will do** a. Work with UNC Dept of City and Regional Planning masters level students to understand accessibility to health services via bus routes in Durham and to identify methods to improve transportation health access for low-income residents of Durham. b. Develop a coalition of community members to focus on health transportation access for the low-income c. Communicate with TTA/DATA about the feasibility of identifying access to health services as an element of their services d. Encourage health and human service agencies to identify bus routes near their offices, be aware of safety of using these stops to access their site, and have this information readily available in English and Spanish e. Encourage partner agencies to place new service sites along established bus routes f. Explore feasibility of funding for a discount bus pass option for clients of community social service agencies to facilitate access to healthcare services g. Collaborate with established systems (DHI) to disseminate information for community wide distribution regarding transportation options for health access **Expected outcomes:** a. Report from UNC City and Regional Planning graduate students regarding transportation (bus) and health access in Durham County. b. Increased community awareness regarding transportation as a healthcare access issue c. Improved client access to healthcare services
INDIVIDUAL CHANGE INTERVENTIONS		
Intervention: Expanded dental care access for low income, uninsured adult residents of Durham County Intervention: _X_ new __ ongoing __ completed Setting: Health Department and Dental Offices Start Date – End Date (mm/yy): 9/1/2012-12/31/2014	**Lead Agency:** The lead agency is Project Access of Durham County and it will convene stakeholders to develop action plan, develop materials and recruit dentists, and ensure implementation of action plan. **Partner agencies and roles:** Partnership for a Healthy Durham Access to Care committee will help develop action plan and materials and recruit dentists in collaboration with Durham Orange Dental Society. Durham County Health Department will host dental screening clinic including donating x-rays and services. **Marketing:** Intervention will be marketed to Lincoln Community Health Center and free clinics in Durham (patients will need to be referred by primary care provider).	**Quantify what you will do** Hold half-day dental screening clinic twice/month at Durham County Health Department (6-8 patients/screening) to take x-rays and development treatment plan. Recruit at least 20 dentists to volunteer to treat patients at no charge in their offices based on referrals from dental screening clinic. **Expected outcomes:** While the percentage of dental-related visits increased from 2008 to 2010 in Durham County, access to dental care was ranked as a top health concern in 2011. Project Access of Durham County expanded access to specialty medical care for low income, uninsured residents in Durham County in the last three years. This intervention will add dental care to the scope of services. Based on the experience of other programs in the state offering free dental care, the screening clinic was developed to ensure patients are appropriately matched with dentists.

POLICY OR ENVIRONMENTAL CHANGE INTERVENTIONS		
Intervention: Healthcare reform Intervention: _ new _ X _ ongoing __ completed Setting: Throughout Durham County Start Date – End Date (mm/yy): 9/1/2012-6/30/2015	**Lead Agency:** The lead agency is Partnership for a Healthy Durham Access to Care committee and it will convene stakeholders to develop and implement action plan. **Partner agencies and roles:** Lincoln Community Health Center, Duke Medicine, Project Access of Durham County, North Carolina Central University, and Department of Social Services will be key stakeholders to develop and implement action plan. **Marketing:** Intervention will be marketed through Partnership for a Healthy Durham's website, press releases, newspaper articles, radio, materials disseminated through community agencies, such as DHA, LCHC and free medical clinics.	**Quantify what you will do** a. Ensure clear, up-to-date materials on local medical options for low income, uninsured patients (and for patients newly eligible for insurance through Affordable Care Act), b. Hold at least 4 learning sessions in Durham to provide education about healthcare reform and identify spokespeople to assist with outreach efforts in 2013; hold at least 4 learning sessions in Durham in 2014 to understand whether newly insured patients are receiving timely medical care, and identify any gaps, and individuals left out of insurance coverage, c. Raise awareness of legislation impacting implementation of Affordable Care Act and expanded Medicaid package and state-based exchanges among committee members through invited speakers. **Expected outcomes:** If Affordable Care Act is implemented as currently planned, # uninsured will be reduced by approximately half. If Affordable Care Act is not implemented as currently planned, patients who remain uninsured or under-uninsured will continue health care coverage through existing or new initiatives.
Intervention: Health literacy _X__ new ____ ongoing ____ completed Setting: health clinics Start Date – End Date (mm/yy): 7/2013 – 6/2014	**Lead Agency:** Durham County Health Department and Lincoln Community Health Center will identify forms to be re-written and provide the funds to revise forms. Partnership for a Healthy Durham's Access to Care committee will ensure implementation. **Partner agencies and roles:** Wake AHEC will ensure all documents are rewritten at a third grade reading level. **Marketing:** The intervention will not be marketed, but the changes will impact patients at DCHD and LCHC.	**Quantify what you will do** At least five patient forms or materials will be assessed and re-written at a third grade reading level. **Expected outcomes:** Patients will be better able to understand written documents that they receive at health clinics and thus better informed about their rights, clinic policies, and instructions related to managing their health. **Evidence:** Low literacy has been linked to poor health outcomes such as higher rates of hospitalization and less frequent use of preventive services. (Institute of Medicine. 2004. Health Literacy: A Prescription to End Confusion. Washington, DC: The National Academies Press.)

DCHD
Durham County
Health Department
Prevent. Promote. Protect.

Partnership for a Healthy Durham
A Certified Healthy Carolinians Partnership

North Carolina
Public Health

Community Health Action Plan 2012

Designed to address Community Health Assessment priorities

County: Durham **Partnership, if applicable:** Partnership for a Healthy Durham **Period Covered:** 2012– 2015

LOCAL PRIORITY ISSUE

- Priority issue: **HIV and sexually transmitted infections**
- Was this issue identified as a priority in your county's most recent CHA? _X_ Yes __ No

LOCAL COMMUNITY OBJECTIVE Please check one: __ New _X_ Ongoing (was addressed in previous Action Plan)

- By (year): 2015
- Objective (specific, measurable, achievable, realistic, time-lined change in health status of population) Reduce the rates of HIV and other STIs by 3% through increased prevention, testing, and treatment
- Original Baseline (2009):
  HIV: 32.7 per 100,000 people
  Chlamydia: 559.9 per 100,000 people
  Gonorrhea: 213.5 per 100,000 people
  Primary and secondary syphilis: 9.5 per 100,000 people
- Date and source of original baseline data: North Carolina epidemiologic profile for HIV/STD prevention and care planning. December 2010. Appendix D: Tables.
  http://www.epi.state.nc.us/epi/hiv/epiprofile1210/Appx_D_Tables.pdf.
  2009 HIV/STD Surveillance Report. http://www.epi.state.nc.us/epi/hiv/pdf/std09rpt.pdf .
- Updated information (For continuing objective only):
- Date and source of updated information:

POPULATION(S)

- Describe the local population(s) experiencing disparities related to this local community objective: African Americans; Latinos; Men who have sex with men (MSM), most notably young blacks;
- Total number of persons in the local disparity population(s): 137,654 (2010 Census – African American and Latinos)
- Number you plan to reach with the interventions in this action plan over a 3-year period:
  - test 17,853 individuals for HIV
  - test 7,266 individuals for syphilis
  - test 2,967 individuals for gonorrhea
  - test 2,967 individuals for Chlamydia

  Source of numbers: sum of reported FY2010 tests, multiplied by three years at these agencies: AAS-C: NTS Programs, DCHD Testing programs, LCHC, PNC Testing programs and PPNC Durham clinics;

  Note: LCHC is only included in HIV numbers

HEALTHY NC 2020 FOCUS AREA ADDRESSED

List HEALTHY NC 2020 Objective: (http://publichealth.nc.gov/hnc2020/ website)

- Reduce the rate of new HIV infection diagnoses (per 100,000)
- Reduce the percentage of positive results among individuals aged 15 to 24 tested for chlamydia

__ Tobacco Use
__ Physical Activity and Nutrition
__ Substance Abuse
_X STDs/Unintended Pregnancy
__ Environmental Health
__ Social Determinants of Health (Poverty, Education, Housing)
__ Maternal and Infant Health
__ Injury
__ Mental Health
__ Oral Health
__ Infectious Diseases/ Food-Borne Illness
__ Chronic Disease (Diabetes, Colorectal Cancer, Cardiovascular Disease)
__ Cross-cutting (Life Expectancy, Uninsured, Adult Obesity)

RESEARCH RE. WHAT HAS WORKED ELSEWHERE*

List the 3-5 evidence-based interventions (proven to effectively address this priority issue) that seem the most suitable for your community and/or target group. **Training and information are available from DPH. Contact your regional consultant about how to access them.*

Intervention	Describe the evidence of effectiveness (type of evaluation, outcomes)	Source
Making Proud Choices curriculum: an 8-session intervention developed for groups of youth, ages 11-13. It encourages abstinence and emphasizes safer sex behaviors.	Twelve months after completing the program, participants reported a higher frequency of condom use (4.2 vs. 3.2 on a scale of one [never] to five [always]) than control group members. Among youth who were sexually active before the program, those in Making Proud Choices! reported a lower frequency of intercourse (1.3 days vs. 3.8 days), a lower likelihood of unprotected intercourse (9.7% vs. 31.6%), and a lower frequency of unprotected intercourse (.04 days vs. 1.9 days) than teens in the control group. Youth who were virgins at the start of the program did not differ on any of the outcomes measured compared to virgins in the control group.	CDC-designated "Best Evidence" criteria. http://www.thenationalcampaign.org/resources/viewprogram.aspx?id=21
Parents Matter curriculum: a 5 session intervention developed for parents and/or guardians of pre-teens 9 to 12 years old. The Parents Matter program is designed to enhance protective parenting practices and promote parent-child discussions about sexuality and sexual risk reduction.	Research has examined specifically how the process of parent-child communication about sexuality affects adolescents' sexual behaviors. Findings from this research suggest addressing three important areas: comprehensive messages, parental skill and sensitivity in discussing sexuality, and timing of communication. Relative to controls, the enhanced group had higher levels of parent-reported sexual communication ($p<.01$) and parent-reported responsiveness ($p<.01$) at all assessments following intervention. The enhanced and controls also differed on child-reported sexual communication ($p<.01$) at post-intervention, and child-reported responsiveness ($p<.05$) at post-intervention and 6-month follow-up, but not at 12-month follow-up. Relative to controls, a smaller percentage of children of parents in the enhanced intervention reported being anticipators at 12-month follow-up (5% vs. 12%, $p<.05$). The brief intervention group was not different from the controls following intervention.	CDC Armistead L, Forehand R, Long N, Wyckoff S, Miller KS. The Parents Matter! Program (PMP): Effectiveness of a family-based sexual risk prevention program. http://www.cdcnpin.org/parentsmatter/pdf/Abstract2.pdf
¡Cuidate! (Take Care of Yourself) is a small-group, culturally based intervention to reduce HIV sexual risk among Latino youth.	The original evaluation study was conducted in Philadelphia, PA between 2000 and 2003. ***Key Intervention Effects*** • Reduced sexual activity • Reduced number of sex partners • Reduced unprotected sex • Increased condom use	CDC: http://www.cdc.gov/hiv/topics/research/prs/resources/factsheets/cuidate.htm

(Insert rows as needed)

WHAT INTERVENTIONS ARE ALREADY ADDRESSING THIS ISSUE IN YOUR COMMUNITY?

Are any interventions/organizations currently addressing this issue? Yes__X_ No___ If so, please list below.

Intervention	Lead Agency	Progress to Date
Making Proud Choices curriculum	Durham County Health Department	Durham Public School teachers trained in curriculum and currently using in all health education classes
Non-traditional testing (jails, bars, churches, etc.)	Health department, Alliance of AIDS Services – Carolinas, CAARE, Inc., Partners in Caring	Four staff trained from Durham County Health Department: two Jail Health Educators, one Nontraditional Testing Sites Coordinator, and one Syphilis Elimination Effort Coordinator
Parents Matter	Durham County Health Department	Four trained facilitators
Hermanos de Luna y Sol	El Centro Hispano	3 different meetings, HIV education curriculum; outreach
¡Cuídate! Entre Familia	Planned Parenthood of Central NC	Will be implemented this summer or fall in Durham and will provide HIV prevention education to at least 10 youth between June and December 2012. Additional sessions will be added to the end of the program to include additional sexuality education topics: Sexual Other STI's, Abstinence and Contraception, and Teen Dating Violence Prevention. This program will take place throughout 6 sessions with one session per week. Reach at least 50% of Cuídate! parents through workshops that provide basic knowledge and how to talk to their children about sexual and reproductive health.
Teen Voices Peer Education Program	Planned Parenthood of Central NC	Will train 12 Durham youth ages 14-18 as peer educators over the course of 12 weeks between September-December 2012, some applicants have already been recruited for the fall program and recruitment continues over the summer
Partners in Caring: established by Duke Pastoral Services and Duke University AIDS Research and Treatment (DART) Center to bring spiritual comfort to people living with HIV/AIDS (PLWHA) and their families.	Duke	Implementation just began
LGBT support groups	Triangle Empowerment Center, Inc.	Three different groups meet: Older LGBT group, M-Club (young MSMs), minority women's LGBT empowerment group. Ultimate goal is to get a day drop-center that can house 6-8 people in crisis.

WHAT RELEVANT COMMUNITY STRENGTHS AND ASSETS MIGHT HELP ADDRESS THIS PRIORITY ISSUE?

Community, neighborhood, and/or demographic group	Individual, civic group, organization, business, facility, etc. connected to this group	How this asset might help
Partnership for a Healthy Durham, HIV/STI group	Alliance of AIDS Services – Carolinas, B.E.R.T. Center, CAARE, Inc., DUHS Duke AIDS Research and Treatment Center (DART), Duke University Center for Health Policy (Health Inequalities Program), Durham County Health Department, El Centro Hispano, Family Health International (LinCS 2 Durham), Lincoln Community Health Center (Early Intervention Clinic), NCCU, Planned Parenthood of Central NC, Research Triangle Institute (RTI), Durham Parks and Recreation, UNC ACTU, Partners in Caring, Indigo Consortium	Meet monthly to address issues related to HIV and STIs, including coordination of testing
African American churches; Churches	Planning group for Durham Faith Community on HIV/AIDS; Durham Ministerial Alliance, Durham Congregations in Action	Reach out to congregations
college students, MSMs	Duke LGBT Center, COLORS at NCCU, Project SAFE at NCCU, Triangle Empowerment Center	Work with college students identifying as MSM
Community Advisory Board (CAB)	Duke DART	Lunch and learns, community involvement and feedback, education

(Insert rows as needed)

INTERVENTIONS: SETTING, & TIMEFRAME	COMMUNITY PARTNERS' Roles and Responsibilities	PLAN HOW YOU WILL EVALUATE EFFECTIVENESS
INTERVENTIONS SPECIFICALLY TARGETING HEALTH DISPARITIES		
Intervention: Testing Intervention: __ new _X_ ongoing __ completed Setting: jails, bars, community events, homeless shelter, barber and beauty shops, clinics, etc. Start Date – End Date (mm/yy): 6/2012 – 6 - 2015 Level of Intervention - change in: _X_ Individuals __ Policy &/or Environment	The lead agency is the Durham Count y Health Department and it will routinely offer HIV, Syphilis, Gonorrhea, and Chlamydia testing at a variety of community sites, and can also provide testing for organizations or at events. It will also provide programs focusing on STD/HIV prevention, education, and community outreach. Partners: Alliance of AIDS Services – Carolinas, CAARE, Inc., Partners in Caring, NCCU, LCHC, will provide regular testing (HIV and other STIs) **Marketing:** Partnership for a Healthy Durham website, press releases, KISS page	**Quantify what you will do** Coordinate outreach, education, testing, and treatment programs. test 17,853 individuals for HIV test 7,266 individuals for syphilis test 2,967 individuals for gonorrhea test 2,967 individuals for Chlamydia **Expected outcomes:** Reduce redundancy among programs, identify new positives, and link to tx areas in which more non-traditional testing must be done and jointly seek funding for new initiatives.

INDIVIDUAL CHANGE INTERVENTIONS		
Intervention: World AIDS Day Intervention: __ new _X_ ongoing __ completed Setting: Durham County, Hayti Heritage Center Start Date – End Date (mm/yy): 03/2012 – 12/2014	The lead agency is Partnership for a Healthy Durham and it will convene a group of partners to plan and orchestrate the event List other agencies and what they plan to do: • LinCS 2 Durham and Duke's CFAR will identify funding • Lincoln Community Health Center, UNC and Duke's CFAR will secure food • PHD will coordinate volunteers **Marketing:** Press releases, Partnership distribution list and website, flyers, agency announcements and listservs, Communications committee	**Quantify what you will do** Plan, host and evaluate Durham County's 2012, 2013 and 2014 World AIDS Day approximately 750 community residents/members. **Expected outcomes:** • Increase Community Awareness about current state of HIV/AIDS in Durham County • Promote a sense of unity among Durham County residents and community partners • Assist with attendees knowing their HIV status by providing testing and counseling at the event
POLICY OR ENVIRONMENTAL CHANGE INTERVENTIONS		
Intervention: Advocacy Intervention: _X__ new ___ ongoing ___ completed Setting: Durham County, pharmacies Start Date – End Date (mm/yy): 3/2012 – 6/2015	Overall advocacy: Partnership for a Healthy Durham will commit to writing at least two articles and/or press releases annually and integrate advocacy in its activities. Dead-space syringe study and syringes in Triangle: The lead agency is North Carolina Harm Reduction Coalition and it will provide stakeholder education and direction on advocacy work List other agencies and what they plan to do: • RTI will continue dissemination of research and provide content expertise; Lincoln Community Health Center will determine if they dispense high dead-space needles; make policy change, if appropriate. • Partnership for a Healthy Durham will educate pharmacists on issue, find a champion willing to speak to colleagues; if appropriate, do advocacy and education **Marketing:** emails, Partnership for a Healthy Durham website, press releases, Communications committee	**Quantify what you will do** • Write at least two articles and/or press releases annually • Integrate advocacy in committee and partner activities • Advocate for statewide Syringe Decriminalization • Educate stakeholders on dead-space syringe study and syringe use in NC • Advocate for all pharmacists to sell syringes to everyone • Advocate for pharmacists to sell/dispense low-dead space syringes **Expected outcomes:** • Reduction in the transmission of HIV and Hepatitis C • Fewer police officers receiving needle sticks • Changed policies

(Insert rows as needed)

DCHD
Durham County
Health Department
Prevent. Promote. Protect.

Partnership for a Healthy Durham
A Certified Healthy Carolinians Partnership

North Carolina
Public Health

Community Health Action Plan 2012

Designed to address Community Health Assessment priorities

County: Durham **Partnership, if applicable:** Partnership for a Healthy Durham **Period Covered:** 2012– 2015

LOCAL PRIORITY ISSUE

- Priority issue: **Obesity**
- Was this issue identified as a priority in your county's most recent CHA? X Yes __ No

LOCAL COMMUNITY OBJECTIVE Please check one: __ New X Ongoing (was addressed in previous Action Plan)

- By (year): 2015
- Objective (specific, measurable, achievable, realistic, time-lined change in health status of population)
  - Increase the percentage of adults getting the recommended amount of physical activity from 42.9% to 46.8%.
  - Increase the percentage of adults who report they consume fruits and vegetables five or more times per day from 21.8% to 24.6%.
- Original Baseline: Physical activity: 42.9%; Fruits and vegetables: 21.8%
- Date and source of original baseline data: 2009 BRFSS http://www.schs.state.nc.us/schs/brfss/2009/durh/topics.html
- Updated information (For continuing objective only):
- Date and source of updated information:

POPULATION(S)

- Describe the local population(s) experiencing disparities related to this local community objective:
  - Minorities and lower income populations are at higher risk for being overweight or obese (BRFSS, 2010)
- Total number of persons in the local disparity population(s):
  - Population of Durham County is 267,587; minorities comprise 54% or 144,497 (2010 U.S. Census)

- Number you plan to reach with the interventions in this action plan:
  We estimate 10% of the population of Durham County, approximately 27,000 people over the course of three years

HEALTHY NC 2020 FOCUS AREA ADDRESSED

__ Tobacco Use
X Physical Activity and Nutrition
__ Substance Abuse
__ STDs/Unintended Pregnancy
__ Environmental Health
__ Social Determinants of Health (Poverty, Education, Housing)
__ Maternal and Infant Health
__ Injury
__ Mental Health
__ Oral Health
__ Infectious Diseases/ Food-Borne Illness
__ Chronic Disease (Diabetes, Colorectal Cancer, Cardiovascular Disease)
_X_ Cross-cutting (Life Expectancy, Uninsured, Adult Obesity)

- Check **one** Healthy NC 2020 focus area: (Which objective below most closely aligns with your local community objective?)
  - **List HEALTHY NC 2020 Objective**: (Detailed information can be found at http://publichealth.nc.gov/hnc2020/ website)

Increase the percentage of adults getting the recommended amount of physical activity.
Increase the percentage of adults who report they consume fruits and vegetables five or more times per day.

RESEARCH RE. WHAT HAS WORKED ELSEWHERE*

List the 3-5 evidence-based interventions (proven to effectively address this priority issue) that seem the most suitable for your community and/or target group. **Training and information are available from DPH.*

Intervention	Describe the evidence of effectiveness (type of evaluation, outcomes)	Source
Communities should improve access to outdoor recreational facilities	The Community Guide found in a comprehensive review of 108 studies that access to facilities and programs for recreation near their homes, and time spent outdoors correlated positively with increased physical activity among children and adolescents.	Recommended Community Strategies and Measurements to Prevent Obesity in the United States". Morbidity and Mortality Weekly Report. 58, no. RR-7 (2009)
Communities should enhance infrastructure supporting walking and biking	The Community Guide reports sufficient evidence that street-scale urban design and land use policies that support walking and biking are effective in increasing levels of physical activity.	Recommended Community Strategies and Measurements to Prevent Obesity in the United States". Morbidity and Mortality Weekly Report. 58, no. RR-7 (2009)
Stanford University Chronic Disease Self Management program (CDSMP) and Diabetes Self Management Program (DSMP) **American Diabetes Association Recognized Diabetes Self Management Education**	Subjects who took the Program, when compared to those who did not, demonstrated significant improvements in exercise, cognitive symptom management, communication with physicians, self-reported general health, health distress, fatigue, disability, and social/role activities limitations. They also spent fewer days in the hospital, and there was also a trend toward fewer outpatient visits and hospitalizations. These data yield a cost to savings ratio of approximately 1:4. Many of these results persist for as long as three years.	http://patienteducation.stanford.edu/programs/cdsmp.html http://patienteducation.stanford.edu/programs/diabeteseng.html
Worksite Wellness initiatives	The Community Preventive Services Task Force recommends worksite programs intended to improve diet and/or physical activity behaviors based on strong evidence of their effectiveness for reducing weight among employees. Most employees spend at least 8 hours a day in their place of employment. A review of worksite wellness literature shows that for every $1 spent on employee health, employers can save up to $5.83 – when combining direct and indirect costs (Be Active NC).	The Community Preventive Services Task Force www.thecommunityguide.org/obesity/workprograms.html Materials: CDC's Lean Works and Eat Smart Move More NC, and Be Active NC.
Healthy Checkout Aisle Projects in West Virginia Foodland Stores and Wal-Marts (Part of Change the Future West Virginia)	Participating Wal-Mart stores stock fresh fruits, vegetables and snacks which meet the WV Standards for School Nutrition and also carry activity-based seasonal toys, and strategically placed merchandising redistribution showcases reasonably priced toys and items to promote physical activity and healthy snacks and fruits in cereal and sweetened beverage product aisles. Reported successes inside the stores show marked increases in sales of these items and a maintenance of those increased sales.	WVa Gazette, 10/8/11; e-mails and phone conversation with Amy Berner, Mid Ohio Valley Health Department; Trust for America's Health: West Virginia and the New Prevention Fund: An Investment in the Future Health of America Also, see: Healthy Checkout Aisle projects in Schnucks stores: Evansville Courier and Press, 1/31/12; Family Fresh Market, New Richmond, WI, candy-free checkout aisle project New Richmond (WI) News, 10/21/11
Convenience stores get discount off retail permits if they stock fresh fruits and vegetables (Part of Change the Future West Virginia)	One convenience store out of 84 in region stocked fresh fruits and vegetables when policy was changed; 19 now carry fresh fruits and vegetables.	Parkersburg News and Sentinel , 3/29/12
Kids Take a Stand: Healthy Option: South Shasta (CA) HEAC (Healthy Eating Active Communities) Initiative	Based on customer surveys, pilot stands placed near checkout were so successful that pilot surveys were discontinued. Two healthy checkout aisles have been stocked with healthier than expected foods—trail mix, granola bars, dried cranberries, diced peaches, and animal crackers. Sales of these items have more than doubled, and Wal-Mart has difficulty keeping the stand stocked.	http://www.californiaconvergence.org/sites/default/files/ShastaCounty_Wal-Mart.pdf

WHAT INTERVENTIONS ARE ALREADY ADDRESSING THIS ISSUE IN YOUR COMMUNITY?

Are any interventions/organizations currently addressing this issue? Yes_X_ No___ If so, please list below.

Intervention	Lead Agency	Progress to Date
American Tobacco Trail / bikes on buses	Triangle Rails to Trails; City of Durham, Town of Cary, Wake County; DATA; Triangle Transit	26 miles of covered RR tracks suitable for walking, biking and other modes of self-transit; all buses can hold at least two bikes
Classes, open gyms, etc.	Durham Parks and Recreation, 3 YMCAs, JCC	68 parks with 1,800 acres, 15 miles of accessible trails and greenways, 188 miles of planned trails and greenways; DPR has: 11 program sites with seven gymnasiums, five dance studios, five pools, two fitness facilities and two indoor walking tracks
Eat Smart, Move More Durham Map; Bike Ped map	Partnership for a Healthy Durham; City of Durham - Transportation	Paper copies (English and Spanish) show citizens opportunities to eat smart and move more; online version is in draft form
Partnership for a Healthy Durham webpage	Durham County Health Department	List health information and opportunities specific to Durham; lists a range of Durham organizations working towards common goals
Health Resource Guides (Health Care, Diabetes, Food Resource Guide)	Durham Health Innovations, Partnership for a Healthy Durham	Health Care Guide / Medical Options are complete (updated as needed), Diabetes and Food Resource guides are drafted.
Chronic Disease / Diabetes classes	Durham County Health Department, Cooperative Extension, CAARE, Inc.	Classes are ongoing; submitting grant to hold more classes and collaborate with LCHC and El Centro Hispano
SEEDS produce offered at Durham Farmers' Market; gardening skills taught to children and teens	SEEDS (South Eastern Efforts Developing Sustainable Spaces, Inc.) http://www.seedsnc.org/index.html	SEEDS has been in Durham since 1994. They have added new programs every couple of years.
Community Gardens and Bountiful Backyards	Bountiful Backyards http://www.bountifulbackyards.com/node/6	A cooperative and community based enterprise that works with individuals, neighborhoods, groups, schools, and communities to create abundant, low-maintenance and beautiful edible gardens.
Corner store initiatives	NC State Health Department	Initial contact made with three stores; another student researched business models to use in food deserts and made recommendations.
Fruit bowls in workplaces	DCHD, Lakewood Elementary	Fruit bowls are offered in all break rooms at DCHD with payment requested on an honor system.
Fresh produce/fruit/ snacks in DPS; Backpack program	DPS Child Nutrition Services; Food Shuttle; other agencies	DPS has USDA grants for fruit and vegetable snacks in 2 elementary schools. Fresh fruit delivered every Wednesday to a few schools. Backpack program is in select elementary and middle schools.
Fruits and veggies in Durham Public Schools' cafeterias	DPS Child Nutrition Services, DPS Charter (part of strategic plan)	DPS is working on increasing the number of fresh fruits and vegetables in their menus. There is a Charter to improve nutrition of meals and a Charter on wellness and safety.
Mobile markets	IFFS (Interfaith Food Shuttle)	Mobile markets that distribute fresh produce free and do nutrition education (Lyon Park, El Buen Pastor, Holton, West Durham Baptist).

Farmers markets	Durham Farmer's Market	Downtown, Duke, Southpoint
Bull City Open Streets	Clean Energy Durham, Partnership for a Healthy Durham, Durham CAN, Rails to Trails, BPAC, Durham Bicycle Coalition	2009-10: 1 Bull City Open Streets, partnered with Parks and Recreation 2010 -11: 3 Bull City Open Streets, expanded to neighborhoods
Eat Smart Move More Weigh Less, EFNEP, Give your heart a healthy beat	Durham Parks and Recreation, Cooperative Extension	Implemented
Inter-local agreements	Durham Parks and Recreation and Durham Public Schools	Joint use agreement to use one another's facilities at no charge
Nutrition education in Durham school and community	DINE Program, Nutrition Division, Durham County Health Department	The DINE program is Durham County's SNAP Nutrition Education and Obesity Prevention program. DINE Nutritionists provide many different classes, food preparation demonstrations, and tasting opportunities related to healthy eating and physical activity. Adequate fruit and vegetable intake is a common theme in these sessions. Quarterly newsletter on healthy eating, increase physical activity, and food safety sent to households participating in the SNAP program.
Duke Healthy Lifestyles Clinic **Durham Healthy Weight Collaborative**	Duke Healthy Lifestyles Clinic	The clinic sees 400 new Durham families every year. The focus is on childhood obesity, but they provide education for the family as a unit. Families receive monthly counseling from a physician, dietician, physical therapist and mental health provider. All of these patients are linked into the Active programs. The Durham Healthy Weight Collaborative is a Phase II funded project sponsored through NICHQ and funded by HRSA and the RWJF. The goal is to address childhood obesity across health care, school, and public health sectors. Funding is through June 2012.

WHAT RELEVANT COMMUNITY STRENGTHS AND ASSETS MIGHT HELP ADDRESS THIS PRIORITY ISSUE?

Community, neighborhood, and/or demographic group	Individual, civic group, organization, business, facility, etc. connected to this group	How this asset might help
Partnership for a Healthy Durham Obesity and Chronic Illness (OCI) committee	Child Care Service Association, City of Durham, Cooperative Extension, Duke Division of Community Health, Duke Medicine, The Duke Cancer Institute, Office of Health Equity and Disparities, Durham City Government, Durham County Government, Durham County Health Department, Durham County Social Services, Durham Parks and Recreation, Durham Public Schools Durham Public Works, Durham Social Services, East Durham Children's Initiative, i9 Sports, Inter-Faith Food Shuttle, John Avery Boys and Girls Clubs, Lincoln Community Health Center, Playworks Durham, YMCA of the Triangle	Coalition meets monthly to improve physical activity and nutrition among Durham County residents and implement action plan.
Strong city and volunteer groups promoting self-transit	BPAC, Rails to Trails, Durham Bike Co-op, Clean Energy Durham, Safe Kids Durham, Durham Bicycle	Holds bike repair workshops, events that promote biking and walking, labeling bike paths, increasing driver

	Coalition	awareness of cyclists
City and volunteer groups promoting wellness and service	Partnership for a Healthy Durham OCI Committee, Junior League, Lion's Club, Girls on the Run; Volunteer Center	Elbow grease to put down the Healthy Mile markers, volunteers to man the Bull City Open Streets and Fitness Day events
Durham Public Schools	Music departments, athletic departments, Student Health Advisory Council (both adult and student); Durham Bike Coalition	Open student athletic fields at a particular school once a quarter for Fitness Days; input on event content; volunteer manpower for events, joint use agreements; A plan for the future is to have a 4th grade biking curriculum that trains all kids how to ride a bike and bike safety.
Various and diverse Durham collaborations; Durham community as a whole	See organizations and collaboration list compiled by Durham Health Innovations; Pioneering Healthier Communities; Healthy Lifestyles / Active Kids community program	Disseminate information; increase momentum around healthy eating and exercise initiatives; hub of resource information; policy and environmental changes
DHI Health Ambassador Sites	Durham Health Innovations	Health Ambassador Sites can serve as health information distribution hubs. Can reach populations throughout Durham that do not rely on internet.
Groups focused on policy change	City and County Government; Board of Education; Board of Health; Durham Food Prosperity Council, Pioneering Healthier Communities (PHC)	Expertise in policy; ability to make policy changes that promote health; access to funding
Community Transformation Grant	Durham County Health Department, Chatham County, Person County, Orange County, Alamance County, Johnson County, Nash County, Warren County, Wake County, Harnett County, Pitt County, Lenoir County, Caswell County, Halifax County, Edgecombe County, Lee County	The grant will support public health efforts in local communities to reduce chronic diseases, promote healthier lifestyles, reduce health disparities, and control health care spending. CTG will focus on three priority areas across the nine county region: tobacco-free living; active living and healthy eating; and evidence-based quality clinical and other preventive services, specifically prevention and control of high blood pressure and high cholesterol.
Durham Diabetes Coalition (DDC) project, funded by Bristol Myers Squibb foundation	Durham County Health Department, Duke University Medical Center, Lincoln Community Health Center, University of Michigan, and many community partners.	The DDC project will address diabetes prevention and control in Durham County with overall goals of 1) improving population-level diabetes management, health outcomes, and quality of life for diagnosed and undiagnosed adults living with Type 2 diabetes and 2) reduce disparities in diabetes management, health outcomes, and quality of live for adults living with diabetes. Multi-disciplinary staff and community partners that will address diabetes in Durham County through population-based and home-care interventions.

(Insert rows as needed)

INTERVENTIONS: SETTING, & TIMEFRAME	COMMUNITY PARTNERS' Roles and Responsibilities	PLAN HOW YOU WILL EVALUATE EFFECTIVENESS
INTERVENTIONS SPECIFICALLY TARGETING HEALTH DISPARITIES		
Intervention: Increasing access to healthy foods/toys in grocery/convenience stores Intervention: x_ new __ ongoing __ completed Setting: 1. Convenience stores 2. Large chain grocery stores (Lowes Foods, Los Primos, Food Lion or Wal-Mart, for examples. We want to work with stores that are more locally governed.) Start Date – End Date (04/2012-8/31/2013): Level of Intervention - change in: X_ Individuals x_ Policy &/or Environment *Note: This intervention fits both individual and environmental changes, but is not duplicated in these sections.	**Lead Agency:** Durham County Health Department (DCHD) Role: Coordination/ Organization **Partner agencies:** Partnership for a Healthy Durham, OCI will do outreach to stores, development of background information, fundraising if needed, obtaining nutrition education in conjunction with DCHD. Stores will house and advertise new healthy food/activity check out aisles; provide opportunities/ locations for nutrition education. **Marketing:** store signage, newspaper advertising, online advertising through social media like facebook, Communications committee	**Quantify what you will do** At least two grocery stores will pilot at least one healthy check out aisle (at convenience stores this will be a display of produce/healthy food at or near checkout) each for at least 6 months during the time of this project. The start-up period is 6 months: 3 months to locate stores and 3 months to work out exactly which aisle and which foods/toys. Pilot will include offering the healthy check out aisle/ display and promoting it through the marketing initiatives described in the middle column. In addition, nutrition education classes promoting healthy choices and information/ demonstrations on use of healthy foods offered and written materials will be provided monthly for the first 6 months of the intervention. The remainder of the time will be support and monitoring. **Expected outcomes:** Increase in produce sales should translate to increased produce consumption. **Evidence:** When this approach was taken in West Virginia, produce sales increased. In Shasta County, CA, healthy food checkout aisles in a local Wal-Mart store were so successful that Wal-Mart had difficulty keeping them stocked. These offered more than produce but show that customers are willing to move toward healthier items.
Intervention: Mobile farmers' markets Intervention: x_ new __ ongoing __ completed Setting: neighborhoods, health department Start Date – End Date (05/2012-6/3/2015): Level of Intervention - change in: X_ Individuals x_ Policy &/or Environment *Note: This intervention fits both individual and environmental changes, but are not duplicated in these sections.	**Lead Agency:** Durham YMCA Role: Coordination/ Organization, provide buses, hire staff **Partner agencies:** Durham County Health Department (DCHD), Partnership for a Healthy Durham, OCI, Duke Division of Community Health, Pioneering Healthier Communities (PHC) group: grant writing, coordination, nutrition education, market site Cooperative Extension, Durham Network of Agriculture (DNA), SEEDS, Inter-Faith Food Shuttle: expertise on farmers' and mobile markets, coordination local farmers and producers: produce and local products to sell **Marketing:**, newspaper advertising, online advertising through social media like facebook, flyers, DTV8, Communications committee	**Quantify what you will do** Begin at least one new mobile farmers' market in Durham County that has at least four market sites. Purchase produce from at least two farms. **Expected outcomes:** Provide affordable, locally produced fruits and vegetables to residents, many of whom live within USDA-identified food deserts in Durham. **Evidence:** YMCA, CDC, RWJF publication: *Linking policy and environmental strategies to health outcomes.* Strategy #2.

INDIVIDUAL CHANGE INTERVENTIONS		
Intervention: Promote healthy eating and exercise initiatives throughout Durham and enlist participation among residents. Intervention: _X_ new __ ongoing __ completed Setting: Durham Start Date – End Date (mm/yy): May 2012 - ongoing	**Lead agency:** Durham Health Innovations will take the lead in identifying health promotion channels. **Partner agencies:** The Durham County Health Department and Partnership for a Healthy Durham will incorporate this intervention within their communications strategies. Achieving Health for a Lifetime, Durham YMCAs, NC Division of Public Health, Be Active NC, and Duke Women's Health Initiative will help activate the plan. **Marketing:** flyers, website, local media, facebook, Twitter, emails, Communications committee	**Quantify what you will do** • Enlist five collaborations or committees with access to networks of Durham citizens to promote healthy eating and exercise efforts, enlist participation, and disseminate information. • Develop evaluation plan to measure increased resource access and participation. **Expected outcomes:** • Increased visibility and awareness of health promotion efforts and activities • Increased participation on the part of Durham residents in healthy eating and exercise activities and initiatives. • Increased collaboration on the part of Durham organizations
Intervention: Chronic disease and diabetes classes Intervention: _X_ new _X_ ongoing __ completed Setting: Durham Start Date – End Date (mm/yy): 01/2012 – 06/2015	**Lead agency:** Durham County Health Department will advertise, coordinate, implement/lead and evaluate all classes. **Partner agencies:** CAARE, Inc. is also certified to lead the Stanford classes. **Marketing:** flyers, website, local media, facebook, emails,	**Quantify what you will do** • The Health Education Division will provide at least two Stanford University Chronic Disease Self Management programs (CDSMP) and two Diabetes Self Management Program (DSMP) classes by 2015. Each program meets for six weeks once a week for two hours. • The Health Education Division will train at least 15 individuals to become Lay Leaders in these curriculums. • The Health Department Nutrition Division will provide at least three American Diabetes Association recognized Diabetes Self Management Education (DSME) program series (10 hours of self management training per series) each year. **Expected outcomes and evidence:** CDSMP and DSMP are evidenced-based, skill-building workshops that help participants with chronic conditions or diabetes learn to manage their condition and their life. Training Lay Leaders will build capacity in Durham; each Lay Leader will be required to teach at least one series per year to maintain their certification. The ADA Recognized DSME program is a recommended standard of care for diabetes medical management. Increase access to DSME services.

Intervention: Active Kids program Intervention: _X_ new __ ongoing __ completed Setting: Durham Start Date – End Date (mm/yy): Jan 2012 – June 2013	**Lead agency:** Duke Healthy Lifestyles will lead community collaborative, ensure all NICHQ funding requirements are met and implement the Active Kids program. **Partner agencies:** Community Collaborative members will meet monthly to steer the Active Kids program: Partnership for a Healthy Durham, Duke Division of Community Health, Durham Public Schools, Durham Parks and Recreation, Duke Pediatrics Residency Training Program, Duke Department of Physical Therapy, Briggs Ave Community Garden Edison Johnson will be the host site.	**Quantify what you will do** • Develop a sustainable collaborative team incorporating member from the three stated sectors that meets monthly • Construct a clear aim and action timetable • Conduct standardized data and monitoring supported by online systems at NICHQ • Enroll at least 150 children in the Active Kids program. **Expected outcomes:** By June 1 2013, 5% (150 children) of obese 8-12 year old children living in Durham will have been referred through Healthy Lifestyles, screened and enrolled in the Active Kids community program; and 50% (75 children) of those enrolled will have attended at least 2 sessions per week for at least 12 weeks over 1 year.
POLICY OR ENVIRONMENTAL CHANGE INTERVENTIONS		
Intervention: Bull City Open Streets (BCOS) Intervention: ___ new X ongoing ___ completed Setting: mile loops around the city for Open Street days in six locations Start Date 4/12– End Date (10/12):	**Lead agency:** BCOS committee (which includes Partnership for a Healthy Durham) will obtain the permit, police and emergency aid staff, and participation of standard bike and pedestrian agencies. **Partner agencies:** BPAC: bike maintenance workshop; NC DOT: free helmets for children; Clean Energy Durham: advertising and promotion; Triangle Rails to Trails and Durham Bike Coalition: bike activities; Whole Foods: provide fruit for bike Smoothie activity: DATA/Triangle Transit: cooperation with changing bus routes around Open Streets area; NC Prevention Partners I9 Sports, Playworks: staff children's activities YMCA: staff adult activities **Marketing:** flyers, website, local media, facebook, Twitter, emails, Communications committee	**Quantify what you will do** 2012: six Bull City Open Streets 2013-2015: Keep at this level or increase; Locate and transfer to permanent location and sponsor agency/corporation. **Expected outcomes:** Brings communities together creating a safe, car-free, outdoor, neighborhood venue to exercise. Promotes positive image of biking, walking and other forms of active recreation to the community. Improves bike safety through instruction, machine repair and helmet provision thereby increasing bike usage as a form of transportation and recreation. **Evidence:** World Health Organization promising practice
Intervention: Fitness Days Intervention: X new ___ ongoing ___ completed Setting: Durham Public Schools (DPS) outdoor facilities and/or County Stadium Start Date 10/12– End Date (10/15):	**Lead agency:** Partnership for a Healthy Durham-OCI committee will coordinate with Durham Public School and Durham City organizations to host Fitness Days. **Partner agencies:** DPS: provide facility; Partnership for a Healthy Durham and Playworks: provide expertise to plan and run activities; Durham civic organization: provide volunteers the day of the event **Marketing:** flyers, website, local media, facebook, Twitter, Communications committee	**Quantify what you will do** 2012-13: one fitness day 2013-14: two fitness days 2014-15: four fitness days **Expected outcomes:** Family day, i.e., people of all ages could do activities all day long Promotes positive aspects of wellness and active recreation to the community Provides audience for local fitness venders; avenues to find correct fit for a sport or a gym for an individual

Intervention: Connect Durham resources, organizations and collaborations Intervention: _X_ new ___ ongoing ___ completed Setting: Durham Start Date – End Date (mm/yy): May 2012 - ongoing	**Lead Agency:** Durham Health Innovations will take the lead in building out the existing organization/collaboration list, disseminating information on collaborations, researching potential communication strategies, considering the feasibility of monthly roundtables, developing an action plan for implementing the intervention, and developing content for the Partnership website. **Partner Agencies:** Partnership for a Healthy Durham, Health Department, Achieving Health for a Lifetime, Durham YMCAs, NC Division of Public Health, Be Active NC, Durham Chamber of Commerce, and Duke Women's Health Initiative will support work connecting resources, organizations and collaborations. **Marketing:** website, facebook, emails, Communications committee	**Quantify what you will do** • Develop and disseminate a comprehensive list of all organizations and collaborations working on healthy eating and exercise initiatives in Durham. • Develop communication channel(s) for all organizations and collaborations working on healthy eating and exercise initiatives in Durham. • Build out Partnership/OCI web page as a repository for information and resources pertaining to healthy eating and physical activity in Durham. **Expected outcomes:** • Increased visibility and awareness of efforts, activities and active organizations. • Increased collaboration on the part of Durham organizations (e.g., grant writing, community initiatives, policy making efforts). • Increased awareness of Durham resources.
Intervention: Worksite wellness Intervention: _x__ new ___ ongoing ___ completed Setting: Initial focus on downtown Durham 27701 zip code; classes to be held in community locations, such as Durham Parks and Recreation sites, churches and local businesses Start Date 12/2012– End Date 6/2015	**Lead agency:** Durham County Health Department, Divisions of Nutrition and Health Education will ensure contacts are made at the Durham County Chamber of Commerce and that small businesses and organizations are trained and supported. They will be responsible for recruiting, advertising, implementing and evaluation ESMMWL classes. Partnership for a Healthy Durham will work to recruit an intern to catalog worksite wellness policies. **Partner agencies**: Durham County Chamber of Commerce will survey members and determine interest in worksite wellness training. Durham Parks and Recreation, other small businesses or interested agencies, OCI committee members affiliated with private organizations will support work with the Chamber of Commerce and other worksites. Community agencies will host ESMMWL series. **Marketing:** flyers, website, facebook, Twitter, emails, Communications committee, listservs	**Quantify what you will do** • Train at least 10 businesses on worksite wellness toolkits and programs. • Support Durham employers to implement their own worksite wellness committee and ultimately make policy / environmental changes at their worksites. • Offer Eat Smart Move More Weigh Less to business and community agencies at least once annually (15 classes per series). • Catalog the worksite health policies of City and County government, Durham Public Schools, Duke University, NCCU, Durham Tech, Duke Medicine and Durham Regional Hospital. Work with the Chamber of Commerce to survey small businesses on worksite wellness policies and/or programs. **Expected outcomes:** • At least five new worksite wellness committees will be formed. • At least 10 policy and environmental changes will be implemented at these Durham worksites. The Community Preventive Services Task Force recommends worksite programs intended to improve diet and/or physical activity behaviors based on strong evidence of their effectiveness for reducing weight among employees. Policy and environmental approaches aim to make healthy choices easier and target the entire workforce by changing physical or organizational structures. www.thecommunityguide.org/obesity/workprograms.html ESMMWL is an evidence-based program

Intervention: Encouraging convenience stores to offer fresh fruits and vegetables by giving discounts on retail permits to those that do so. Intervention: x_ new __ ongoing __ completed Setting: Durham County Start Date – End Date (01/13-12/14):	The lead agency is DCHD and it will provide coordination/ organization **List other agencies and what they plan to do:** • OCI will advocate for changes to retail permits for convenience stores. OCI will also work with convenience stores to publicize the availability of fresh produce at the stores. • Durham City/County government will need to make changes to allow for discounts in the cost of retail permits for convenience stores offering fresh fruits and vegetables. • Convenience stores will receive discounts in their retail permit fees by offering fresh fruits and vegetables. **Marketing:** • Outreach/advocacy work toward members of the Durham city/county government to encourage a reduction in retail permits for those convenience stores offering fresh fruits and vegetables. • Once such a change is passed, OCI members will need to help make convenience store owners aware of the change and encourage them to offer fresh produce and take advantage of the retail permit fee discount. • OCI members will also work with store owners to publicize the availability of fresh fruits and vegetables.	**Quantify what you will do** Policy change: Advocate for changes to retail permits for convenience stores so that those offering fresh fruits and vegetables receive discounts on those permits. **Expected outcomes:** Discounts on retail permits should encourage convenience stores to offer fresh produce. Since convenience stores are often the main source of groceries in many low income neighborhoods, their offering fresh produce will allow residents of those areas easier access to that produce. This should translate into increased sales of fresh produce and to increased consumption. **Evidence**: Parkersburg, West Virginia: One convenience store out of 84 in region stocked fresh fruits and vegetables when policy was changed; 19 carry fresh fruits and vegetables now that discounts in retail permits are offered.
Intervention: Healthy Mile Walking trails Intervention: __ new X ongoing __ completed Setting: Durham Park and Recreation facilities, community centers, neighborhoods Start Date (08/11) – End Date (08/15):	**Lead agency:** Durham Parks and Recreation will ensure that appropriate one-mile healthy walking trails are mapped out around their facilities; pay for stencils **Partner agencies:** BPAC – give input on routes; NECD Leadership Council – give input on Holton and East Durham Recreation Center routes; Durham Dept of Transportation – design, make, and apply stencils; Durham Public Works Dept - maintain stencils **Marketing:** Brochure: flyers, website, media Added to Partnership On-line Map Google application that can be downloaded to a phone, Communications committee	**Quantify what you will do** Mark a one-mile walking trail around DPR recreation centers and community centers. 2012-13: 3 (Lincoln Community Health Center, Holton) 2013-14: 3 2014-15: 3 **Expected outcomes:** By 2015, nine new 1-mile walking trails will be available to the residents of Durham City. **Evidence:** Completing Streets and making them more walkable and bikeable improves access which increases pedestrian and cyclist transit and recreation (CDC).

Intervention: Smoke-free ordinance and smoking cessation classes Intervention: _X_ new X ongoing __ completed Setting: Durham Park and Recreation facilities, community centers, neighborhoods –City of Durham and Durham county grounds, City of Durham Parks System, including playgrounds and athletic fields, city and county bus stops(including a 100ft radius around the bus stop; excluding private property), Durham county trails and parks, Durham Station transportation center, Durham train station, sidewalks owned, leased, maintained or occupied by the city or county of Durham and any public schools or hospitals. Start Date (01/12) – End Date (08/15):	**Lead agency:** Durham County Health Department will ensure implementation occurs and that staff educates the community about the Ordinance. Staff will also lead and advertise Fresh Start classes. **Partner agencies:** Board of Health and Board of County Commissioners approved the Ordinance. Quitline NC will offer support to individuals trying to stop tobacco use. **Marketing:** Website, newspaper, press releases, business cards with information, flyers, classes, DTV8, permanent signs, Twitter, listservs	**Quantify what you will do** Offer at least three Fresh Start smoking cessation classes per year to interested community members. Each series has four classes. More classes will be added once ordinance is implemented. Permanent signs will be posted in parks and other community locations to inform residents about areas in which smoking is prohibited. Durham County Ordinance will be implemented on August 1, 2012. **Expected outcomes:** 50% of participants will complete all four classes and 1/3 of these participants will not be smoking at six months follow-up. Ordinance will be implemented. Secondhand smoke exposure decreases. **Evidence:** Communities that have implemented smoke-free Ordinances have experienced a decline in tobacco use, second-hand exposure. This will ultimately decrease chronic conditions associated with tobacco use and reduce health care costs. The Fresh Start evidence-based approach is geared to help participants increase their motivation to quit, learn effective approaches for quitting and guide them in making a successful quit attempt. The evidence-based components of Fresh Start include: Motivational intervention activities, Practical counseling (problem solving skills), Social support, and Education about medication and approaches to quitting.

DCHD
Durham County
Health Department
Prevent. Promote. Protect.

Partnership for a Healthy Durham
A Certified Healthy Carolinians Partnership

North Carolina
Public Health

Community Health Action Plan 2012

Designed to address Community Health Assessment priorities

County: Durham **Partnership, if applicable:** Partnership for a Healthy Durham **Period Covered:** 2012– 2015

LOCAL PRIORITY ISSUE

- Priority issue: **Poverty**
- Was this issue identified as a priority in your county's most recent CHA? _X_ Yes __ No

LOCAL COMMUNITY OBJECTIVE Please check one: _X_ New __ Ongoing (was addressed in previous Action Plan)

- By (year): June 2015
- Objective (specific, measurable, achievable, realistic, time-lined change in health status of population)
  Decrease the individuals living in poverty from 16.6% to 15.47%.
- Original Baseline: 16.6% (2008-10)
- Date and source of original baseline data:
  a. U.S. Census Bureau. Table DP03: Selected Economic Characteristics, 2008-2010 American Community Survey 3-Year estimates. Durham County, North Carolina. http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_3YR_DP03&prodType=table .
  b. North Carolina Department of Public Instruction. 4-Year cohort graduation rate report, Durham County and North Carolina graduation results. North Carolina Department of Public Instruction website. http://accrpt.ncpublicschools.org/app/2009/cgr/.
- Updated information (For continuing objective only):
- Date and source of updated information:

POPULATION(S)

- Describe the local population(s) experiencing disparities related to this local community objective:
- Total number of persons in the local disparity population(s): 44,419 people are living in poverty (16.6% of the 2010 Census of Durham County population)
- Number you plan to reach with the interventions in this action plan: 3,023 people (or 1.13% of the population)

HEALTHY NC 2020 FOCUS AREA ADDRESSED

__ Tobacco Use
__ Physical Activity and Nutrition
__ Substance Abuse
__ STDs/Unintended Pregnancy
__ Environmental Health
_X_ Social Determinants of Health (Poverty, Education, Housing)
__ Maternal and Infant Health
__ Injury
__ Mental Health
__ Oral Health
__ Infectious Diseases/ Food-Borne Illness
__ Chronic Disease (Diabetes, Colorectal Cancer, Cardiovascular Disease)
__ Cross-cutting (Life Expectancy, Uninsured, Adult Obesity)

- Check **one** Healthy NC 2020 focus area: (Which objective below most closely aligns with your local community objective?)
  - **List HEALTHY NC 2020 Objective**: (Detailed information can be found at http://publichealth.nc.gov/hnc2020/ website)

Decrease the percentage of individuals living in poverty.
Decrease the percentage of people spending more than 30% of their income on rental housing.

RESEARCH RE. WHAT HAS WORKED ELSEWHERE*

List the 3-5 evidence-based interventions (proven to effectively address this priority issue) that seem the most suitable for your community and/or target group. **Training and information are available from DPH. Contact your regional consultant about how to access them.*

Intervention	Describe the evidence of effectiveness (type of evaluation, outcomes)	Source
Earned Income Tax Credit (EITC)	"According to ITEP's Who Pays report, nationwide the poorest twenty percent of Americans paid 10.9 percent of their incomes in state and local taxes in 2007. By contrast, middle-income taxpayers put 9.4 percent of their incomes toward those taxes, and the wealthiest one percent taxpayers paid just 5.2 percent of their incomes in state and local taxes. The high state and local tax burden on the poorest Americans is primarily due to the heavy use of regressive sales and property taxes. A refundable EITC is the most effective targeted tax relief strategy currently used by states to reduce the unfairness of these taxes."	Strategy mentioned in NC Prevention Plan; Institute on Taxation and Economic Policy (ITEP) http://www.itepnet.org/pdf/pb15eitc.pdf
Benefit Bank	The Benefit Bank is an online service designed to secure funds and services for individuals and families working to overcome poverty and to build long-term financial stability. Community and faith-based organizations, social service agencies, food pantries, job training programs, and homeless shelters are among the groups using The Benefit Bank to help people file Federal and State Income Taxes, and apply for publicly sponsored programs like CHIP, Food Stamps, LIHEAP, and more - at one convenient location and at no cost. Dollar Value of benefits and tax refunds received since 2006: $795,300,000; Sites Established: 2,427 Counselors: 7,832	http://www.thebenefitbank.org/
Permanent supportive housing	This resource provides the research and literature that built the foundation of permanent supportive housing as an evidence-based practice.	SAMHSA http://homeless.samhsa.gov/ResourceFiles/m15rmflg.pdf
Sub-acute care for the homeless	Develop medical respite care (acute care in temporary housing with case management) for homeless persons being discharged from hospitals with health issues temporarily requiring more supportive, stable housing than provided by shelters. This could assist these individuals in stabilizing their social situation while improving access to healthcare through access to primary care. In addition, it would decrease hospital costs through a reduction in readmissions.	Buchanan D, Doblin B, Sai T, Garcia P. The effects of respite care for homeless patients: a cohort study. *Am J Public Health.* 2006; 96(7):1278-81. Epub 2006 May 30. AND *JAMA.* 2009 May 6;301(17):1771-8. Sadowski LS, Kee RA, VanderWeele TJ, Buchanan D. Effect of a housing and case management program on emergency department visits and hospitalizations among chronically ill homeless adults: a randomized trial. *JAMA.* 2009 May 6;301(17):1771-8.
Durham Economic Resource Center (DERC)	Modeled after a component of the award winning Welfare Reform Liaison Program (WRLP) in Greensboro, NC. The WRLP is noted for producing results. During the first year at work, 7% of graduates reported earning $15,000 or more, increasing to 17% for the second year, and 30% by the fourth year. By the fourth year, 22% of those reporting earned over $20,000	Successes, Welfare Reform Liaison Program, 2007

(Insert rows as needed)

WHAT INTERVENTIONS ARE ALREADY ADDRESSING THIS ISSUE IN YOUR COMMUNITY?

Are any interventions/organizations currently addressing this issue? Yes_X__ No___ If so, please list below.

Intervention	Lead Agency	Progress to Date
Opening Doors	City of Durham, Department of Community Development	Formerly 10-Year Plan to End Homelessness; 1 staff person, second staff person to begin in June; Homeless Services Advisory Committee (HSAC) is the primary decision-making body, advises City and County leaders on homelessness and approves annual continuum of care grant applications.
End Poverty Durham	End Poverty Durham with many churches and nonprofit agencies	Community coalition with a focus on engaging the faith community on poverty reduction; have been meeting monthly for at least eight years
Council to End Homelessness in Durham (CEHD)	Community coalition	Meets monthly; active group of homeless service providers
Emergency shelters	Durham Crisis Response Center, Durham Rescue Mission, Urban Ministries of Durham, Inter-faith Hospitality Network, Love and Respect	Offer emergency shelter to displaced and homeless individuals and families. Durham has 253 emergency beds for single adults and 75 beds for households with children.
Transitional housing	TROSA, Genesis Home, CAARE, Inc., Durham Rescue Mission, Housing for New Hope, Durham Crisis Response Center, Volunteers of America	There are 280 transitional housing beds for single adults and 101 beds for households with children.
Permanent supportive housing	Housing for New Hope, Genesis Home, Casa, Durham Housing Authority, Durham Rescue Mission, The Durham Center	There are 106 permanent supportive housing beds for single adults and 56 beds for households with children.
Street outreach	Open Table Ministry, Housing for New Hope	street outreach and engagement teams (includes nurse) with unsheltered homeless people
Coordinated Housing Intake Program	The Department of Social Services and the Coalition to End Homelessness	Provides triage and referrals for housing assistance to homeless families. Developed a Coordinated Intake Program to better serve these individuals. Housing Intake Coordinator is the contact.
Project Homeless Connect	City of Durham, Department of Community Development	Annual event that connects homeless individuals and those at risk of homelessness to services
Workforce development, job creation	Durham Workforce Development Board (consortium agreement between the City and County of Durham)	Plan, facilitate, and coordinate a workforce development system that is responsive to the needs of employers and job seekers through the development of a skilled, productive, and competitive workforce in Durham. Meets six times per year.
Section 8 Vouchers, priority for homeless people	Durham Housing Authority	Just opened the waiting list for Section 8 vouchers. Priority areas were: homeless veterans, homeless households with children, chronically homeless people
Sub-acute care for the homeless	Working group, Partnership for a Healthy Durham	Will become more engaged in the Partnership for a Healthy Durham Access to Care group
East Durham Children's Initiative (EDCI)	EDCI	In second year of implementation; all staff have been hired, lots of work happening at YE Smith; community potlucks have begun
Workforce (affordable) housing	Housing for New Hope	Opening 10 new units on Cole Mill Road
Mental health and substance abuse referrals	Alliance Behavioral Health	Formerly The Durham Center
Circles of support	Genesis Home, End Poverty Durham	A group of ten individuals from a church band together to support a formerly homeless individual; five circles have been formed
Workforce training and development	Durham Economic Resource Center (DERC)	Working with its 12th cohort, 200 have graduated, 70% placement rate

Three Durham CAN priorities: affordable housing, job training and placement for homeless adults	Durham CAN (Congregations, Associations and Neighborhoods)	Selected Housing and Homelessness as one of their focus topics for the next two years. An action team of 35 people came to the first official meeting on August 20th. They identified three priorities surrounding affordable housing, job training and placement for homeless adults, and finding money to replace the very successful "Rapid Rehousing" program (stimulus money running out in 1Q2012) which helped homeless households regain housing. At the CAN assembly on October 27, Mayor Bell and all those running for City Council committed to supporting these goals and meeting with the team within two months to work on them.
Benefit Bank	The Benefit Bank of North Carolina	There are currently 24 community sites in Durham County that offer the Benefit Bank. There are plans to expand this.

(Insert rows as needed)

WHAT RELEVANT COMMUNITY STRENGTHS AND ASSETS MIGHT HELP ADDRESS THIS PRIORITY ISSUE?

Community, neighborhood, and/or demographic group	Individual, civic group, organization, business, facility, etc. connected to this group	How this asset might help
Housing providers	Housing for New Hope, Urban Ministries, Inter-Faith Hospitality Network, Genesis Home, Casa, Durham Housing Authority, Durham Rescue Mission, The Durham Center, TROSA, CAARE, Inc., Durham Crisis Response Center, Volunteers of America, Inter-faith Hospitality Network, Love and Respect	These agencies provide current and new housing which includes emergency shelter, transitional and permanent supportive housing.
Homeless Liaisons	Jackie Love (DPS), Durham Social Services, Durham Crisis Response Center	Liaisons to housing referrals
Fait h community	End Poverty Durham, DCIA, DIA, Inter-Faith Hospitality Network	Connection to volunteers, stakeholders, faith leaders
Veterans	VA, CAARE, Inc.	Connection to veterans
Advocacy	Reinvestment Partners, Durham CAN	Advocate for change in the lending practices of financial institutions to promote wealth building of underserved communities and to end predatory lending practices that strip wealth.

(Insert rows as needed)

INTERVENTIONS: SETTING, & TIMEFRAME	COMMUNITY PARTNERS' Roles and Responsibilities	PLAN HOW YOU WILL EVALUATE EFFECTIVENESS
INTERVENTIONS SPECIFICALLY TARGETING HEALTH DISPARITIES		
Intervention: Faith Summit on Child Poverty Intervention: _X_ new __ ongoing __ completed Setting: Start Date – End Date (mm/yy): 01/2013 Level of Intervention - change in: _X_ Individuals _X_ Policy &/or Environment	**Lead Agency:** End Poverty Durham Role: Convene partners and organize summit; follow-up on action steps generated from summit **Partners**: Partnership for a Healthy Durham, Durham's Partnership for Children, other agencies will assist with action steps identified Marketing: emails, posters, press releases, websites, churches	**Quantify what you will do** Hold one Faith Summit on Child Poverty in January 2013 Generate action steps that result from the summit **Expected outcomes:** Unknown until Action Plan is generated

Intervention: Sub-Acute Care for the Homeless Intervention: __ new _ X _ ongoing __ completed Setting: Throughout Durham County Start Date – End Date (mm/yy): 01/12 – 6/2015	**Lead Agency:** Sub-Acute Care for the Homeless (SACH) Coalition. The Partnership for a Healthy Durham's Access to Care committee will partner with this existing coalition to implement action pian. **Partner agencies and roles:** Coalition Members: Lincoln Community Health Center, Health for the Homeless Clinic, Project Access of Durham County, Housing for New Hope, Urban Ministries of Durham, Duke Medicine, Faith Community, VA Medical Center, The Durham Center *Additional Partners*: Homeless Services Advisory Committee **Marketing:** Communicate with key audiences through various mediums, including but not limited to: faith communities, nonprofit and civic organizations, homeowners associations, professional associations, city and local government boards, committees, and commissions; news releases, government access channel, public service announcements, list serves, e-mail newsletters, Partnership for a Healthy Durham,(and stakeholder) web sites, and news media. **Evidence:** Buchanan D, Doblin B, Sai T, Garcia P. The effects of respite care for homeless patients: a cohort study.*Am J Public Health.* 2006; 96(7):1278-81. Epub 2006 May 30. AND *JAMA.* 2009 May 6;301(17):1771-8. Sadowski LS, Kee RA, VanderWeele TJ, Buchanan D. Effect of a housing and case management program on emergency department visits and hospitalizations among chronically ill homeless adults: a randomized trial. *JAMA*. 2009 May 6;301(17):1771-8.	**Quantify what you will do** a. Monthly Sub–Acute Care for the Homeless meetings with key stakeholders and additional participation from Duke Medicine and Access to Care committee. b. Convene quarterly meetings with colleagues in Orange and Wake County interested in developing a triangle wide respite system c. Conduct needs assessment with local hospitals (Duke, DRH and possibly UNC-Chapel Hill and the VA Medical Center) to: I. Obtain baseline data regarding number of homeless patients using services, diagnoses, length of stay, readmissions, and emergency room use II. Identify scope of care (rest, medication management, or dressing changes) and range of services (benefit acquisition, transportation, or housing placement) d. Hold one community forum facilitated by the National Healthcare for the Homeless Council e. Design program with input from key community partners f. Identify potential facilities with input from key community partners g. Create budget h. Identify potential funding sources **Expected outcomes** Reduction in avoidable bed days and reduction in readmissions or emergency room use by homeless individuals due to the implementation of a sub-acute care for the homeless program. Increased service coordination and improved collaboration within existing programs to make organizational, policy, and process changes and to respond effectively to consumer needs – particularly in relationship to provision of key services linking clients to benefits (social security disability, Medicaid), mental health and substance abuse treatment, and housing. Identification of opportunities to coordinate strategies and sustain partnerships through targeted funding opportunities

Intervention: Hospital diversion homeless resource plan Intervention: _X_ new __ ongoing __ completed Setting: Start Date – End Date (mm/yy): 03/2012 – 2/2014 Level of Intervention - change in: _X_ Individuals _X_ Policy &/or Environment	**Lead Agency:** Housing for New Hope will provide new housing, new rental assistance programs. **Partners and roles:** Blue Cross Blue Shield NC is funding project for one year. Partnership for a Healthy Durham will serve on advisory group. Lincoln Community Health Center will serve on advisory team and ensure temporary housing occurs. UNC Hospital and Duke Hospital are providing data and developing protocols. NC Coalition to End Homelessness will determine best practice models in the county and help replicate the program. NC AHEC (Tom Bacon) will help navigate hospital system and put together cost benefit analysis program and outcomes. Eno Consulting Services is helping research future funders. Marketing: not applicable. Program will be written up and likely disseminated as a model.	**Quantify what you will do** Create a Hospital Diversion Homeless Resource Model pilot in Durham and Chapel Hill by forming an advisory group to: Develop a protocol endorsed by decision makers at Duke and UNC hospitals to identify homeless individuals Identify a plan for housing 24 homeless individuals post discharge Create database system to track health outcomes and conduct cost benefit analysis **Expected outcomes:** 24 homeless are discharged into the community with housing or a clearly defined path from March 1, 2013 – February 28, 2014 System and protocol change at UNC Hospital and Duke Hospital that will identify homeless individuals and connect them with housing
INDIVIDUAL CHANGE INTERVENTIONS		
Intervention: Benefit Banks and Earned Income Tax Credit Intervention: __ new _X_ ongoing __ completed Setting: community sites Start Date – End Date (mm/yy): 01/2013 – 05-2015	**Lead Agency:** NC Taxpayer Assistance Center will coordinate all volunteer sites. Reinvestment Partners is involved in Durham sites. Benefit Bank of NC recruits and trains new sites. **Partners and roles:** Funding from Triangle United Way, IRS VITA Program, IRS LITC Program, Durham County Department of Social Services, City of Durham, Durham City Workforce Development Office Other support from Community Reinvestment Association of North Carolina, Duke University North Carolina Central University School of Law, North Carolina Legal Aid – Durham, Durham Technical College **Marketing:** emails, posters, press releases, websites	**Quantify what you will do** Determine how many individuals are eligible and how many are not claiming EITC Determine whether additional VITA sites need to be added in Durham. Expand as necessary. Recruit at least five new Benefit Bank sites in Durham County **Expected outcomes and evidence:** More low-income people will get their taxes prepared at no cost, will receive the EITC and claim benefits. Poverty reduction strategy mentioned in NC Prevention Plan (NC IOM).
Intervention: Duke Durham Health Summit Intervention: __ new _X_ ongoing __ completed Setting: Washington Duke Inn Start Date – End Date (mm/yy): 04/23/2012	**Lead agency:** Duke Medicine will organize Summit and ensure next steps occur following the summit. **Partner agencies:** Summit planning committee, Durham County Health Department, Partnership for a Healthy Durham will review evaluations from summit and determine next steps. **Marketing**: Emails, website, flyers	**Quantify what you will do** Organize one Duke Durham Health Summit with at least with at least 350 attendees to discuss the social determinants of health **Expected outcomes:** Generate next steps as a result of small group discusses. Duke Medicine and Partnership for a Healthy Durham will determine how to move forward

POLICY OR ENVIRONMENTAL CHANGE INTERVENTIONS		
Intervention: Summer Youth positions Intervention: _X__ new ___ ongoing ___ completed Setting: Durham County government and businesses Start Date – End Date (mm/yy): June 2012 – May 2013	The lead agency is Durham County Government and it will work with the Human Resources Department to facilitate departments' ability to bring in youth / student workers and interns year-round and coordinate other partners. List other agencies and what they plan to do: Durham Chamber of Commerce and City of Durham will expand private sector opportunities for youth / student workers and interns.	**Quantify what you will do** Double the number of non-permanent intern positions created for youth under 25 years of age **Expected outcomes:** Youth will be more marketable and able to secure higher education and/or future permanent employment
Intervention: Durham County Economic Development Plan Intervention: _X__ new ___ ongoing ___ completed Setting: Durham County government and businesses Start Date – End Date (mm/yy): June 2012 – May 2014	The lead agency is Durham County Government and it will work with other local and regional entities involved in worker education, worker training, and economic development to revise the County's economic development plan and align it more strategically with the related work and policies of these partner agencies. List other agencies and what they plan to do: Durham Chamber of Commerce and City of Durham, Downtown Durham Inc., Research Triangle Park, Durham Technical Community College, NCCU, Duke, and Durham Public Schools	**Quantify what you will do** Revise Durham County's economic development plan **Expected outcomes:** The goal of these revisions is to maximize the effect of Durham County's economic development policy and actions on Durham County employment across the income range.

(Insert rows as needed)

DCHD
Durham County
Health Department
Prevent. Promote. Protect.

Partnership for a Healthy Durham
A Certified Healthy Carolinians Partnership

North Carolina
Public Health

Community Health Action Plan 2012

Designed to address Community Health Assessment priorities

County: Durham **Partnership, if applicable:** Partnership for a Healthy Durham **Period Covered:** 2012– 2015

LOCAL PRIORITY ISSUE

- Priority issue: **Substance Abuse and Mental Health**
- Was this issue identified as a priority in your county's most recent CHA? Yes

LOCAL COMMUNITY OBJECTIVE Please check one: __ New _X_ Ongoing (was addressed in previous Action Plan)

- By (year): 2015
- Objective (specific, measurable, achievable, realistic, time-lined change in health status of population)
  a) Reduce the percentage of high school students who had alcohol on one or more of the past 30 days from 42.5% to 35%
  b) Reduce the suicide rate (per 100,000 population) to 7.03 per 100,000
  c) Reduce the number of opioid prescriptions written in Durham County by 5%
- Original Baseline: a) 42.5%; b) 7.8 per 100,000; c) 56,593 prescriptions written per 100,000 residents in Durham County.
- Date and source of original baseline data:
  a) 2009 Durham Youth Risk Behavior Survey (YRBS);
  b) 2004-08 North Carolina Injury & Violence Prevention Branch. Violent Death in North Carolina: *Durham County Incidents:* http://www.injuryfreenc.ncdhhs.gov/About/2008CountyFactSheetDurhamFINAL.pdf .
  c) 2009, NC Controlled Substances Reporting System, generated for Project Lazarus
- Updated information (For continuing objective only):
- Date and source of updated information:

POPULATION(S)

- Describe the local population(s) experiencing disparities related to this local community objective:
  Mental health and substance abuse is a problem that crosses all divisions of the population. alcohol use among youth: Hispanics, whites, males, LGBTQ adolescents; suicide among youth: LGBTQ youth, Hispanics, blacks;
- Total number of persons in the local disparity population(s): An estimated 17,000 residents of Durham County need mental health treatment and 19,000 need substance use treatment. In 2009-10, approximately 1,888 (32.8% of 5,757 enrolled students) middle school students had ever tried alcohol and 3,865 (42.5% of 9,904 enrolled students) high school students had drank alcohol in the past month (2009 YRBS). Approximately 564 high school students (9.8% of 5,757 enrolled students) had attempted suicide in the last year (2009 YRBS). There were 22 deaths from unintentional poisonings in 2010. In 2009, there were 56,593 prescriptions written per 100,000 residents in Durham County.
- Number you plan to reach with the interventions in this action plan: We hope to impact 25% of the middle and high school students in Durham Public Schools, 10% of the Durham population in the opioid community campaign and 50% of the Emergency Department physicians and prescribers at Duke Medicine.

HEALTHY NC 2020 FOCUS AREA ADDRESSED

__ Tobacco Use
__ Physical Activity and Nutrition
_X_ Substance Abuse
__ STDs/Unintended Pregnancy
__ Environmental Health
__ Social Determinants of Health (Poverty, Education, Housing)
__ Maternal and Infant Health
__ Injury
_X_ Mental Health
__ Oral Health
__ Infectious Diseases/ Food-Borne Illness
__ Chronic Disease (Diabetes, Colorectal Cancer, Cardiovascular Disease)
__ Cross-cutting (Life Expectancy, Uninsured, Adult Obesity)

- Check **one** Healthy NC 2020 focus area: [illegible]
- **List HEALTHY NC 2020 Objective**: (Detailed information can be found at http://publichealth.nc.gov/hnc2020/ website)

Reduce the percentage of high school students who had alcohol on one or more of the past 30 days
Reduce the suicide rate (per 100,000 population)

RESEARCH RE. WHAT HAS WORKED ELSEWHERE*

List the 3-5 evidence-based interventions (proven to effectively address this priority issue) that seem the most suitable for your community and/or target group. **Training and information are available from DPH. Contact your regional consultant about how to access them.*

Intervention	Describe the evidence of effectiveness (type of evaluation, outcomes)	Source
Reconnecting Youth/Early Risers	School-based education and skill-development programs shown to prevent or reduce substance use among elementary and middle school youth.	http://www.reconnectingyouth.com/ http://wch.uhs.wisc.edu/13-Eval/Tools/Resources/Model%20Programs/Early%20Risers.pdf
Adolescent School Health Program	Depression screening and healthy behavior group classes in public, private, charter and alternative schools. The division promotes early intervention, advocate for treatment and referral and follow-up services. Treatment for depression is not provided.	http://www.naccho.org/topics/modelpractices/database/practice.cfm?PracticeID=281
Strengthening Families Program	An evidence-based family skills training program found to significantly reduce problem behaviors, delinquency, and alcohol and drug abuse in children and to improve social competencies and school performance.	http://www.strengtheningfamiliesprogram.org/
Project Lazarus	The Project Lazarus public health model is based on the premises that drug overdose deaths are preventable and that all communities are ultimately responsible for their own health. The model components: (1) community activation and coalition building, (2) monitoring and epidemiologic surveillance, (3) prevention of overdoses through medical education and other means, (4) use of rescue medication to reverse overdoses by community members, and (5) evaluation of project components. Due to Project Lazarus, Overdose deaths are down 69% in Wilkes County between 2009 and 2011.	http://www.projectlazarus.org/
Best practices being used in Durham County	Models with curriculum manuals and specific training shown to effectively treat mental health and substance use disorders.	http://www.durhamcenter.org/uploads/docs/publications/Evidence-Based_Practices_Brochure.pdf
Media Detectives	Media literacy education program for 3rd to 5th grade students aimed to prevent or delay the onset of underage alcohol and tobacco use. This is done by enhancing the critical thinking skills of students so they become adept in deconstructing media messages related to alcohol and tobacco products, and by encouraging healthy beliefs and attitudes about abstaining from alcohol and tobacco use.	http://www.nrepp.samhsa.gov/ViewIntervention.aspx?id=183
Media Ready	Media literacy education program for 6th to 8th grade students aimed to prevent or delay the onset of underage alcohol and tobacco use. The goal is to prevent or delay the onset of underage alcohol and tobacco use by encouraging healthy beliefs and attitudes about abstaining from alcohol and tobacco use and by enhancing the ability to apply critical thinking skills in interpreting media messages related to alcohol and tobacco products.	http://www.nrepp.samhsa.gov/ViewIntervention.aspx?id=184

(Insert rows as needed)

WHAT INTERVENTIONS ARE ALREADY ADDRESSING THIS ISSUE IN YOUR COMMUNITY?

Are any interventions/organizations currently addressing this issue? Yes_X__ No___ If so, please list below.

Intervention	Lead Agency	Progress to Date
BECOMING (Building Every Chance of Making It Now and Grown-up): Serve youth ages 16-21 who have behavioral health challenges and are characterized as "disconnected" in one or more of the following ways: no diploma and not in school, pregnant or parenting, involvement with criminal justice, exiting foster care, or long term unemployed or underemployed.	The Durham Center	http://becomingdurham.org/ Project began in Fall 2010; youth were referred to the project in October 2011; majority of staff is hired
Durham's System of Care: A framework for organizing and coordinating services and resources into a comprehensive and interconnected network. Its goal is to help individuals and families who need services or supports from multiple human service agencies to be safe and successful at home, in school, at work and in the community. Our System of Care builds on individual and community strengths, and makes the most of existing resources to help these individuals and families achieve better outcomes.	The Durham Center	http://www.durhamsystemofcare.org
Durham Together for Resilient Youth (TRY) Coalition: Prevents substance abuse through comprehensive and community-wide environmental and population level strategies that are designed to change or strengthen norms against alcohol and drug use (tobacco, alcohol, marijuana and prescription drugs); to change legislation, policy and enforcement throughout entire communities.		http://www.durhamtry.org/ Coalition meets monthly
Crisis Intervention Training (CIT) Specialized training for police officers to enable them to address challenges posed by people with mental illness, trauma, developmental disabilities and substance abuse problems.	The Durham Center	Trainings occur quarterly. The County's Strategic Plan will expand crisis intervention teams to train all first responders to improve response of individuals experiencing behavioral health crises
Operation Medicine Drop: Safely dispose of expired and unused prescription medication.	Safe Kids Durham	Next Operation Medicine drop is in September.
It's Okay to Ask campaign: Communications Campaign that consists of a website and promotional items such as, brochures, wallet cards, t-shirts, jump drives, wrist bands, pens, pencils, and folders with the "It's OK 2 Ask" logo. The website was developed from youth focus groups with the objective to reduce the stigma of mental illness and encourage help-seeking behavior.	DHHS	http://itsok2ask.com/default.aspx
TROSA: An innovative, multi-year residential program that enables substance abusers to be productive, recovering individuals by providing comprehensive treatment, work-based vocational training, education, and continuing care.	TROSA	http://www.trosainc.org/ Key elements of the program include vocational training, education, peer counseling/ mentoring, leadership training, and aftercare.

(Insert rows as needed)

WHAT RELEVANT COMMUNITY STRENGTHS AND ASSETS MIGHT HELP ADDRESS THIS PRIORITY ISSUE?

Community, neighborhood, and/or demographic group	Individual, civic group, organization, business, facility, etc. connected to this group	How this asset might help
Recovery community	TROSA, AA, Al-Anon, NA, NAMI, Nar-Anon, Ala-teen	Reach out to the recovery community, especially for the Recovery Celebration
Latinos	El Centro Hispano, El Futuro, WEST, teen groups (Julio), Catholic Charities (Sue), Immaculate Conception, Durham Public School Latino drop-out prevention program	Collaborate on future initiatives that involve this population
Teens and college students	Durham TRY; Theresa McGowan (over all DPS Social Workers); Kishia Carrington (over all DPS middle and high school counselors), The Durham Center: BECOMING, Spectrum – Durham Tech	Collaborate on future initiatives that involve this population; Expertise on Durham Public Schools and current mental health and substance abuse initiatives
Individuals and families experiencing trauma	Center for Child and Family Health, The Durham Center	Content expertise; best practices
LGBTQ youth	InsideOUT (Amy Glassner), High School Gay Straight Alliances (GSAs), especially Durham High School of the Arts, Spectrum – Durham TECH LGBT group	Contacts for reaching LGBTQ youth
Suicide resources	National Suicide line; The Durham Center hotlines, NCDHHS (Janice Peterson), NCDPH (Stephania Sidberry); North Carolina's Plan to Prevent Youth Suicide; ASIST program (Jane Miller)	Content expertise; best practices
Bullying	National Crime Prevention Council (http://www.ncpc.org/topics/cyberbullying), Durham Public Schools: policies, social workers, counselors; School Violence Prevention Act	Content expertise; best practices; knowledge of current services; legislation that aims to prevent bullying
Data on youth	Partnership for a Healthy Durham, Durham Public Schools	YRBS surveys DPS middle and high school every other year; will provide data trends and priority areas
Gun safety	North Carolinians Against Gun Violence, Durham County Health Department, Gun Safety Coalition	Work on keeping guns away from children and youth
Vets	VA, Durham County Health Department	In the future, may want to reach out to address the mental health/substance abuse needs of veterans

(Insert rows as needed)

INTERVENTIONS: SETTING, & TIMEFRAME	COMMUNITY PARTNERS' Roles and Responsibilities	PLAN HOW YOU WILL EVALUATE EFFECTIVENESS
INTERVENTIONS SPECIFICALLY TARGETING HEALTH DISPARITIES		
Intervention: Recovery Celebration Intervention: __ new _X_ ongoing __ completed Setting: Start Date – End Date: 01/13 – 09/14 Level of Intervention - change in: _X_ Individuals __ Policy &/or Environment	**Lead Agency:** Partnership for a Healthy Durham, Mental Health and Substance Abuse committee will find another lead agency to co- plan, coordinate and host Recovery Celebration **Partners:** The Durham Center will be the fiscal agent, media contact and coordinate vendors; CAARE, Inc., TROSA, Urban Ministries will assist with volunteer recruitment, speakers and entertainment. **Marketing:** Posters, facebook, email announcements, word of mouth, press releases, newspapers	**Quantify what you will do** Find and support another agency to co-host at least one Recovery Celebration during National Recovery Month, which promotes the societal benefits of prevention, treatment, and recovery for substance use and mental disorders, celebrates people in recovery, lauds the contributions of treatment and service providers, and promotes the message that recovery in all its forms is possible. Recovery Month spreads the positive message that behavioral health is essential to overall health, that prevention works, treatment is effective and people can and do recover. **Expected outcomes:** Decrease stigma among the recovery community, increase knowledge of mental health and substance abuse agencies and increase referrals to these agencies Studies have demonstrated that every dollar dedicated to the treatment of persons with addictions is returned sevenfold to communities in the form of a reduction in criminal activity, highway injuries and death, healthcare and social welfare costs, not to mention a reduction in domestic violence and child abuse and neglect. Treatment dollars also contribute to increased job and school productivity, reduced absenteeism and on-the-job injuries, all of which result in safer and more stable families and neighborhoods. (Recovery NC)
INDIVIDUAL CHANGE INTERVENTIONS		
Intervention: Treatment for opioid dependence Intervention: X__ new __ ongoing __ completed Setting: Durham Primary Care Practices Start Date – End Date (mm/yy): 05/2012 – 6/2014	**Lead agency**: Durham Community Health Network and CCNC network will ensure that plan is implemented. **Partners and roles:** Durham Primary Care Practices will certify providers in suboxone treatment. **Marketing:** The lead agencies will work directly with the clinic staff to encourage them to get trained providers. Once trained providers are in place, medical networks will be notified so that appropriate referrals can be made.	**Quantify what you will do** Increase the number of Durham Primary Care providers certified for suboxone therapy from two to 10 by June 2014. This will expand access to methadone programs and suboxone programs. **Expected outcomes:** *Improve* access to substance abuse treatment by increasing the number of individuals who receive medically-assisted treatment (MAT) for opioid dependence. At least one primary care provider in each of Durham Primary Care Practices will become certified in suboxone treatment.

Intervention: Suicide and bullying: Hispanic and LGBT youth Intervention: X__ new __ ongoing __ completed Setting: schools, youth groups Start Date – End Date (mm/yy): 03/2012 – 06/2015	**Lead agency**: Partnership for a Healthy Durham, Mental Health and Substance Abuse committee will coordinate speakers with expertise in this area and determine the next course of action. It will work with many of the providers that serve Latino and LGBT youth. It will also ensure YRBS data analysis and dissemination occurs. **Partners and roles:** Durham Public Schools and Durham County Health Department will fund and coordinate the 2013 and 2015 Youth Risk Behavior Survey (YRBS). Mars Hills College will likely do the analysis and report generation. DPS counselors and social workers will inform interventions related to bullying and suicide prevention. The Durham Center's BECOMING project may be a likely partner. **Marketing:** unknown until intervention is selected	**Quantify what you will do** Invite at least four speakers with content expertise and/or knowledge of local interventions on suicide and bullying (including cyber-bullying) prevention to speak to the Partnership for a Healthy Durham's SA/MH group. Research evidence-based strategies, such as the ASIST model – suicide intervention program. The intervention will likely target LGBT youth and Latino youth. Select one or two interventions and coordinate partners. Implement and/or seek funding Conduct the 2013 and 2015 Youth Risk Behavior Survey (YRBS) among Durham middle and high school students with a random sample or second period classrooms. Analyze the data and look for trends in substance use, reported bullying, mental health and suicidal ideation. **Expected outcomes:** Better monitor trends and success related to mental health and substance abuse through the YRBS survey. Decreased reports of bullying and suicide attempts among DPS middle and high school students.
Intervention: Substance abuse and mental health training modules Intervention: X__ new __ ongoing __ completed Setting: Schools, after-school programs, churches Start Date – End Date (mm/yy): 04/2012 – 12/2015	**Lead agency**: Partnership for a Drug-free America will find / create materials for trainings. **Partners and roles:** Partnership for a Healthy Durham's Substance Abuse and Mental Health committees will review materials and contact Durham Public Schools counselors, social workers and health wellness coordinator. Greenlight Counseling will help develop the mental health piece of the training module and dissemination. Durham TRY may also use the content to train their youth council members. Wake AHEC may be able to offer CEUs to teachers. **Marketing:** School counselors and social workers will directly learn about the training modules. Depending on their level of support, all teachers, staff, and administrators will also hear about it. Ideally, teachers would be trained so that they can teach it to their students. Otherwise, a Partnership for a Healthy Durham representative could present the material. Other options include afterschool programs, boys and girls club, Parks and Recreation, private/charter schools and churches.	**Quantify what you will do** Create a presentation about Durham and an overview of substance abuse and mental health issues for the teachers and the Partnership for a Healthy Durham and partners' websites by October 2012. Assess whether substance abuse and mental health issues are currently addressed in the Health curriculum at Durham Public middle and high schools. Determine whether information should be added or augmented. Deliver effective models on substance abuse and mental health to teachers through 2015; Expose at least one staff member in every Durham middle and high school. **Expected outcomes and evidence:** Staff in schools will be better prepared to talk about mental health and substance abuse, better able to identify potential issues among students and refer appropriately. Determine success by reviewing YRBS data trends: Decrease the number of 30-day past use for alcohol. Decrease the number of students reporting having poor mental health days.

POLICY OR ENVIRONMENTAL CHANGE INTERVENTIONS		
Intervention: Rethinking Pain: Opioids Intervention: _X__ new ___ ongoing ___ completed Setting: Duke and Durham Regional Emergency Department clinicians Start Date – End Date (mm/yy): 01/2012 – 6/2014	**Lead agency**: Durham Community Health Network will ensure that plan is implemented. **Partners and roles:** Duke and Durham Regional Emergency Department's providers will receive ongoing education about prescribing Opioids and will become registered and use the CSRS. **Marketing:** Medical clinics, press releases, potentially TV, billboards	**Quantify what you will do** *Increase* the proportion of prescribers with DEA numbers (a) who are *registered* with the Controlled Substances Reporting System (CSRS) and (b) the frequency with which they *consult* the CSRS Community wide safe opioid prescription campaign to instruct residents in the knowledge of Opioids and their pitfalls as well as alternatives to medication for chronic non malignant pain therapies. **Expected outcomes:** *Decrease* monthly county-level drug-related emergency department (ED) visits rates attributable to opioid overdoses by decreasing the prescriptions written for opioids, bettering tracking use of opiods and thus decreasing use of opioids; *Is associated with* a reduction in annual county-level opioid-related unintentional poisoning mortality rates
Intervention: Prescription Drop Boxes Intervention: _X__ new ___ ongoing ___ completed Setting: Community wide in Durham Police Departments Start Date – End Date (mm/yy): 01/2012 – 5/2014	**Lead agency**: Durham TRY and Duke Psychiatry and it will ensure drop boxes are installed, medications are properly disposed and community is aware of program. **Partners and roles:** Durham Police Department will install drop boxes, train staff and ensure medication is safely disposed (incinerated). Project Lazarus will provide technical assistance and funding. Partnership for a Healthy Durham will assist with community education and marketing. **Marketing:** Pharmacies will display information about drop-off sites, press releases, partner websites, neighborhood listservs, signage at police departments	**Quantify what you will do** Institute 24/7 drop-off sites for unused or expired medications at Durham Police Department stations. Count the number of pills collected. **Expected outcomes:** Reduce incorrect disposal and availability of Rx medications; prevent teens from accessing these substances and decrease overdoses. Due to Project Lazarus, Overdose deaths are down 69% in Wilkes County between 2009 and 2011.

(Insert rows as needed)

DCHD Durham County Health Department
Prevent. Promote. Protect.

Community Partnership for a Healthy Durham Health Action Plan 2012

North Carolina Public Health

Designed to address Community Health Assessment priorities

County: Durham **Partnership, if applicable:** Partnership for a Healthy Durham **Period Covered:** 2012– 2015

LOCAL PRIORITY ISSUE

- Priority issue: **Education**
- Was this issue identified as a priority in your county's most recent CHA? _X_ Yes __ No

LOCAL COMMUNITY OBJECTIVE Please check one: _X_ New __ Ongoing (was addressed in previous Action Plan)

- By (year): June 2015
- Objective (specific, measurable, achievable, realistic, time-lined change in health status of population)
  a. Increase the four-year high school graduation rate from 69.8% to 75.56% in 2015 and 89% in 2020.
- Original Baseline: 69.8% (2009-10)
- Date and source of original baseline data:
  North Carolina Department of Public Instruction. 4-Year cohort graduation rate report, Durham County and North Carolina graduation results. North Carolina Department of Public Instruction website. http://accrpt.ncpublicschools.org/app/2009/cgr/.
- Updated information (For continuing objective only):
- Date and source of updated information:

POPULATION(S)

- Describe the local population(s) experiencing disparities related to this local community objective: There is a disparity in the percentages of White and minority students who are graduating from high school. For example, among Durham Public School students, 87% of Whites graduated in 2009-2010 compared to 63% of Blacks and 58% of Hispanic students. Further, 12.5% are identified as Exceptional Children (EC) and 14% as Limited English Proficient (LEP); both of these groups have much lower high school graduation rates.
- Total number of persons in the local disparity population(s): 10,626 students (30.2% of DPS' 33,000 students do not graduate)
- Number you plan to reach with the interventions in this action plan: approximately 400 students drop out each year

HEALTHY NC 2020 FOCUS AREA ADDRESSED

__ Tobacco Use
__ Physical Activity and Nutrition
__ Substance Abuse
__ STDs/Unintended Pregnancy
__ Environmental Health
_X_ Social Determinants of Health (Poverty, Education, Housing)
__ Maternal and Infant Health
__ Injury
__ Mental Health
__ Oral Health
__ Infectious Diseases/ Food-Borne Illness
__ Chronic Disease (Diabetes, Colorectal Cancer, Cardiovascular Disease)
__ Cross-cutting (Life Expectancy, Uninsured, Adult Obesity)

- Check **one** Healthy NC 2020 focus area: (Which objective below most closely aligns with your local community objective?) **List HEALTHY NC 2020 Objective**: (Detailed information can be found at http://publichealth.nc.gov/hnc2020/ website)

Increase the four-year high school graduation rate

RESEARCH RE. WHAT HAS WORKED ELSEWHERE*

List the 3-5 evidence-based interventions (proven to effectively address this priority issue) that seem the most suitable for your community and/or target group. **Training and information are available from DPH. Contact your regional consultant about how to access them.*

Intervention	Describe the evidence of effectiveness (type of evaluation, outcomes)	Source
Check and Connect	Check and Connect is a dropout prevention program for high school students with learning, emotional, and/or behavioral disabilities. Students typically enter the program in 9th grade, and are assigned a "monitor" who works with them year-round as a mentor, advisor, and service coordinator.	http://evidencebasedprograms.org/wordpress/?page_id=92
Communities in Schools and the Model of Integrated Student Services	Communities in Schools has evolved into what is now called community-based, integrated student services, which are interventions that improve student achievement by connecting community resources with both the academic and social service needs of students.	http://www.ciswa.org/newsandmedia/studiesandreports/studies-reports-docs/CIS_Policy.pdf
Harlem Children's Zone (East Durham Children's Initiative is modeled after this program)	100% of third graders at Promise Academies I and II tested at or above grade level on the math exam, outperforming their peers in New York State, New York City, District 5, and black and white students throughout the state In English and Language Arts (ELA), over 93% of Promise Academy I third graders tested at or above grade level, outperforming New York State, New York City and District 5 peers, as well as black and white students in New York State	http://www.hcz.org/our-results
Magic Johnson Bridgescape program	Bridgescape is a dropout prevention and recovery program run in partnership with Edison Learning and the Magic Johnson Foundation. Plans are being made to start a Bridgescape program at the Durham Performance Learning Center to work with approximately 100 of the district's lowest performing students. The program includes blended on-line and in –class instruction, individualized instruction planning, andcounselling and coaching. The Bridgescape Program will operate at the Holton PLC and will be held from 3:00 – 7:00 p.m. each day for 210 days of school. It will serve 16 to 21 year old students who have dropped out of DPS completely. The focus will be on supporting students with earning a high school diploma along with a strong emphasis on the development of job skills. This will be combined with internship opportunities in positions above and beyond the low-paying entry level positions individuals who drop-out from school are typically relegated to filling	http://edisonlearning.com/dropoutrecovery

(Insert rows as needed)

WHAT INTERVENTIONS ARE ALREADY ADDRESSING THIS ISSUE IN YOUR COMMUNITY?

Are any interventions/organizations currently addressing this issue? Yes_X__ No___ If so, please list below.

Intervention	Lead Agency	Progress to Date
Durham Performance Learning Center (PLC): one of Durham's small high schools and offers students the opportunity for online learning with internships and job shadowing in a unique setting with non-traditional and flexible school hours.. Many of these students have returned to school after dropping out and find the self-paced learning and the flexible schedule, along with community support, to help them succeed in the classroom and graduate.	Durham Public Schools	An average of 175 students are served at PLC each year. On average, 85% of accepted seniors graduate from the program.
Student U: students take ownership of their education by developing the academic and personal skills they need to realize their full potential in school and beyond.	Durham Public Schools	There are currently about 150 middle school students and 25 high school students participating in Student U for 6 weeks of enrichment and academic opportunities in the summer with ongoing support during the school year.
Gateway to College: an educational option for Durham Public Schools (DPS) students between the ages of 16-21 who have dropped out of high school but have a desire to get back on track and earn a diploma.	Durham Tech Community College	150 students served; 106 have dropped out; 40% student persistence rate. Due to high per pupil costs and low student success rate, the district is currently planning to discontinue this program.
East Durham Children's Initiative (EDCI) represents a partnership of schools, neighborhood residents, nonprofit providers, universities, and government to create a pipeline of services for children in East Durham from birth to college or career. EDCI operates in partnership with residents and other stakeholders in the area to help children succeed – with the goal that every child finishes high school and is ready for college or career.	Duke Center for Child & Family Health (CCFH)	EDCI has made significant progress since the initiative was first envisioned in 2008. EDCI has assembled an experienced leadership team and staff, developed strong partnerships with other community organizations, built relationships with EDCI zone parents and residents, and piloted several promising programs. After two years of planning, including meetings with community members, advisory boards and partner organizations, EDCI began implementing its pipeline of services in 2010-2011 with a focus on early childhood and elementary-aged programs. In its first year of implementation, EDCI has impacted the lives of hundreds of low-income children and families that reside within the EDCI zone. Some early infrastructure and program successes are highlighted below. Fall 2010 • EDCI offers summer camp at YE Smith Elementary School. • EDCI hires Director and part-time Program Manager. • EDCI Community Advisory Board begins meeting at YE Smith. • EDCI invited to become official members of Partners Against Crime, District 1 (PAC 1) and Northeast Central Durham (NECD) Leadership Council. Winter/Spring 2011 • EDCI pilots Hill RAP tutoring program at YE Smith; of the 36 students with previous testing data, 18 showed improvements on the EOG and 9 passed the EOG.

- EDCI partners with a private foundation, a local church, Bountiful Backyards and 329 community volunteers to build a KaBOOM! playground and community garden for children and families in the EDCI zone.

Summer 2011

- EDCI pilots kindergarten readiness and summer learning loss prevention camps at YE Smith, providing summer educational opportunities to more than 85 students.
- EDCI works with the Inter-Faith Food Shuttle and community volunteers to provide more than 39,000 free and nutritious meals to EDCI children and youth during summer months.
- EDCI hosts Geoffrey Canada, founder of the Harlem Children's Zone, in East Durham.

Fall 2011

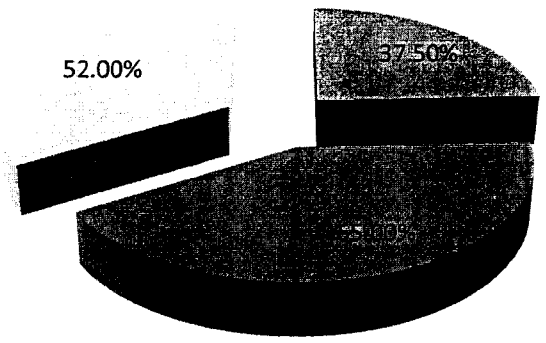
- EDCI partially funds 3 Durham Connects nurses to conduct home visits with parents of newborns living the EDCI zone, introducing them to EDCI's pipeline of services
- EDCI partners with Healthy Families Durham to establish short and long-term home-visiting programs targeting parents with young children (0-3) in the EDCI zone.
- EDCI implements Parent Advocate Program providing one-on-one support to parents of children attending YE Smith. In the first five months of the program, approximately 90 families are engaged with an EDCI Parent Advocate and 35 parents attended the Advocates' first parent workshop in November 2011.
- EDCI secures funding to provide 50 food-insecure YE Smith students with weekend meals through the Inter-Faith Food Shuttle Backpack Buddies program.
- EDCI partner KidZNotes engages 100 students from low income neighborhoods in free, classical orchestral music instruction and performance, including 60 students attending elementary school in the EDCI zone.
- EDCI partners with Communities In Schools of Durham to continue offering an Incredible Years parent group at YE Smith; 8 EDCI parents graduated the fall course. 20 new families are in the process of being recruited for the winter/spring course with the assistance of school staff and EDCI Parent Advocates.
- EDCI partners with Citizen Schools North Carolina to bring three additional hours of schooling to sixth grade students at Neal Middle School.
- EDCI partners with the NC Child Response Initiative to conduct a community meeting in the EDCI zone about ways to respond to children's questions and fears following neighborhood violence; approximately 20 community members attend this event.

Evaluation

EDCI has contracted with the Center for Child & Family Policy (CCFP) at Duke University to conduct a rigorous outcomes evaluation of EDCI. This evaluation will allow EDCI to track progress and outcomes for EDCI children over time, as well as help guide program development.

Neal Middle School STEM program: Neal Middle School is EDCI's target middle school. Neal is an extended day school with many EDCI partner programs including Citizen Schools, CIS Graduation Coaches, Teach for America, Durham TRY and Student U. Ms. Jill Hall is the current principal. The redesign of the program at Neal Middle School (low-performing middle school in the district) will offer exciting, relevant opportunities for students to excel in areas of science, technology, engineering and math.	DPS	Approximately 150 students served in 2011-12, and 300 students will be served in 2012-13 by the extended day program. The entire student body (at least 600 students) will benefit from the school's redesign.
Citizens Schools Learn more about Citizen Schools' programs and results at www.citizenschools.org. For North Carolina specifics, visit http://www.citizenschools.org/northcarolina/.	DPS, Citizens Schools, EDCI	DPS partners with the national non-profit, Citizens Schools, to offer extended day learning opportunities for students at Neal Middle School. The program served approximately 150 6th grade students in 2011-12 and will add another 150 students in 2012-13. During the expanded hours, students will receive academic support, participate in a language arts "academic league" aimed at raising proficiency in language arts, and learn what it takes to succeed in school and get into college. In addition, students will sign up for "apprenticeships" where small groups of students will be matched with professionals from the community. These volunteers will work under the supervision of Citizen Schools staff to teach students about different careers, professions, and increase student leadership skills. The program also serves 88-100 students at Lowe's Grove Middle School. An analysis of the academic performance of the students participating in Citizens Schools will be conducted by the Research and Accountability Department (Fall 2012).
Academic Recovery Center (ARC): ARC is a program housed at Holton Career and Resource Center to provide intensive literacy remediation for students in order to ensure at least an 8th grade reading proficiency needed to enter into the Performance Learning Center.	DPS	Students in the ARC can move directly into the program at PLC. A total of 143 students were enrolled in ARC for the combined 2009-10 and 2010-11 years. An analysis of the academic performance of the students participating in the Academic Recovery Center (ARC) will be conducted by the Research and Accountability Department (Fall 2012).
Communities in Schools: DPS partners with CIS at the Performance Learning Center to connect community resources to both academic and social service needs of students in order to improve academic outcomes for students. CIS also places Graduation Coaches in several DPS schools.	Communities in Schools Durham, Bud Lavery, Executive Director	The program is located in Hillside and Southern High Schools, Neal Middle School and the Durham Performance Learning Center. A recent high quality study ranked the CIS site coordinator/Graduation Coach model as the only fully-scaled intervention nationally shown to both reduce the annual dropout rate and increase the four-year graduation rate. (http://www.communitiesinschools.org/press-room/resource/five-year-evaluation)
Southern High School redesign: DPS has partnered with the North Carolina New Schools Project organization to redesign Southern into the Southern School of Energy and Sustainability.	DPS	Southern will operate as four, smaller themed academies (School of Engineering, School of Business Management and Sustainability, School of Biomedical Technology, and School of Infrastructural Engineering). Each school will serve approximately 400 students and operate similarly to our other small, Cooperative and Innovative High Schools. Each senior class will complete a culminating "real-world" project designed to promote energy and sustainability for the city and county of Durham. The Southern School of Energy and Sustainability will open August 27, 2012 and the performance of the students will be monitored, tracked and reported.
Twenty-one Credit Diploma policy	Durham Public Schools	This policy was implemented in 2010-11 to align with North Carolina graduation requirements and allow

		students meeting specified criteria to graduate with 21 credits, rather than the 28 credits required for a Durham Public Schools university-bound diploma. This allows students to graduate with a fully recognized NC diploma, acquire skills needed for careers or for entry into community college, with the potential to transfer to a university. These students would have otherwise not been able to graduate, due to inability to complete the 28 credit requirement of Durham Public Schools. There were 107 students who graduated with the 21 credit diploma in 2010-11.
The implementation of the Early Warning Tracking System which helps schools identify students in need of more intensive services related to attendance and academics.	Research, Development and Accountability	The Early Warning Tracking System in partnership with the Duke University Office of Durham and Regional Affairs will be provided to school level administrators to identify students with at-risk indicators.
Summer Bridge Academy for rising ninth graders.	DPS Area Superintendentf or Middle School DPS Area Superintendent for High School Director of Community Education	The SBA will serve 300 students in five comprehensive high schools. The SBA will provide orientation activities, academic supports, and a general introduction to high school expectations for rising ninth graders during the summer prior to their first year in high school. DPS will use the Early Warning Tracking System to identify students who will most benefit from this three week, summer program. Students will be monitored quarterly based on identified indicators. Teachers, counselors, and Exceptional Children sand LEP (limited-English proficient) staff will provide interventions when necessary to address at-risk indicators.
Expansion of Truancy Courts beyond DPS middle and high schools has been implemented in selected elementary schools.	DPS Coordinator of Preventive Services	Currently Truancy court is implemented in 7 elementary schools. Truancy court will expand into select elementary schools as identified by attendance data. Outcome indicators will be monitored including attendance, grades, and student behavior. Students who accumulate excessive absences and/or tardies appear before an official judge or attorney who volunteers who enforces the compulsory attendance law. The goals are to help improve the student's attendance by identifying needs that may be causing the truant behavior. This program has had good success in DPS schools.
Fall and Spring Saturday Academy programs	DPS	Fall and Spring Saturday Academy programs are offered to support students with passing their High School Exit Standard classes. DPS served approximately 450students in 2011-12. The results below are for fall 2011. Data Analysis: ➢ The proficiency rate for students who participated in Saturday Academy was 61% in the Big 3 EOC courses: Algebra I, English I, and biology. This includes retest scores for students who did not meet the standard on the first test administration. ➢ Eighteen students improved one full achievement level after their retest; of these 18 students, twelve students scored at a level III. ➢ As a group, the Saturday Academy students met their expected growth targets in English I and Biology.

(Insert rows as needed)

WHAT RELEVANT COMMUNITY STRENGTHS AND ASSETS MIGHT HELP ADDRESS THIS PRIORITY ISSUE?

Community, neighborhood, and/or demographic group	Individual, civic group, organization, business, facility, etc. connected to this group	How this asset might help
Parents	PTSA	Parents invested in the education of their children
DPS students, teachers, parents, staff	Board of Education	Able to implement policies, manage budget, etc.
Center for Child and Family Health	BECOMING-5 year SAMHSA grant-funded project	Targets students who are at risk of school failure and connects them to the services they need to be successful in school.
Parents	Cooperative Extension	Provide classes for parents to enhance parenting skills and involvement in child's education (PFAST)
Students	John Avery Boys and Girls Club	Provide afterschool care, mentoring, and academicsupport
Students	School Based Health Centers	Provide health services for underserved populations
Students	Workforce Development Youth Council	Provide skills training, employment, youth development, etc for disconnected youth

(Insert rows as needed)

INTERVENTIONS: SETTING, & TIMEFRAME	COMMUNITY PARTNERS' Roles and Responsibilities	PLAN HOW YOU WILL EVALUATE EFFECTIVENESS
INTERVENTIONS SPECIFICALLY TARGETING HEALTH DISPARITIES		
Intervention: Alternative to out of school suspension Intervention: _X__ new ___ ongoing ___ completed Setting: Schools and possible community sites Start Date – End Date (mm/yy): Alternatives to Suspension Plan will be	The lead agency is DPS and it will employ aggressive efforts to provide quality learning opportunities to students who are suspended from the traditional school setting List other agencies and what they plan to do: External Advisory Team members include: DARYC (Durham Attaining Results for Youth and Children), Reality	**Quantify what you will do** Alternative to suspension efforts will reduce the amount of time that students are out of school and therefore reduce chances for students to become involved in unhealthy, unproductive behaviors that may lead to dropping out, academic failure, adolescent pregnancy, or criminal activity. **Expected outcomes:**

finalized by December 2012. Strategies will be implemented January 2013 and beyond. Level of Intervention - change in: __ Individuals _X_ Policy &/or Environment	Ministries, Project Build, and PTA. Include how you're marketing the intervention: The Communication Plan is under development aligned with the Alternatives to Suspension Plan which will be finalized by December 2012.	The outcome target is by 2015 to reach 75.56% DPS graduation rate by mitigating risk factors of students which will optimize their social, emotional, and physical health. By providing alternatives to suspension, students will benefit from learning opportunities with minimal lapse in instructional time and receive support to address risk behaviors that may be impacting academic success.
Intervention: Healthy Meal Options Intervention: __ new X ongoing __ completed Setting: Start Date – End Date (mm/yy): Ongoing Level of Intervention - change in: __ Individuals X Policy &/or Environment	Lead Agency: DPS Role: Facilitator Partners: Federal School Lunch Program Role: Government Agency Partners: Duke Health Systems and Neighborhood Merchants Role: Inform the public and make healthier foods affordable for low-income families Include how you're marketing the intervention: A comprehensive marketing campaign will inform students, staff and parents of nutritional facts and district goals.	**Quantify what you will do** Studies show that hungry children do not have the best start to a day of learning. Additionally, there are many children who rely on their school to provide their only balanced meal options of the day. DPS Child Nutrition Services (CNS) has trimmed unnecessary fat and sugar offerings from its breakfast and lunch menu. Sugary drinks and desserts are offered at a minimum. Each school year, students are strongly encouraged to have their parents complete a Free/Reduced Price Meal form to qualify for subsidized meals. DPS CNS strives to align with the federal Gold Standard for school nutrition, as measured by national standards. Community partners will assist in the County-wide recruitment of others who will collaborate to support healthy student/family initiatives. **Expected outcomes:** Federal Gold Standard metrics will be applied to the CNS menu. Increased Free/Reduced Price Meal participants are tracked through the school lunch program. Community healthy meals partnership efforts will be tracked through the DPS Partnership Framework; Aug 2013.
INDIVIDUAL CHANGE INTERVENTIONS		
Intervention: Behavioral Framework Intervention: __ new X ongoing __ completed Setting: District-wide, evident in each school Start Date – End Date (mm/yy): June 2012 – Jan 2013	The lead agency is DPS and it will facilitate a comprehensive project team to develop a behavioral framework to ensure that student suspensions are consistently addressed district-wide. List other agencies and what they plan to do: The Department of Social Services and the local Law Enforcement will continue to collaborate with DPS on successful de-escalation strategies to employ when students are exhibiting aggressive behaviors. Include how you're marketing the intervention: Once the manual is developed a	**Quantify what you will do** DPS will convene a project team of students, parents, school administrators and others to develop a menu of student consequences related to rule violations. Standards will be established to ensure the proper protocol is followed at all schools for all students regarding disciplinary actions. **Expected outcomes:** The goal of this initiative is to ensure that students are not suspended from school, missing valuable instructional time, without cause. Consistency in suspensions will work toward addressing student disparities among

	comprehensive communication plan will be implemented to ensure that the community is aware of how DPS will address inappropriate student behaviors.	ethnic and gender groups.
POLICY OR ENVIRONMENTAL CHANGE INTERVENTIONS		
See above: "Alternative to out of school suspension"		
Intervention: Durham Public Schools Strategic Plan Intervention: __ new _X_ ongoing __ completed Setting: Start Date – End Date (mm/yy): 9/2011 – 6/ 2014	The lead agency is Durham Public Schools and it will ensure the Strategic Plan is implemented as intended. List other agencies and what they plan to do: Greater Durham Chamber of Commerce, LaMega Radio, El Centro Hispano, the City of Durham Human Relations Department, Communities in Schools (CIS), Duke University Child and Family Policy Center, Cisco. These are just a few agencies that will specifically partner with DPS to support student learning and improve communication to parents and families as listed in Goal 2. Include how you're marketing the intervention: website, PR	**Quantify what you will do** Dr. Eric J. Becoats conducted an extensive Listening & Learning tour of Durham to gather stakeholders' input and vision for the future of Durham Public Schools. The district heard from more than 4,400 voices through community and staff meetings and surveys. More than 500 people attended town hall meetings and 2,400 participated in online surveys. All participants, including principals and students were asked to offer suggestions on how to improve Durham Public Schools. Based on the input received, district leaders developed the six strategic areas, goals, strategies and an implementation model for the plan. The 10-year strategic plan, launched one year ago, is outlined here: http://www.dpsnc.net/stratplan/pdf/dpsstrategicplan.pdf The six strategic areas with specific benchmarks and outcome measures: Academic Acceleration I. Communications & Partnerships II. Equitable Standards III. Effective Operations IV. Talent Development V. Wellness and Safety VI. **Expected outcomes:** Progress will be reported online.

(Insert rows as needed)

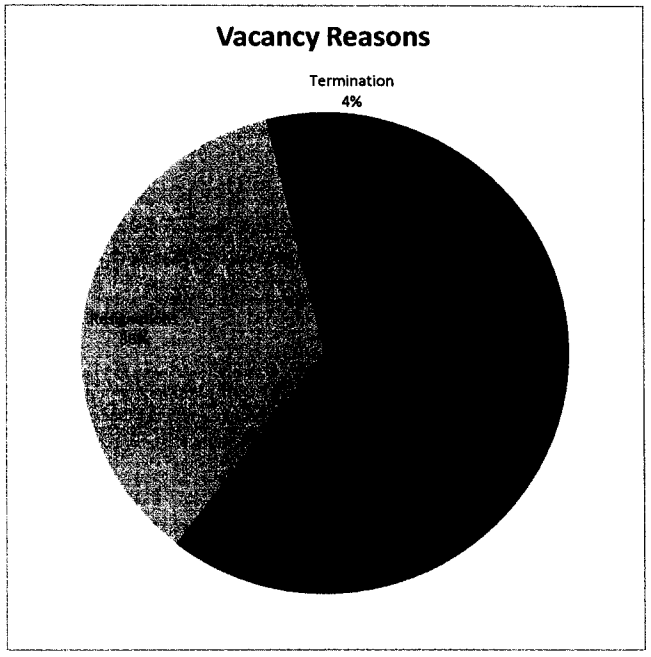
Public Health Vacancy Report

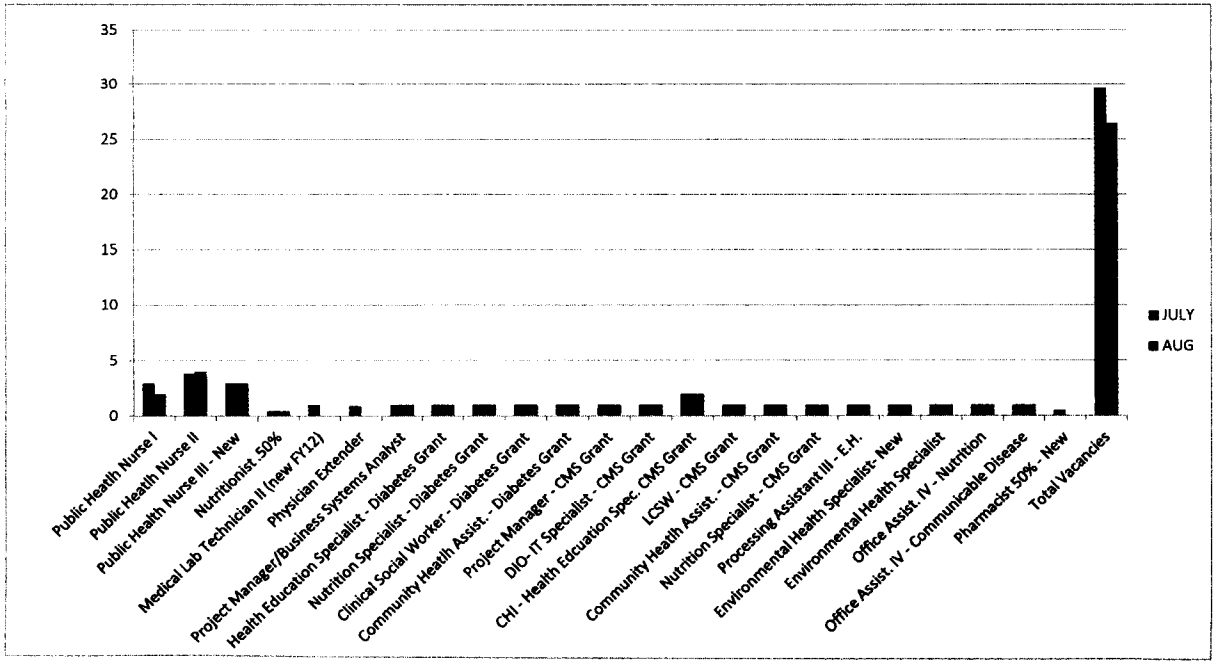
	JULY	AUG
Public Heatlh Nurse I	3	2
Public Heatlh Nurse II	3.8	4
Public Health Nurse III - New	3	3
Nutritionist .50%	0.48	0.48
Medical Lab Technician II (new FY12)	1	
Physician Extender	0.9	
Project Manager/Business Systems Analyst	1	1
Health Education Specialist - Diabetes Grant	1	1
Nutrition Specialist - Diabetes Grant	1	1
Clinical Social Worker - Diabetes Grant	1	1
Community Heatlh Assist. - Diabetes Grant	1	1
Project Manager - CMS Grant	1	1
DIO- IT Specialist - CMS Grant	1	1
CHI - Health Edcuation Spec. CMS Grant	2	2
LCSW - CMS Grant	1	1
Community Heatlh Assist. - CMS Grant	1	1
Nutrition Specialist - CMS Grant	1	1
Processing Assistant III - E.H.	1	1
Environmental Health Specialist- New	1	1
Environmental Health Specialist	1	1
Office Assist. IV - Nutrition	1	1
Office Assist. IV - Communicable Disease	1	1
Pharmacist 50% - New	0.5	
Total Vacancies	**29.68**	**26.48**

Total FTEs 209.76

Vacancy Reasons

New Positions	15
Resignations	9.48
Reclass	1
Termination	1
Total	26.48





DURHAMCOUNTY HEALTH DEPARTMENT FISCAL YEAR 2011-2012 YEAR-END BUDGET REPORT

Fund/Funct/Funds Center/Commitment Item	Original Budget	Rollover Budget	Current Budget	Supplemental/ Budget Amendment	Expended/Budget	Unexpended/Budget	% Expended
EXPENDITURE	20,991,215	92,041	21,572,592	489,336	19,013,299	2,559,293	88%
PERSONNEL							
SAL - REG	9,717,646		9,322,000	128,474	8,879,492	442,508	95%
SAL-TEMP/PT	878,829		881,359	2,530	432,958	448,401	49%
PAY PLAN ADJUSTMENT	190,568		190,568		0	190,568	0%
PHONE ALLOWANCE	4,740		5,010	270	9,445	-4,435	189%
FICA EXPENSE	810,954		811,148	194	683,223	127,925	84%
RETIREMENT	731,792		731,968	176	643,069	88,899	88%
SUPP RETRMNT	526,683		526,810	127	463,384	63,426	88%
TOTAL PERSONNEL	**12,861,212**		**12,468,863**	**131,771**	**11,111,571**	**1,357,292**	**89%**
OPERATING							
TELEPHONE	89,222		47,153		36,668	10,485	78%
POSTAGE	23,600		23,600		23,465	135	99%
PRINTING SUPPLIES	19,850		18,450		4,747	13,703	26%
COST PER COPY FEES	35,765		35,765		29,449	6,316	82%
OFFICE SUPPL	59,562		58,312	750	35,306	23,006	61%
NONCAP F & E			3,810		0	3,810	0%
TRAINING RELATED TRAVEL	85,204		104,556	22,172	53,992	50,564	52%
DUES AND SUBSCRIPTIONS	9,745		11,293		7,822	3,471	69%
MR BLD/GROUN	6,502		2		0	2	0%
M & R EQUIPMENT	9,500		5,000		1,424	3,576	28%
M & R VEHICLES	16,001		7,501		6,111	1,390	81%
OPERATIONAL TRAVEL	77,676		76,576	400	24,337	52,239	32%
GASOLINE	9,000		9,000		14,308	-5,308	159%
BOOKS	475		475		0	475	0%
SOFTWARE-NONCAPITAL	180		1,525		1,476	49	97%
PHARMACY SUPPLIES	153,300	2,486	162,026	2,240	135,091	26,935	83%
LABORATORY SUPPLIES	67,750		55,255		44,990	10,265	81%
ANCILLARY SUPPLIES	95,558	5,922	157,946	56,466	71,812	86,134	45%
CLIENT INCENTIVES	37,925		53,238	14,663	18,675	34,563	35%

IMMUNIZATIONS	52,230		49,730		31,075	18,655	62%
OTHER MEDICAL SUPPLIES	290,025		344,875	16,000	213,285	131,591	62%
MEDICAL EXPENSES	4,000		4,000		1,980	2,020	50%
MISCELLANEOUS SUPPLIES	262,197		368,152	121,928	252,923	115,228	69%
MISC CNT SRV	4,807,029	83,633	5,448,893	112,350	5,075,547	373,345	93%
COMPUTER SERVICES	15,279		15,279		0	15,279	0%
CHLD FTL PRV	500		500		369	131	74%
ADVERTISING	21,855		16,362		18,606	-2,244	114%
UNIFORMS	7,415		7,415		7,622	-207	103%
INSURANCE AND BONDS	344,811		344,811		344,811	0	100%
NONCAP COMPU			6,875	6,420	5,022	1,853	73%
MISC MACH			11,200		0	11,200	
VEHICLES					0	0	
RES FUT PURC			122,131		0	122,131	0%
RES FUT PROJ	9,147		13,323	4,176	0	13,323	0%
TOTAL OPERATING	**6,611,303**		**7,585,028**	**357,565**	**6,460,915**	**1,124,114**	**85%**
BENEFITS PLAN	**1,518,700**		**1,518,700**		**1,440,813**	**77,887**	**95%**
REVENUE	**Original Budget**		**Curr. Budget**		**Revenue Collected**	**Uncollected Budget**	**% Percentage**
MEDICAID	1,180,182		1,180,182		1,765,497	585,315	**150%**
FEES	303,730		303,730		365,195	61,465	**120%**
GRANTS	4,093,905		4,481,676		3,628,625	-853,051	**81%**
TOTAL REVENUE	**5,577,817**		**5,965,588**		**5,759,317**	**206,271-**	**97%**

DURHAM COUNTY HEALTH DEPARTMENT FISCAL YEAR 2012-2013 BUDGET REPORT

Fund/Funct/Funds Center/Commitment Item	Original Budget	Rollover Budget	Curr. Budget	Pre Encumb	Encumb	Supplemental Budget Amendment	Expended Budget	Unexpended Budget	% Expended
EXPENDITURE	**21,845,012**	**204,808**	**22,171,124**	**12,697.47**	**3,864,181.94**	**121,304**	**3,611,216.26**	**14,683,028.45**	**34%**
PERSONNEL									
SAL - REG	9,759,220		9,746,545				1,521,296.15	8,225,248.85	16%
SAL-TEMP/PT	888,964		885,452				61,314.07	824,137.93	7%
PAY PLAN ADJUSTMENT	146,660		146,660					146,660.00	
PHONE ALLOWANCE	14,928		14,928				2,480.00	12,448.00	17%
FLEXIBLE BENEFITS	61,216		61,216					61,216.00	
FICA EXPENSE	826,089		826,089				117,206.35	708,882.65	14%
RETIREMENT	726,022		726,022				106,480.16	619,541.84	15%
SUPP RETRMNT	538,150		538,150				78,991.56	459,158.44	15%
TOTAL PERSONNEL	**12,961,249**		**12,945,062**	**12,697**	**3,864,182**	**121,304**	**1,887,768.29**	**11,057,293.71**	
OPERATING									
TELEPHONE	49,938		49,938				2,783.29	47,154.71	6%
POSTAGE	25,000		25,000				2,925.68	22,074.32	12%
PRINTING SUPPLIES	13,788		14,868			1,080	1,300.18	13,567.82	9%
COST PER COPY FEES	32,000		32,000				4,490.05	27,509.95	14%
OFFICE SUPPL	47,609		47,609				5,268.77	42,340.23	11%
NONCAP F & E	20,700	3,805	3,805				3,805.38		100%
TRAINING RELATED TRAVEL	70,062		72,020			1,958	10,742.60	61,277.40	15%
DUES AND SUBSCRIPTIONS	7,200		9,500			200	300.00	9,200.00	3%
M & R EQUIPMENT	11,200		11,200					11,200.00	
M & R VEHICLES	16,000		16,000				161.49	15,838.51	1%
OPERATIONAL TRAVEL	54,785		54,785				1,872.99	52,912.01	3%
GASOLINE	18,029		18,029				993.18	17,035.82	6%
BOOKS	475		475					475.00	
SOFTWARE-NONCAPITAL	540		2,893	2,352.08				540.92	81%
PHARMACY SUPPLIES	305,330	315	305,645		136,508.56		50,007.58	119,129.11	61%
LABORATORY SUPPLIES	71,700		71,700		9,072.72		5,746.39	56,880.89	21%
ANCILLARY SUPPLIES	86,471	4,779	118,736	7,209.39	14,567.92	56,466	22,298.52	74,660.11	37%
CLIENT INCENTIVES	10,844		11,544			700	163.65	11,380.35	1%
IMMUNIZATIONS	37,000		37,000		7,066.80		14,097.49	15,835.71	57%
OTHER MEDICAL SUPPLIES	281,562		281,372	3,136.00	45,371.32		20,903.71	211,960.97	25%
MEDICAL EXPENSES	5,850		5,850					5,850.00	
MISCELLANEOUS SUPPLIES	245,206	5,557	253,847		27,591.06	7,506	37,618.24	188,637.80	26%

MISC CNT SRV	5,288,833	179,483	5,563,459		3,584,239.49	51,594	909,169.96	1,070,050.00	81%
ADVERTISING	9,855		35,785		28,980.00	1,800		6,805.00	81%
UNIFORMS	7,710		7,710				1,200.03	6,509.97	16%
INSURANCE AND BONDS	337,004		337,004				337,004.00		100%
NONCAP COMPU	20,533		41,233					41,233.00	
RES FUT PROJ	202,309		179,956					179,956.00	
Total Operating	**7,277,533**	**193,940**	**7,608,964**	**12,697**	**3,853,398**	**121,304**	**1,432,853**	**2,310,016**	**69%**

BENEFITS PLAN	**1,606,230**		**1,606,230**		**290,595**	**1,315,635**	**18%**

REVENUE	**Original Budget**		**Curr.Budget**		**Revenue Collected**	**Uncollected Budget**	**% Percentage**
MEDICAID	1,045,607		1,045,607		104,773	-940,834	**10%**
GRANT	4,476,939		4,580,526		221,082	-4,359,444	**5%**
FEES	395,480		395,480		28,843	-366,637	**7%**
TOTAL REVENUE	**5,918,026**		**6,021,613**		**354,698**	**5,666,915-**	**6%**

Rachel Godfrey

Water Fluoridation City Council Presentation

I am here today to request that we stop water fluoridation in ~~Wake County~~ Durham. We are currently spending $173,000 per year to purchase Hydrofluorosilicic Acid, a hazardous toxic waste product from the phosphate fertilizer industry, to add to the public water supply for the purpose of reducing tooth decay. **The EPA's Headquarters Professionals' Union opposes water fluoridation based on the scientific literature documenting the increasingly out-of-control exposures to fluoride, the lack of benefit to dental health from *ingestion* of fluoride, and the hazards to human health.** These hazards include acute toxic hazard, such as to people with impaired kidney function, as well as chronic toxic hazards of gene mutations, cancer, reproductive effects, neurotoxicity, bone pathology and dental fluorosis.[i] Why stop water fluoridation?

1.) **There is new evidence of potential serious harm resulting from long-term fluoride ingestion** including damage to the brain and nerves, immune system, endocrine system, the renal system and the skeletal system.[ii]
2.) **By adding fluoride to the public water supply it is increasingly difficult** if not impossible **to control the dose each individual is receiving.**
3.) **Water fluoridation violates the principle of informed consent.**

Water Fluoridation and Scientific Research

A fluoride toxicology study was published in March of 2006 by the National Academy of Science - National Research Council. The study is called "Fluoride in Drinking Water: A Scientific Review of EPA's Standards"[iii]. This documentation was based on studies that met strict criteria (i.e. peer-reviewed published evidence on the toxicology of fluoride).[iv]

Areas that showed risk of serious harm are:

1.) **Fluoride and Bones:** Fracture risk and bone strength have been studied in animal models. The weight of evidence indicates that, although fluoride might increase bone volume, there is less strength per unit volume. (See page 7)[v]

2.) **Fluoride and the Brain: Several studies from China have reported the effects of fluoride in drinking water on cognitive capacities** (X. Li et al. 1995; Zhao et al. 1996; Lu et al. 2000; Xiang et al. 2003a,b). **"The IQ scores in both males and females declined with increasing fluoride exposure."** (See pages 205-223)[vi] On the basis of information largely derived from histological, chemical, and molecular studies, it is apparent that fluorides have the ability to interfere with the functions of the brain and the body by direct and indirect means. To determine the possible adverse effects of fluoride, additional data from both the experimental and the clinical sciences are needed. (See page 222)[vii]

3.) **Fluoride and Behavior: A peer-reviewed study** published in the *Journal of Neurotoxicology and Teratology* **performed by Dr. Phyllis Mullenix showed that brain function was vulnerable to fluoride**, that the effects on behavior depended on the age at exposure and that fluoride accumulated in brain tissues. Rats exposed as adults displayed behavior-specific changes typical of cognitive deficits, whereas rats exposed prenatally had dispersed behaviors typical of hyperactivity. Brain histology was not examined, but the behavioral changes were consistent with those seen when hippocampal development is interrupted and memory problems emerge. **Overall, they concluded that the** rat **study flagged potential for motor dysfunction, IQ deficits and/or learning disabilities in humans.**[viii]

4.) **Fluoride and the Endocrine System:** "In summary, evidence of several types indicates that fluoride affects normal endocrine function or response; the effects of the fluoride-induced changes vary in degree and kind in different individuals. Fluoride is therefore an endocrine disruptor in the broad sense of altering normal endocrine function or response, although probably not in the sense of mimicking a normal hormone."[ix] "The effects of fluoride on various aspects of endocrine function should be examined further, particularly with respect to a possible role in the development of several diseases or mental states in the United States. Major areas for investigation include the following:

   a. **thyroid disease** (especially in light of decreasing iodine intake by the U.S. population);
   b. **nutritional (calcium deficiency) rickets**;
   c. **calcium metabolism** (including measurements of both calcitonin and PTH);
   d. **pineal function** (including, but not limited to, melatonin production); and
   e. **development of glucose intolerance and diabetes**."[x]

5.) **Fluoride and the Immune System:** "Studies of the effects of fluoride on the kidney, liver, and immune system indicate that exposure to concentrations much higher than 4 mg/L can affect renal tissues and function and cause hepatic and immunologic alterations in test animals and in vitro test systems."[xi] "In patients with reduced renal function, the potential for fluoride accumulation in the skeleton is increased. It has been known for many years that people with renal insufficiency have elevated plasma fluoride concentrations compared with normal healthy persons and are at a higher risk of developing skeletal fluorosis."[xii]

6.) **Fluoride and Cancer:** "Fluoride appears to have the potential to initiate or promote cancers, particularly of the bone, but the evidence to date is tentative and mixed... osteosarcoma is of particular concern as a potential effect of fluoride because of (1) fluoride deposition in bone, (2) the mitogenic effect of fluoride on bone cells, (3) animal results described above, and (4) pre-1993 publication of some positive, as well as negative, epidemiologic reports on associations of fluoride exposure with osteosarcoma risk."[xiii]

Elise Bassin's Harvard PhD thesis found an association between fluoride exposure in drinking water during childhood and the incidence of osteosarcoma among males but not consistently among females[xiv]

Water Fluoridation and Controlling the Dose

The population is exposed to several sources of fluoride including drinking water, bath water, toothpaste, processed cereals, commercial beverages, and more. Furthermore, there is no system in place to actively monitor individuals for over-exposure to fluoride or a mechanism to allow the individuals that have been over-exposed to opt-out of future exposure without significant cost. Following are sub-populations that are specifically at risk.

Infants & Young Children: The CDC's National Health and Nutrition Examination Survey shows that in 25 of the 28 largest cities in the U.S., fluoride levels in tap water alone will put 8 to 36 percent of all babies up to 6 months of age over the safe dose of fluoride on any given day.

The NHANES survey from 1999-2002 found an overall dental fluorosis rate of 32 percent among U.S. school children aged 6 to 19 years old (CDC 2005a, CDC 2005b).[xv]

Individuals with impaired kidney function: In patients with reduced renal function, the potential for fluoride accumulation in the skeleton is increased (see Chapter 3). It has been known for many years that people with renal insufficiency have elevated plasma fluoride concentrations compared with normal healthy persons (Hanhijärvi et al. 1972) and are at a higher risk of developing skeletal fluorosis (Juncos and Donadio 1972; Johnson et al. 1979).[xvi]

The National Kidney Foundation released a statement including the following recommendation: "It would also seem prudent to monitor the fluoride intake of patients with chronic renal impairment, particularly those living in areas of high naturally occurring fluoride, children, those with excessive fluoride intake, and those with prolonged disease." [xvii]

"Although several position statements recommend monitoring intake in the potentially susceptible Chronic Kidney Disease population,1,3 the absence of fluoride concentrations on food and beverage labels and lack of data about fluoride intake from dental products and other sources makes this difficult to implement."[xviii]

Elderly: "A study involving lifetime exposure to 4.3–8 ppm fluoride in drinking water found an elevated risk of hip fractures among elderly men and women; this elevated risk of hip fracture was also observed in a community with very low fluoride (0.25–0.34 ppm) in the water."[xix]

Because we have added fluoride to the public water supply we can assume that the public is now being exposed to several sources of fluoride in addition to drinking water. Fluoride is readily absorbed through the skin when showering or bathing. Fluoride is found in many

processed foods and beverages. The major sources of exposure to fluoride are drinking water, food, dental products, and pesticides.xx

Dose should be determined by how much fluoridated food and fluoridated beverages you consume in addition to other sources, such as toothpaste and bathing in fluoridated water. Then we have to consider body weight and size and the capability of each individual's body to eliminate fluoride.
This makes it very difficult to determine the actual amount of fluoride that each individual has consumed and that may be accumulating in our systems on a daily basis.

Water Fluoridation and Informed Consent

It is every individual's right to be informed about the benefits and risks of medical treatment and to decide what happens to his/her body. **By adding fluoride to the public water supply we are denying all individuals the right to review the relevant scientific studies, consider their own personal physiological factors, and make informed decisions to accept or reject treatment of fluoridation.**

By mandating that fluoride be added to the public water supply for the purpose of mass medicating the public to prevent tooth decay **we are requiring citizens to purchase a product from private industry. The product is hydrofluorosilicic acid, a non-pharmaceutical-grade hazardous waste from the phosphate fertilizer industry.** These chemicals are collected from the pollution scrubbers of the phosphate fertilizer industry. The scrubber liquors contain contaminants such as arsenic, lead, cadmium, mercury, and radioactive particles, are legally regulated as toxic waste, and are prohibited from direct dispersal into the environment. Upon being sold (unrefined) to municipalities as fluoridating agents, these same substances are then considered a "product", allowing them to be dispensed through fluoridated municipal water systems.xxi Secondly, **we are mass medicating the public without regard for sub-populations that may be at risk for harmful side effects. Additionally, this puts the citizens at risk for being ethically, legally, and financially liable for future lawsuits resulting from harmful effects caused by fluoride in affected individuals.**

Tooth decay is not a life-threatening or contagious disease. Fluoride is readily available in controllable doses in inexpensive products, such as toothpaste, to all socioeconomic groups. In this form it is more safely distributed for topical use for individuals that wish to benefit from its use and avoid any potential unwanted systemic side effects.

I would like to request from you the peer-reviewed, published toxicological and clinical studies that prove that long-term ingestion (not merely topical use) of the Hydrofluorosilicic Acid product that we currently allow in our public water supply is in fact safe and effective in preventing tooth decay and does not include any serious risks. If you determine that these studies either have not been performed or

that the results indicate harmful side effects I ask you to consider a moratorium on the practice of water fluoridation.

Please feel free to contact me for additional documentation or with any questions you may have.

Contact Information:
Rachel Godfrey
rkgodfrey@gmail.com

---

[i] J. William Hirzy, Ph.D., NTEU CHAPTER 280 - U.S. ENVIRONMENTAL PROTECTION AGENCY, "WHY EPA HEADQUARTERS UNION OF SCIENTISTS OPPOSES FLUORIDATION", http://www.nteu280.org/Issues/Fluoride/NTEU280-Fluoride.htm,

[ii] Dr. Emily Kane, "Recent peer-reviewed publications about Fluoride", http://dremilykane.com/2007/09/27/recent-peer-reviewed-publications-about-fluoride/, September 27th, 2007.

[iii] Committee on Fluoride in Drinking Water, National Research Council, "Fluoride in Drinking Water: A Scientific Review of EPA's Standards", http://www.nap.edu/catalog.php?record_id=11571#toc, 2006.

[iv] Dr. Emily Kane, "Recent peer-reviewed publications about Fluoride", http://dremilykane.com/2007/09/27/recent-peer-reviewed-publications-about-fluoride/, September 27th, 2007.

[v] Committee on Fluoride in Drinking Water, National Research Council, "Fluoride in Drinking Water: A Scientific Review of EPA's Standards", pages 7, 131-180, http://www.nap.edu/catalog.php?record_id=11571#toc, 2006.

[vi] Ibid, pages 205-223, http://www.nap.edu/catalog.php?record_id=11571#toc,

[vii] Ibid, page 222, http://www.nap.edu/catalog.php?record_id=11571#toc,

[viii] Dr. Phyllis Mullenix, "Neurotoxicity of Sodium Fluoride in Rats", http://www.fluoridealert.org/health/brain/mullenix1995.pdf, 1995.

[ix] Committee on Fluoride in Drinking Water, National Research Council, "Fluoride in Drinking Water: A Scientific Review of EPA's Standards", page 223, http://www.nap.edu/catalog.php?record_id=11571#toc, 2006.

[x] Ibid, page 267, http://www.nap.edu/catalog.php?record_id=11571#toc,.

[xi] Ibid, pages 295-302, http://www.nap.edu/catalog.php?record_id=11571#toc,.

[xii] Ibid, page 172, http://www.nap.edu/catalog.php?record_id=11571#toc,.

[xiii] Ibid, page 336, http://www.nap.edu/catalog.php?record_id=11571#toc,.

[xiv] Bassin EB, Wypij D, Davis RB, Mittleman MA, "Age-specific fluoride exposure in drinking water and osteosarcoma (United States)". *Cancer Causes and Control, pages* 421–428.

[xv] Environmental Working Group, "National Academy Calls for Lowering Fluoride Limits in Tap Water", http://www.ewg.org/release/national-academy-calls-lowering-fluoride-limits-tap-water, March 26, 2006.

[xvi] Committee on Fluoride in Drinking Water, National Research Council, "Fluoride in Drinking Water: A Scientific Review of EPA's Standards", page 172, http://www.nap.edu/catalog.php?record_id=11571#toc, 2006.

[xvii] National Kidney Foundation, "Fluoride Intake in Chronic Kidney Disease", page 1, http://www.kidney.org/atoz/pdf/fluoride_intake_in_ckd.pdf, April 15th, 2008.

[xviii] Ibid, page 4, http://www.kidney.org/atoz/pdf/fluoride_intake_in_ckd.pdf.

[xix] U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, Public Health Service, Agency for Toxic Substances and Disease Registry, "TOXICOLOGICAL PROFILE FOR FLUORIDES, HYDROGEN FLUORIDE, AND FLUORINE", page 40, September 2003, http://www.atsdr.cdc.gov/toxprofiles/tp11.pdf.

[xx] Committee on Fluoride in Drinking Water, National Research Council, "Fluoride in Drinking Water: A Scientific Review of EPA's Standards", page 3, http://www.nap.edu/catalog.php?record_id=11571#toc, 2006.

[xxi] NTEU CHAPTER 280 - U.S. ENVIRONMENTAL PROTECTION AGENCY, "A STATEMENT OF CONCERN ON FLUORIDATION",http://www.nteu280.org/Issues/Fluoride/flouridestatement.htm, 2005.

Rachel Godfrey

Coalition of U.S. Environmental Protection Agency Unions

August 5, 2005

RE: Bone Cancer-Fluoride Link

Hon. Stephen L. Johnson, Administrator
U.S. Environmental Protection Agency

Dear Administrator Johnson:

We, the undersigned representatives of a majority (eleven) of EPA's employee unions, are requesting that you direct the Office of Water to issue an Advanced Notice of Proposed Rulemaking setting the maximum contaminant level goal for fluoride at zero, in accordance with Agency policy for all likely or known human carcinogens. Our request is based on the overall weight of the evidence supporting the classification of fluoride as a human carcinogen, including new information from Harvard on the link between fluoride in drinking water and osteosarcoma in boys that was conveyed to you in a meeting with union officials on May 4, 2005.

We appreciate that the Agency anticipates a report next year from the National Research Council on the propriety of its current drinking water standards for fluoride. But it seems highly inappropriate for EPA to do nothing now that it is in possession of this science, while millions of young boys continue to be exposed unwittingly to the elevated risk of a fatal bone cancer as the Agency waits for the NRC to issue its report, then for the report to undergo peer review, and then for the Agency to undertake its own deliberations.

By issuing an Advanced Notice of Proposed Rulemaking the Agency would inform the public and local health authorities about the results of the doctoral dissertation from the Harvard School of Dental Medicine by Elise Bassin without committing the Agency to a formal rulemaking until all those other steps are taken.

It is noteworthy that when industry becomes aware of important new scientific findings like this, it has (depending on the specific statute) a very brief time to notify EPA. The Agency is then expected to take timely and appropriate action based on the specifics of that notification. In the present case EPA is aware of important new, high quality evidence of potentially serious danger to young boys drinking fluoridated water, and we believe EPA has an ethical duty to send an effective warning immediately about this hazard.

It may in fact be appropriate for you to direct EPA's Office of Criminal Enforcement to investigate why Dr. Bassin's study, which was of sufficient quality for her to earn her doctoral degree, remained hidden from EPA for four years. Alternatively, you could request that the Department of Justice undertake the investigation.

As you know, the apparent cover up of the link between water fluoridation and a seven-fold increased risk of osteosarcoma in young boys, shown by the research of Dr. Bassin, is now national news. Major newspapers, including the *Washington Post* and the *Wall Street Journal* have covered the story. The Environmental Working Group has petitioned the National

Toxicology Program to classify fluoride as a human carcinogen based in part on Dr. Bassin's work. (We recommend EWG's petition as a succinct and authoritative overview of the total weight of peer-reviewed evidence supporting the classification of fluoride as a human carcinogen.) EWG has also caused an investigation of the cover up to be started by Harvard and NIEHS, which funded the research.

The eyes of the nation are on the federal science establishment because of a host of scientific integrity issues. Former EPA Assistant Administrator Lynn Goldman and Roni Neff have just published a paper in the American Journal of Public Health on the cost of delayed adoption of health-protective standards that illuminates the real public health costs of the government's failure to act on sound scientific evidence.

We believe our Agency can make an important statement about its commitment to scientific integrity and its application to public health protection by taking the precautionary action we are recommending.

We at EPA can be ahead of the curve on this important issue or behind it. We do not think the latter choice is in the best interest of the public, the Civil Service or EPA, and we fervently and respectfully hope that you will agree with us. As a wise man once said, "The science is what the science is."

We will be happy to discuss this with you and your advisers at your convenience.

Sincerely,

Dwight A. Welch, President
NTEU Chapter 280
280
EPA Headquarters

J. William Hirzy, Vice-President
NTEU
EPA Headquarters

/s/Steve Shapiro, President
AFGE local 3331
EPA Headquarters

/s/Paul Sacker, President
AFGE Local 3911
Region 2 Office, New York

/s/Larry Penley. President
NTEU Chapter 279
EPA Cincinnati Laboratory

/s/Nancy Barron, President
NAGE Local R5-55
Region 4 Office, Atlanta

/s/Wendell Smith, President

/s/Patrick Chan, President

ESC/IFPTE Local 20
Region 9 Office, San Francisco

NTEU Chapter 295
Region 9 Office, San Francisco

/s/Henry Burrell, President
AFGE Local 3428
Region 1 Office, Boston

/s/Alan Hollis, President
AFGE Local 3611
Region 3 Office, Philadelphia

/s/Frank Beck, President
AFGE Local 2900
Ada Laboratory

/s/Mark Coryell, President
AFGE Local 3907
Ann Arbor Laboratory

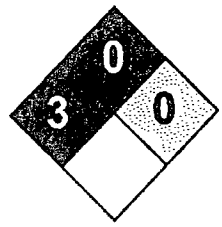
cc:

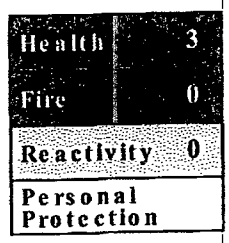
Sen. James Inhofe
Sen. Mike Enzi
Sen. Saxby Chambliss
Sen. Ted Stevens

Sen. James Jeffords
Sen. Edward Kennedy
Sen. Tom Harkin
Sen. Daniel Inouye

Rep. Joe Barton
Rep. Sherwood Boehlert
Rep. Paul Gillmor
Rep. Nathan Deal
Rep. Henry Waxman

Rep. John Dingell
Rep. Bart Gordon
Rep. Hilda Solis
Rep. Sherrod Brown





Material Safety Data Sheet
Fluosilicic acid MSDS

Section 1: Chemical Product and Company Identification

Product Name: Fluosilicic acid

Catalog Codes: SLF1735

CAS#: 16961-83-4

RTECS: VV8225000

TSCA: TSCA 8(b) inventory: Fluosilicic acid

CI#: Not available.

Synonym: Hydrogen hexafluorosilicate

Chemical Name: Not available.

Chemical Formula: H2SiF6

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Fluosilicic acid	16961-83-4	100

Toxicological Data on Ingredients: Fluosilicic acid LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Extremely hazardous in case of skin contact (corrosive, irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (permeator). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Extremely hazardous in case of skin contact (corrosive, irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated or prolonged inhalation of vapors may lead to chronic respiratory irritation.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands : Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Corrosive liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

Section 7: Handling and Storage

Precautions:
Keep container dry. Do not breathe gas/fumes/ vapour/spray. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes May corrode glass. Store in an appropriate container.

Storage:
May corrode glass. Store in an appropriate container. Corrosive materials should be stored in a separate safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection In Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Fuming liquid.)

Odor: Pungent.

Taste: Not available.

Molecular Weight: 144.08 g/mole

Color: Colorless to light yellow.

pH (1% soln/water): Not available.

Boiling Point: Decomposes.

Melting Point: -20°C (-4°F)

Critical Temperature: Not available.

Specific Gravity: 1.3 (Water = 1)

Vapor Pressure: 218 mm of Hg (@ 20°C)

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (In Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: The substance is toxic to lungs, mucous membranes.

Other Toxic Effects on Humans:
Extremely hazardous in case of skin contact (corrosive, irritant), of ingestion, of inhalation. Hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 8: Corrosive liquid.

Identification: : Fluorosilicic acid : UN1778 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Massachusetts RTK: Fluosilicic acid TSCA 8(b) Inventory: Fluosilicic acid

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC): R35- Causes severe burns.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 05:34 PM

Last Updated: 11/01/2010 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

Pergamon

Neurotoxicology and Teratology, Vol. 17, No. 2, pp. 169–177, 1995

0892-0362/95 $9.50 + .00

0892-0362(94)00070-0

Neurotoxicity of Sodium Fluoride in Rats

PHYLLIS J. MULLENIX,*†[1] PAMELA K. DENBESTEN,‡ ANN SCHUNIOR* AND WILLIAM J. KERNAN§

*Toxicology Department, Forsyth Research Institute, Boston, MA 02115
†Department of Radiation Oncology, Harvard Medical School, Boston, MA 02115
‡Department of Pediatric Dentistry, Eastman Dental Center, Rochester, NY 14621
§Veterinary Diagnostic Laboratory, Iowa State University, Ames, IA 50011

Received 25 March 1994; Accepted 12 October 1994

MULLENIX, P. J., P. K. DENBESTEN, A. SCHUNIOR AND W. J. KERNAN. *Neurotoxicity of sodium fluoride in rats.* NEUROTOXICOL TERATOL 17(2) 169–177, 1995.—Fluoride (F) is known to affect mineralizing tissues, but effects upon the developing brain have not been previously considered. This study in Sprague–Dawley rats compares behavior, body weight, plasma and brain F levels after sodium fluoride (NaF) exposures during late gestation, at weaning or in adults. For prenatal exposures, dams received injections (SC) of 0.13 mg/kg NaF or saline on gestational days 14–18 or 17–19. Weanlings received drinking water containing 0, 75, 100, or 125 ppm F for 6 or 20 weeks, and 3 month-old adults received water containing 100 ppm F for 6 weeks. Behavior was tested in a computer pattern recognition system that classified acts in a novel environment and quantified act initiations, total times and time structures. Fluoride exposures caused sex- and dose-specific behavioral deficits with a common pattern. Males were most sensitive to prenatal day 17–19 exposure, whereas females were more sensitive to weanling and adult exposures. After fluoride ingestion, the severity of the effect on behavior increased directly with plasma F levels and F concentrations in specific brain regions. Such association is important considering that plasma levels in this rat model (0.059 to 0.640 ppm F) are similar to those reported in humans exposed to high levels of fluoride.

Fluoride Neurotoxicity Central nervous system

DENTAL fluorosis has been on the rise since the 1950s, indicating that our total fluoride exposure is increasing (9). Fluoride, including sodium fluoride (NaF), has been added to public water supplies for over 40 years in the United States as a preventative measure against dental caries. Other sources of fluoride exposure include processed beverages, toothpastes, mouth rinses, dietary supplements, and food. Although dental fluorosis causes discoloration of teeth, it is not considered a public health concern because it does not hinder tooth function or oral health. In addition, no clear link has been established between fluoride and cancer risk, bone fractures, birth defects, or problems of the gastrointestinal, genito-urinary, or respiratory systems (1). Therefore, the impetus to limit total fluoride exposure in the United States is currently based on cosmetic concerns and a general desire not to expose the public to any more fluoride than the amount necessary to prevent dental caries.

One concern that has not been fully investigated is the link between fluoride and effects on the central nervous system (CNS). In vitro studies have shown that intracellular fluoride can alter the kinetic properties of calcium currents in hippocampal neurons (22). Fluoride is a normal component of cerebrospinal fluid (21), but it has not been found to accumulate there during endemic fluorosis or nervous system disease (21,41). Yet, there have been reports from Chinese investigators that high levels of fluoride in drinking water (i.e., 3–11 ppm) affect the nervous system directly without first causing physical deformations from skeletal fluorosis (13,20,40). One study of adult humans found attention affected by sublingual drops containing 100 ppm of sodium fluoride (39), an exposure level potentially relevant to humans because toothpastes contain 1000 to 1500 ppm fluoride (8,48) and mouthrinses contain 230–900 ppm fluoride (48).

Many years of ubiquitous fluoride exposure have not resulted in obvious CNS problems such as seizures, lethargy, salivation, tremors, paralysis, or sensory deficits. Still unexplored, however, is the possibility that fluoride exposure is linked with subtle brain dysfunction. The present study evaluates the neurotoxic potential of sodium fluoride in an animal model. It uses behavioral methodology that focuses on behavioral repertoire, responses to novelty and the temporal or sequential organization of spontaneous behavior, all important

[1] Requests for reprints should be addressed to Phyllis J. Mullenix, P.O. Box 753, Andover, MA 01810-0013.

TABLE 1

EFFECTS OF PRENATAL FLUORIDE EXPOSURE IN 9-WEEK-OLD RATS

Gestational Age of F Exposure	Body Weight (g ± SD)		Plasma F (ppm ± SD)		Behavior (RS Statistic)
	Control	Exposed	Control	Exposed	
Females					
Days 14–18	228.6 ± 15.6	240.5 ± 15.6			0.037
	n = 18	n = 27			n = 18 pairs
Days 17–19	242.0 ± 15.0	244.0 ± 22.9	0.008 ± 0.002	0.008 ± 0.003	0.066
	n = 24	n = 24	n = 9	n = 10	n = 20 pairs
Males					
Days 14–18	347.4 ± 25.3	351.8 ± 38.7			0.082
	n = 20	n = 31			n = 20 pairs
Days 17–19	366.2 ± 37.9	371.0 ± 32.4	0.011 ± 0.003	0.008 ± 0.002	0.144*
	n = 24	n = 24	n = 10	n = 11	n = 20 pairs

*$p < 0.001$.

to the study of CNS function and cognitive processes (12, 32,35,46). Rats were exposed at various stages of development to determine critical periods of CNS susceptibility to fluoride. Also, effects on behavior were related to levels of fluoride found in plasma and in different regions of the brain.

METHOD

Animals

Five hundred and thirty-two pathogen-free Sprague–Dawley rats from the Charles River Laboratories (Kingston, RI) were evaluated in this study. All procedures were conducted under the auspices of Forsyth Dental Center's Animal Care and Use Committee. The animals were assigned randomly to either experimental or control groups and housed 2/cage/treatment and sex. Light cycles were maintained as 12L : 12D cycle (6:00 a.m. to 6:00 p.m.), and food and water were given ad lib except during the behavioral observation periods. Body weight was recorded once weekly and a t test was applied with a $p < 0.01$ required for significance. Further details of treatment protocols depended on the age at exposure.

Prenatal exposures. Twenty-nine timed pregnant dams were obtained on gestational day (GD) 8 (vaginal plug = day 1) and individually housed throughout gestation and lactation. At birth, litters were culled to 10 pups/dam with an equal number of males and females whenever possible. The diet of the dams consisted of Purina Rat Chow (Formulab), and the pups received Certified Purina Rat Chow (5002) after weaning on GD 21. Drinking water for both was deionized water throughout the study. On GDs 14–18 or 17–19, experimental dams (n = 7 and 9, respectively) received SC injections of 0.13 mg/kg sodium fluoride (in saline) two or three times daily (a total of 9 injections per group) at least 4 h apart. Control dams (13 total) received SC injection of an equal volume/body weight of saline on the same gestational days to match each experimental group. This route and concentration of fluoride exposure produces peak plasma fluoride levels of 0.15–0.20 ppm which return to control levels within 4 h in nongravid females (4). Beyond the prenatal period, these pups received no other experimental fluoride treatment.

Weanling exposures. At 19 days of age, male and female pups were shipped with dams having 10 pups/litter. When weaned on GD 21, the pups (n = 19–27/sex and treatment) were maintained thereafter on a low fluoride diet (< 10 ppm fluoride, Purina 5010, or Teklad L356, Madison, WI). When teeth were broken in either the control or experimental groups, this diet was given in powdered form for a few days until normal occlusion returned. Their drinking water contained either 0, 75, 100, 125, or 175 ppm fluoride (3.9, 5.3, 6.6, or 9.2 mM NaF in deionized water, respectively) for 6 or 20 weeks. The 175 ppm level, studied only in females, resulted in dehydration and the death of 10 of the exposed animals within 10 days. Therefore, the 175 ppm exposure was discontinued after 10 days, and the 11 survivors were given deionized water for the remainder of the study. Each fluoride treatment group had matching controls who received deionized water only. This range of fluoride exposures was selected because 100 ppm fluoride in drinking water produces dental fluorosis without other overt signs of toxicity in rats (11).

Adult exposures. Male and female rats (n = 21–24/sex/treatment) were obtained at 10 weeks of age and given 0 or 100 ppm sodium fluoride in deionized water for 5 to 6 weeks starting at 12 weeks of age. They were fed the same low fluoride diet as in the weanling exposure.

Plasma and Brain Fluoride

After the behavioral tests at the termination of each study, blood samples were collected by cardiac puncture under CO_2 anesthesia. When plasma fluoride determinations were needed at ages prior to termination of the study, blood samples were obtained from extra control and exposed animals not included in any behavioral study. All plasma fluoride concentrations were determined using an ion-specific electrode (Orion, Cambridge, MA), following the hexamethyldisiloxane diffusion method (HMDS) of Whitford and Reynolds (51). Brain fluoride concentrations also were determined for two treatment groups receiving weanling or adult exposures. After CO_2 euthanasia, these animals were decapitated and the brain removed, blotted, and chilled with further dissection performed on an ice-cooled glass plate. Seven regions of the rat brain were dissected:

1. Cerebellum,
2. Medulla oblongata,

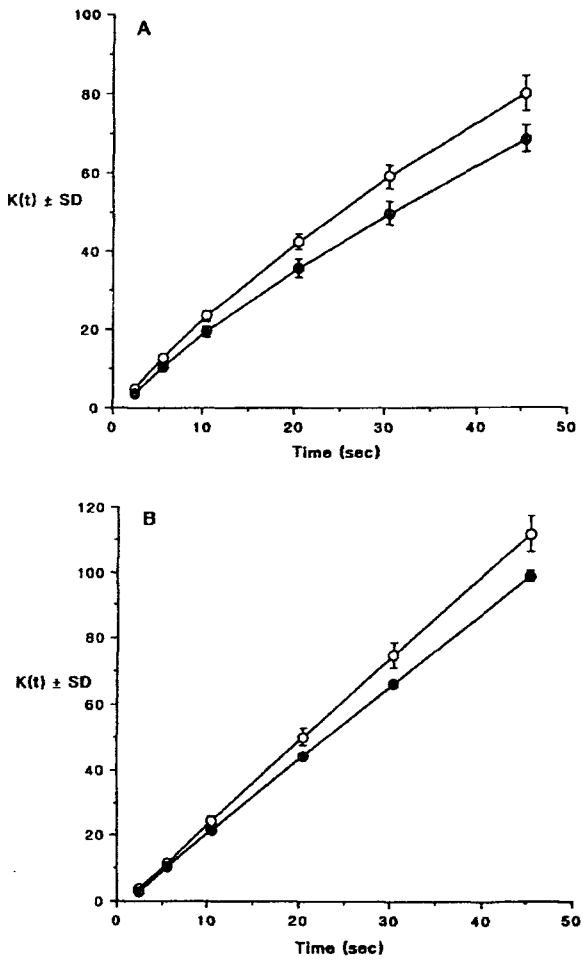


FIG. 1. Regardless of the gestational period of exposure or sex of the offspring, prenatal fluoride typically affected behavioral time structure but not behavioral initiations or total times. These example K functions illustrate the time-structure changes found in 9-week-old male rats significantly affected (RS = 0.144; $p < 0.001$) by fluoride exposure on GDs 17–19 (●) compared to respective controls (○). Significant dispersions (decreased K values) are shown for the behaviors groom/attention (A) and turn (B). Error bars indicate ± SD.

3. Hypothalamus,
4. Midbrain,
5. Striatum,
6. Hippocampus and
7. Cortex

The procedures described in detail by Glowinski and Iversen (17) were used. Each brain region was individually lyophilized and weighed, and the fluoride content was measured following diffusion of ionic fluoride (51).

Behavior

Methods to assess effects on behavior were the same as in prior studies of amphetamine induced hyperactivity and stereotypy (34), triethyltin induced hypoactivity (23), and cognitive deficits induced by CNS therapy (35,36). Except for

TABLE 2

EFFECTS ON BODY WEIGHT BY FLUORIDE EXPOSURE STARTED AT WEANING

F in Drinking Water	Exposure Duration	Age When Weighed	Controls g ± SD	Exposed g ± SD
Females				
75 ppm	6 weeks	9 weeks	248.1 ± 19.3 $n = 20$	257.0 ± 30.2 $n = 21$
100 ppm	6 weeks	9 weeks	247.0 ± 23.0 $n = 22$	242.0 ± 24.0 $n = 22$
125 ppm	6 weeks	9 weeks	237.7 ± 15.4 $n = 21$	208.3 ± 30.2† $n = 26$
	11 weeks	14 weeks	296.1 ± 25.8 $n = 21$	265.1 ± 26.2† $n = 27$
	16 weeks	19 weeks	329.0 ± 26.1 $n = 21$	300.4 ± 31.6* $n = 27$
	20 weeks	23 weeks	339.1 ± 30.1 $n = 21$	313.4 ± 33.4* $n = 26$
175 ppm	10 days	9 weeks	227.0 ± 20.8 $n = 19$	206.5 ± 11.5* $n = 11$
	10 days	18 weeks	352.9 ± 33.3 $n = 16$	331.4 ± 31.8 $n = 11$
Males				
75 ppm	6 weeks	9 weeks	381.1 ± 25.4 $n = 20$	380.9 ± 21.8 $n = 21$
125 ppm	6 weeks	9 weeks	380.1 ± 37.2 $n = 21$	330.1 ± 35.9‡ $n = 24$
	11 weeks	14 weeks	545.1 ± 56.1 $n = 18$	451.3 ± 30.1‡ $n = 23$
	16 weeks	19 weeks	656.6 ± 80.3 $n = 21$	553.6 ± 44.4‡ $n = 25$
	20 weeks	23 weeks	717.8 ± 90.8 $n = 21$	592.9 ± 66.3‡ $n = 25$

*$p < 0.01$, t-test; †$p < 0.001$, t-test; ‡$p < 0.0001$, t-test.

TABLE 3

PLASMA FLUORIDE LEVELS AFTER FLUORIDE EXPOSURE STARTED AT WEANING

F in Drinking Water	Exposure Duration	Age When Measured	Controls ppm ± SD	Exposed ppm ± SD
Females				
75 ppm	6 weeks	9 weeks	0.009 ± 0.003 $n = 8$	0.066 ± 0.02† $n = 8$
100 ppm	6 weeks	9 weeks	0.007 ± 0.001 $n = 6$	0.150 ± 0.03‡ $n = 7$
125 ppm	6 weeks	9 weeks	0.006 ± 0.001 $n = 4$	0.107 ± 0.028‡ $n = 6$
	20 weeks	23 weeks	0.015 ± 0.006 $n = 8$	0.640 ± 0.308‡ $n = 8$
Males				
75 ppm	6 weeks	9 weeks	0.012 ± 0.002 $n = 10$	0.170 ± 0.097‡ $n = 10$
125 ppm	6 weeks	9 weeks	0.011 ± 0.011 $n = 4$	0.126 ± 0.031† $n = 7$
	20 weeks	23 weeks	0.013 ± 0.005 $n = 8$	0.408 ± 0.255* $n = 8$

*$p < 0.01$, t test; †$p < 0.001$, t test; ‡$p < 0.0001$, t test.

TABLE 4

EFFECTS ON BEHAVIOR BY FLUORIDE EXPOSURE STARTED AT WEANING

F in Drinking Water	Exposure Duration	Age When Measured	RS Statistic
Females			
75 ppm	6 weeks	9 weeks	0.052
			n = 20 pairs
100 ppm	6 weeks	9 weeks	0.359†
			n = 22 pairs
125 ppm	6 weeks	9 weeks	0.115*
			n = 20 pairs
	11 weeks	14 weeks	0.140†
			n = 20 pairs
	16 weeks	19 weeks	0.169†
			n = 20 pairs
Males			
75 ppm	6 weeks	9 weeks	0.024
			n = 20 pairs
125 ppm	6 weeks	9 weeks	0.086
			n = 20 pairs
	11 weeks	14 weeks	0.204†
			n = 20 pairs
	16 weeks	19 weeks	0.311†
			n = 20 pairs

*$p < 0.01$; †$p < 0.001$.

adult exposures, behavior was tested in animals at 9 weeks of age, and behavioral tests were repeated at 14 and 19 weeks when the period of exposure extended beyond 6 weeks. Behavioral tests were conducted in an isolated observation room between 0900 and 1300 h each day for consistent diurnal testing. Two video cameras taking 1 frame/s were used to monitor simultaneously the spontaneous behavior of 1 fluoride-treated rat and its matched control during a 15-min exploration of a novel environment. The novel environment consisted of a clear Plexiglas box, where the control and treated rats were separated by a clear partition with small holes that allowed them to see and smell each other during exploration. The video signals were transferred to a MICRO VAX I and a VAX 11/750 for pattern analysis and behavioral classification of the data. The behaviors identified by the computer consisted of five major body positions (stand, sit, rear, walk, and lying down) and eight modifiers (groom, head turn, look, smell, sniff, turn, wash face, and blank or no recognized activity). The system of cameras, computers, computer software, and novel environment has been described in detail (26).

Three measures of spontaneous behavior were taken: a calculation of behavioral initiations (BI), behavioral total time (BTT), and a measure of behavioral time structure (BTS) concerning the time distribution of the initiation of discrete acts and of sequences of joint acts. The BI, BTT, and BTS measures in this study were computed for 18–22 pairs (a pair consists of 1 fluoride-treated rat and 1 matched control) per treatment group.

Calculation of behavioral initiations (BI). The frames in which a specific behavior began were totaled for each act during the 15-min observation period for each rat. The mean number of initiations was determined for each control and experimental group of rats. A student's t test was applied and a $p < 0.05$ was required for statistical significance.

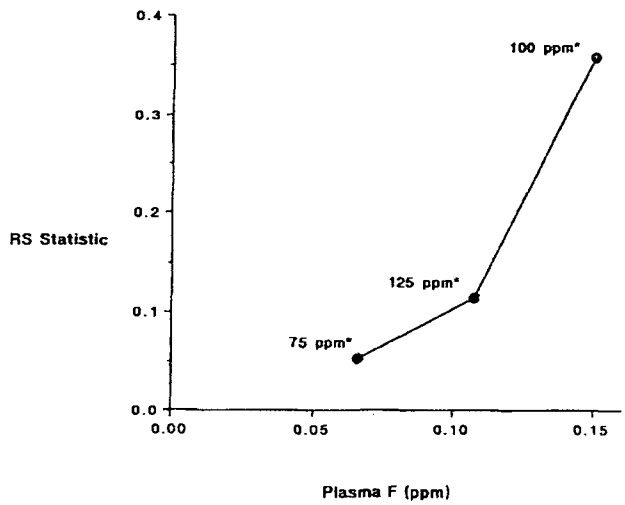


FIG. 2. Severity of behavioral disruption indicated by the RS statistic increased as plasma fluoride levels increased. Elevated plasma fluoride levels were induced by 6-week exposures to sodium fluoride in drinking water of female rats whose exposure began at 21 days of age. Concentrations of fluoride in drinking water associated with each plasma level are highlighted with asterisks.

Calculation of behavioral total time (BTT). The number of frames that a behavior continued, including the frame it was initiated, was totaled for the 15-min observation period. The mean total time for each act in control and experimental groups of rats was determined and statistical significance was evaluated using the student's t test, with a $p < 0.05$ required for a change to be considered significant.

Calculation of behavioral time structure (BTS). The time

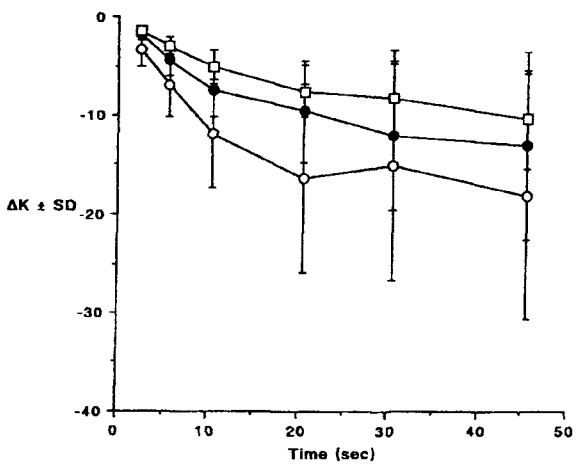


FIG. 3. The ΔK's [the difference between K(t) for a control and an exposed group at the first six time points evaluated] are shown for 100 ppm fluoride for 6 weeks starting at 3 months of age in females (●) and 125 ppm fluoride for 20 weeks starting at 21 days of age in females (○) and males (□). Regardless of the different doses, exposure durations, and ages when exposure began, the fluoride in drinking water caused the time structure of the behavior sit to cluster (negative ΔK values) by 5 months of age. Error bars indicate ± SD.

TABLE 5

CONSISTENT BEHAVIORAL EFFECTS OF FLUORIDE EXPOSURE STARTED AT WEANING

Behavior	Females		Females		Males	
	Control	100 ppm F for 6 Weeks	Control	125 ppm F for 16 Weeks	Control	125 ppm F for 16 Weeks
Sit						
BI (±SE)	20.7 ± 3.0	16.0 ± 1.8	22.4 ± 2.2	15.2 ± 1.8*	57.7 ± 3.3	42.8 ± 3.5†
BTT (±SE)	76.6 ± 19.3	37.9 ± 5.1	66.8 ± 10.9	37.7 ± 5.5*	245.6 ± 21.8	174.4 ± 23.6*
Groom						
BI	13.8 ± 2.6	6.5 ± 1.1*	8.1 ± 2.0	5.2 ± 1.2	30.0 ± 5.5	14.3 ± 2.2*
BTT	29.8 ± 6.3	9.4 ± 1.8†	20.1 ± 6.2	11.4 ± 3.4	70.3 ± 16.1	35.8 ± 8.9
Turn						
BI	123.5 ± 5.5	123.1 ± 5.1	110.7 ± 3.8	105.9 ± 5.5	97.2 ± 5.0	81.7 ± 5.4*
Head turn						
BI	61.9 ± 3.5	57.4 ± 2.9	67.3 ± 2.2	58.6 ± 1.5†	68.1 ± 4.0	58.5 ± 5.0
BTT	75.8 ± 5.3	66.8 ± 3.7	78.8 ± 2.9	69.4 ± 1.9†	84.9 ± 5.5	72.7 ± 7.0
Groom/explore (cluster)						
BI	12.6 ± 3.1	8.5 ± 0.9	15.4 ± 1.9	8.6 ± 1.0†	37.5 ± 3.0	23.7 ± 2.9†
BTT	17.3 ± 4.8	10.7 ± 1.2	19.5 ± 2.4	11.5 ± 1.4†	49.5 ± 4.3	32.5 ± 4.6†
Groom/attention (cluster)						
BI	26.5 ± 4.4	16.1 ± 2.4*	20.4 ± 2.9	12.6 ± 1.8*	72.1 ± 5.2	46.1 ± 4.1‡
BTT	60.7 ± 11.8	43.2 ± 9.0	40.3 ± 8.6	21.5 ± 3.6*	184.9 ± 19.8	131.4 ± 18.7
Groom (cluster)						
BI	10.4 ± 2.5	4.6 ± 0.9*	6.9 ± 1.6	4.3 ± 1.1	22.6 ± 3.8	11.7 ± 2.0*
BTT	22.7 ± 6.2	7.0 ± 1.6*	13.9 ± 3.7	8.2 ± 2.4	42.4 ± 7.8	23.6 ± 4.5*
Stand						
BTT	576.0 ± 22.1	607.9 ± 12.0	608.1 ± 14.9	629.2 ± 17.7	532.5 ± 20.2	599.0 ± 22.0*
Attention (cluster)						
BTT	494.9 ± 19.9	529.5 ± 13.4	505.3 ± 14.8	528.7 ± 20.0	418.4 ± 21.4	499.3 ± 20.9*

*$p < 0.05$, t test; †$p < 0.01$, t test; ‡$p < 0.001$, t test.

distribution and time sequence of behavioral acts were calculated using equations for $K(t)$ as previously reported (27,28,33). The K function was calculated for specific behavioral acts (e.g., sit, rear) or sequences of specific behavioral acts (e.g., sit . . . rear) (33) and for combined acts (e.g., attention or attention/groom) or sequences of combined acts (e.g., attention . . . explore or attention/explore . . . groom/attention) (28). For each of these, a $\Delta K(t)$ [the difference between $K(t)$ for the fluoride animals and matched controls] was calculated for eight time points (2,5,10,20,30,45,100, and 200 s). At any one time point, when K values increase (compared to controls) for a behavior, it means that that particular behavior (or sequence) is "clustering" in time (as seen in hypoactivity), while a decrease means it is "dispersing" in time (it had increased regularity of timing between initiations as seen in hyperactivity). Whenever a behavioral act was initiated less than 10 times on average per animal, control or experimental, $K(t)$ values were not determined for that behavior and related sequences. The bootstrap technique was used for estimating SD at each time point of the K-function for a behavior, and the ad hoc criteria for significance of a difference between control and exposed groups have been described (23,25,27,28,33,34).

An RS statistic was determined for each fluoride treatment. The ad hoc RS statistic distinguishes low level behavioral ef-

TABLE 6

EFFECTS OF 100 ppm FLUORIDE FOR 6 WEEKS STARTING IN 3 MONTH-OLD-RATS

	Body Weight (g ± SD)		Plasma F (ppm ± SD)		Behavior (RS Statistic)
	Control	Exposed	Control	Exposed	
Females	331.8 ± 41.6	319.8 ± 36.1	0.010 ± 0.002	0.077 ± 0.040*	0.200‡
	$n = 21$	$n = 22$	$n = 5$	$n = 5$	$n = 20$ pairs
Males	620.3 ± 45.3	609.0 ± 72.1	0.012 ± 0.005	0.059 ± 0.027†	0.053
	$n = 24$	$n = 22$	$n = 6$	$n = 5$	$n = 18$ pairs

*$p < 0.05$, t test; †$p < 0.01$, t test; ‡$p < 0.001$.

fects from noise (24). This statistic encompasses all data produced in an experiment into one simple statistic. This is an advantage considering that the computer system generates over 100 behavioral measures of three distinctly different types (initiations, total times, and time structures) per experiment. The RS statistic indicates whether behavior is changed overall and the confidence level associated with that change. Statistical significance was set at the $p < 0.01$ level.

RESULTS

Prenatal Exposures

No maternal or offspring toxicity was indicated by reduced body weight in dams during treatment or in their pups soon after birth. Yet, prenatal exposure to sodium fluoride altered behavioral outcome in male offspring when exposure occurred on GDs 17–19 (Table 1). This effect consisted entirely of time structure changes in 11 behaviors and behavioral sequences, 10 of which were significantly dispersed compared to matching controls as illustrated in Fig. 1. These behavioral effects did not coincide with reduced body weight nor elevated plasma fluoride levels at 9 weeks of age (Table 1). At 3 weeks of age, plasma fluoride levels also were not elevated despite prenatal exposure on GD 17–19; plasma fluoride levels were no different in prenatal fluoride females (0.007 ppm ± 0.003 SD; $n = 7$) compared to matched controls (0.006 ppm ± 0.002 SD; $n = 7$) or in prenatal fluoride males (0.004 ppm ± 0.002 SD; $n = 8$) compared to controls (0.004 ppm ± 0.003 SD; $n = 8$).

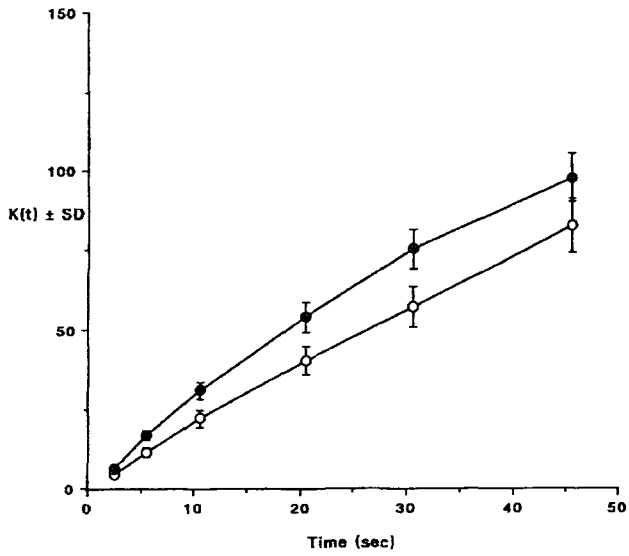


FIG. 4. Exposure to fluoride at the adult stage significantly altered (RS = 0.200; $p < 0.001$) behavior of female rats (●) compared to respective controls (○). This example K function illustrates time-structure changes typical of the adult F effect. Significant clustering (increased K values) is shown for the behavior groom/attention, which prenatal F, in contrast, significantly dispersed (Fig. 1A). Error bars indicate ± SD.

Weanling Exposures

When fluoride exposures began at 21 days of age, effects on body weight depended on the fluoride concentration in the drinking water (Table 2). Concentrations below 125 ppm did not affect body weight gain at any time during a 5- to 6-week exposure. In contrast, at 125 ppm body weight was reduced throughout 20 weeks of exposure in both sexes. The 11 survivors of a 10-day exposure to 175 ppm F also had stunted growth compared to matched controls at 9 weeks of age. However, by 18 weeks of age, stunting among the 175 ppm female survivors was ameliorated (Table 2).

Plasma fluoride levels were significantly increased in all exposed animals, but again the increase depended upon the fluoride concentration given in the drinking water (Table 3). At 75 and 100 ppm fluoride in drinking water of females for 6 weeks, plasma fluoride levels increased respective of dose. When concentration in the drinking water was 125 ppm for 6 weeks, plasma fluoride levels increased compared to controls but not to levels expected considering results observed at lower drinking water concentrations (Table 3).

Fluoride in drinking water of weanlings altered behavior in both sexes (Table 4). The duration and concentration of exposure determined whether significant effects occurred. In females, a 6-week exposure to 100 or 125 ppm was sufficient to alter behavior, whereas in males an 11-week exposure to 125 ppm in drinking water significantly affected behavior. Too few 175 ppm fluoride females (11 in total) survived after a 10-day exposure to determine an RS statistic for that group. A relationship between behavioral effects and plasma fluoride levels was observed in females exposed for 6 weeks to 75, 100, or 125 ppm fluoride. Figure 2 illustrates that as plasma fluoride levels increased, the RS statistic increased, with significant behavioral impact estimated to occur at a plasma fluoride level of approximately 0.107 ppm. Significant behavioral impact in males, however, did not occur until plasma levels exceeded 0.126 and 0.170 ppm (Table 3 and Table 4).

Regardless of sex, duration of exposure, or the fluoride concentration in the drinking water of weanlings, a common pattern among behavioral disturbances developed. Table 5 includes all behaviors that were significantly affected in BI and/or BTT by at least one fluoride exposure. Age and sex influenced the BI and BTT of these behaviors in controls, but still a general effect of fluoride emerged. Whether exposure lasted 6 or 16 weeks, at the 100 or 125 ppm level, in males or females, the same direction of change with respect to controls occurred for a certain array of behaviors and related behavioral clusters. Whereas the act of standing and the related attention cluster tended to increase in total time, the other acts consistently decreased in initiations and total times.

Adult Exposures

Male and female adult rats given 100 ppm fluoride for 6 weeks had significantly increased plasma fluoride levels with no effect on body weight, whereas behavior was affected only in females (Table 6). Compared to females exposed at weaning, females exposed as adults had a lower plasma fluoride level (0.077 ppm) associated with significant behavioral impact. However, the same pattern of BI and BTT changes seen with weanling exposures (Table 5) also developed in females exposed as adults. For example, initiations of sitting, the groom/attention cluster, and the groom/explore cluster in adult female controls (42.9 ± 3.0; 50.4 ± 5.4; 23.9 ± 2.4 SE, respectively) were more frequent than in adult exposed females (30.2 ± 3.0; 34.7 ± 3.7; 15.3 ± 1.8 SE, respectively; $p < 0.01$). Another similarity appeared among BTS effects when adult and weanling exposed rats approached 5 months of age (Fig. 3). Other BTS effects appeared to differ

TABLE 7

BRAIN REGION FLUORIDE LEVELS (ppm ± SE) IN 5- TO 6-MONTH-OLD RATS

	Hypothalamus	Cerebellum	Medulla Oblongata	Basal Ganglia	Mid-Brain	Cortex	Hippocampus
Females							
Control+	0.396 ± 0.073 n = 12	0.358 ± 0.055 n = 13	0.609 ± 0.107 n = 14	0.406 ± 0.103 n = 14	0.634 ± 0.213 n = 14	0.479 ± 0.107 n = 14	0.258 ± 0.043 n = 12
125 ppm F for 20 wks in weanlings	1.685 ± 0.565† n = 8	3.120 ± 0.968† n = 8	3.281 ± 1.054† n = 7	1.281 ± 0.229† n = 8	1.091 ± 0.194 n = 8	1.830 ± 0.383† n = 8	0.993 ± 0.168† n = 8
100 ppm F for 6 wks in adults	0.308 ± 0.043 n = 5	0.325 ± 0.052 n = 6	1.280 ± 0.445 n = 6	0.252 ± 0.043 n = 6	0.306 ± 0.087 n = 5	0.602 ± 0.195 n = 6	0.790 ± 0.328* n = 4
Males							
Control	0.364 ± 0.052 n = 14	0.292 ± 0.055 n = 13	0.281 ± 0.044 n = 14	0.273 ± 0.036 n = 14	0.246 ± 0.035 n = 14	0.372 ± 0.069 n = 14	0.287 ± 0.048 n = 14
125 ppm F for 20 wks in weanlings	0.839 ± 0.130† n = 7	2.133 ± 0.573† n = 8	1.875 ± 0.334 n = 8	0.697 ± 0.101† n = 8	0.770 ± 0.145† n = 8	1.727 ± 0.435† n = 8	0.834 ± 0.104† n = 8
100 ppm F for 6 wks in adults	0.340 ± 0.049 n = 5	0.412 ± 0.095 n = 6	3.922 ± 2.379† n = 5	0.422 ± 0.146 n = 5	0.378 ± 0.106 n = 6	0.350 ± 0.057 n = 6	0.411 ± 0.088 n = 6

+Controls pooled from 100 and 125 ppm fluoride exposures; *$p \leq 0.05$; one-factor ANOVA followed by Fisher's procedure for multiple comparisons; †$p \leq 0.01$; one-factor ANOVA followed by Fisher's procedure for multiple comparisons.

depending on the age when exposure occurred; the significant dispersing of groom/attention after prenatal fluoride (Fig. 1) is in contrast with the significant clustering of the same behavior by fluoride exposures started in adults (Figure 4). Future studies will have to determine if this variation is a function of the age at exposure or the age when tested.

Fluoride Levels in Brain

Fluoride exposure via drinking water elevated the fluoride levels in various brain regions (Table 7). In male and female rats exposed to 125 ppm fluoride for 20 weeks starting at weaning, brain fluoride levels increased in all seven brain regions examined. In rats exposed to 100 ppm fluoride for 6 weeks starting at 3 months of age, fluoride levels increased in the medulla oblongata in both sexes and in the hippocampus of females, the sex with significant behavioral disturbances.

DISCUSSION

This study demonstrates a link between certain fluoride exposures and behavioral disruption in the rat. The effect on behavior varied with the timing of exposure during CNS development. Behavioral changes common to weanling and adult exposures were different from those after prenatal exposures. Prenatal exposure on GDs 17–19 dispersed many behaviors as seen in drug-induced hyperactivity (34), while weanling and adult exposures led to behavior-specific changes more related to cognitive deficits (35,36). Prenatally induced behavioral effects were unaccompanied by changes in body weight or elevated plasma fluoride levels. Rather, the most obvious hypothesis is that the effects relied on transient peaks in maternal plasma fluoride levels, fluoride passing the placenta, and fluoride penetrating the blood–brain barrier of the fetus. Fluoride has been reported to pass the placenta in rats (45), and on GD 17–19 the blood–brain barrier is immature and readily penetrable (52). In contrast, the behavioral effects induced by weanling and adult exposures were accompanied often by weight reduction and always by elevated plasma fluoride levels. In fact, effects on behavior related directly to plasma fluoride levels and the fluoride accumulation in the brain. This contradicts findings from short-term fluoride kinetic studies, which found that the adult blood–brain barrier was relatively impermeable to fluoride when whole brain fluoride levels were measured within 1 h following IV injection (49,50). Considering the brain fluoride accumulations found in this study, such impermeability does not apply to chronic exposure situations.

Hyperactivity and cognitive deficits are generally linked with hippocampal damage (3), and in fact, the hippocampus is considered to be the central processor which integrates inputs from the environment, memory, and motivational stimuli to produce behavioral decisions and modify memory (12). GDs 17–19 in the rat is a period when pyramidal cells of the hippocampus are forming (6), and granule cells of the dentate gyrus of the hippocampus form at the ages when weanling and adult exposures were administered (7). Involvement of different cell types would explain variation in behavioral outcomes between prenatal, weanling, and adult exposures. The hypothalamus and the hippocampus in normal female rat brains have the lowest concentrations of fluorine, the element which was found to be the most regionally distributed by instrumental neutron activation analysis (10). The method used for ionic fluoride analysis in the present study also revealed that the brain region containing the lowest fluoride concentrations was the hippocampus of controls but only in females. This hippocampal selectivity was disrupted when adult females were exposed for 6 weeks to 100 ppm fluoride; hippocampal fluoride levels increased and behavior was affected. Adult males receiving the same fluoride exposure did not have significantly elevated fluoride levels in the hippocampus, nor did they have significant behavioral disturbances. Sex differences in hippocampal function have been described recently in other studies (2,47). Overall, the behavioral changes from fluoride exposure are consistent with interrupted hippocampal

development. Whether the hippocamus is indeed the brain region most susceptible to fluoride is a possibility deserving consideration in future studies.

Interruption of normal brain development often results in responses that are sex-dependent. The brain responds differently to drugs depending on which hormones are present at the time and whether the brain is male or female (30). In male primates the orbital cortex matures earlier than in females, and such developmental differences are thought responsible for the consequences of perinatal injuries appearing more frequently in males (18). This type of developmental difference might explain why transient peaks of fluoride on prenatal days 17–19 affected males and not females. The effects of chronic fluoride exposures at weanling and adult stages may have involved still other sexual dimorphisms. There are developmentally regulated sexual dimorphisms in hypothalamic somatostatin and growth-hormone-releasing factor signaling, growth hormone secretion and even hepatic metabolism (5,29,38). The sexually dimorphic control of growth would be especially important to fluoride distribution. The rate of fluoride uptake by bone depends on age or the stage of skeletal development; fluoride is deposited in mineralizing new bone more readily than in existing bone (49). As males experience greater and more prolonged growth spurts than females, their plasma fluoride might be directed more to bone than to brain, perhaps explaining why longer exposures and higher plasma fluoride levels were needed in males to affect behavior. Fluoride's tendency to seek developing bone may also explain why adult female rats had behavioral effects at a lower plasma fluoride concentration than did weanling female rats. Levels of fluoride in plasma and bone must be correlated with those in specific brain regions of both sexes to fully understand behavioral consequences.

Rats ingested 75–125 ppm fluoride for weeks to attain plasma fluoride levels of 0.059–0.640 ppm. Six weeks of consuming 75 and 100 ppm fluoride produced higher plasma fluoride levels than did 125 ppm. Perhaps a taste aversion limited water consumption at the 125 ppm level, prolonging the period needed to attain plasma levels that were achieved in 6 weeks by the two lower exposure levels. Regardless, it was fluoride levels in plasma, not fluoride levels of exposure, which best predicted effects on behavior. Similar plasma fluoride levels of 0.076–0.25 ppm have been found in humans ingesting 5–10 ppm fluoride in drinking water (19,37,42), and plasma levels as high as 0.28 to 0.43 ppm have been measured in children drinking water containing 16 ppm fluoride (44). This plasma fluoride range also occurs in certain therapies. Fasting serum fluoride levels of 0.2 to 0.3 ppm are used in the treatment of osteoporosis (31), and plasma fluoride levels as high as 1.44 ppm are found in children 1 h after receiving topical applications of an acidulated phosphate fluoride (1.23%) gel (14,15).

Because humans occasionally are exposed to high amounts of fluoride and plasma levels as high as those found in this rat study, neurotoxic risks deserve further evaluation. This is the first laboratory study to demonstrate that CNS functional output is vulnerable to fluoride, that the effects on behavior depend on the age at exposure and that fluoride accumulates in brain tissues. Experience with other developmental neurotoxicants prompts expectations that changes in behavioral function will be comparable across species, especially humans and rats (16,43). Of course behaviors per se do not extrapolate, but a generic behavioral pattern disruption as found in this rat study can be indicative of a potential for motor dysfunction, IQ deficits and/or learning disabilities in humans. Substances that accumulate in brain tissue potentiate concerns about neurotoxic risks, but the conditions leading to fluoride deposits in any species are still not clear such that quantitative extrapolations are not possible at this time. Thus, conclusions concerning the neurotoxic potential of fluoride require further rat and human studies, both focused on the relationship of plasma fluoride levels with the brain, behavior, and skeletal growth.

ACKNOWLEDGEMENTS

We thank John W. Hein, former Director of the Forsyth Dental Center, and the late Harold C. Hodge for their encouragement, suggestions, and support during this project. We also thank Amy Szeto and Itsuko Sakai for expert technical assistance in conducting these studies.

REFERENCES

1. Ad hoc Subcommittee on Fluoride of the Committee to Coordinate Environmental Health and Related Programs. Review of fluoride: Benefits and risks. Washington, DC: Public Health Service; 1991.
2. Ahima, R. S.; Lawson, A. N. L.; Osei, S. Y. S.; Harlan, R. E. Sexual dimorphism in regulation of type II corticosteroid receptor immunoreactivity in the rat hippocampus. Endocrinology 131: 1409–1416; 1992.
3. Altman, J. Morphological and behavioral markers of environmentally induced retardation of brain development. Environ. Health Perspect. 74:153–168; 1987.
4. Angmar-Månsson, B.; Whitford, G. M. Plasma fluoride levels and enamel fluorosis in the rat. Caries Res. 16:334–339; 1982.
5. Argente, J.; Chowen, J. A.; Zeitler, P.; Clifton, D. K.; Steiner, R. A. Sexual dimorphism of growth hormone-releasing hormone and somatostatin gene expression in the hypothalamus of the rat during development. Endocrinology 128:2369–2375; 1991.
6. Bayer, S. A. Development of the hippocampal region in the rat. I. Neurogenesis examined with ^{3}H-thymidine autoradiography. J. Comp. Neurol. 190:87–114; 1980.
7. Bayer, S. A.; Yackel, J. W.; Puri, P. S. Neurons in the rat dentate gyrus granular layer substantially increase during juvenile and adult life. Science 216:890–892; 1982.
8. Beltran, E. D.; Szpunar, S. M. Fluoride in toothpastes for children. Suggestion for change. Pediatr. Dent. 10:185–188; 1988.
9. Centers for Disease Control. Public Health Service Report on fluoride benefits and risks. MMWR 40 (No. RR-7):1–8; 1991.
10. Chan, A. W. K.; Minski, M. J.; Lai, J. C. K. An application of neutron activation analysis to small biological samples: Simultaneous determination of thirty elements in rat brain regions. J. Neurosci. Methods 7:317–328; 1983.
11. DenBesten, P. K.; Crenshaw, M. A. The effects of chronic high fluoride levels on forming enamel in the rat. Archs. Oral Biol. 29: 675–679; 1984.
12. DeLong, G. R. Autism, amnesia, hippocampus, and learning. Neurosci. Biobehav. Rev. 16:63–70; 1992.
13. Ding, L. I. The nervous systemic complications of chronic fluorosis. Chinese J. Endemiology 2:97–98; 1983.
14. Ekstrand, J. Pharmacokinetic aspects of topical fluorides. J. Dent. Res. 66:1061–1065; 1987.
15. Ekstrand, J.; Koch, G.; Lindgren, L. E.; Peterson, L. G. Pharmacokinetics of fluoride gels in children and adults. Caries Res. 15:213–220; 1981.
16. Francis, E. Z.; Kimmel, C. A.; Rees, D. C. Workshop on the qualitative and quantitative comparability of human and animal developmental neurotoxicity: Summary and Implications. Neurotoxicol. Teratol. 12:285–292; 1990.
17. Glowinski, J.; Iversen, L. L. Regional studies of catecholamines in the rat brain. I. The disposition of [^{3}H] norepinephrine, [^{3}H]

dopamine and [^{3}H]DOPA in various regions of the brain. J. Neurochem. 13:655–669; 1966.
18. Goldman, P. S.; Crawford, H. T.; Stokes, L. P.; Galkin, T. W.; Rosvold, H. E. Sex-dependent behavioral effects of cerebral cortical lesions in the developing rhesus monkey. Science 186: 540–542;1974.
19. Guy, W. S.; Taves, D. R. Relation between F in drinking water and human plasma. J. Dent. Res. 52:238; 1973.
20. Hu, Y. H. Direct damage on nervous system by fluorosis. The Compilation of the First Conference on Neuropsychiatric Diseases in Xinjian. 1982:86–88.
21. Hu, Y. H.; Wu, S. S. Fluoride in cerebrospinal fluid of patients with fluorosis. J. Neurol. Neurosurg. Psychiatry 51:1591–1593; 1988.
22. Kay, A. R.; Miles, R.; Wong, R. K. S. Intracellular fluoride alters the kinetic properties of calcium currents facilitating the investigation of synaptic events in hippocampal neurons. J. Neurosci. 6:2915–2920; 1986.
23. Kernan, W. J.; Hopper, D. L.; Bowes, M. P. Computer pattern recognition: Spontaneous motor activity studies of rats following acute exposure to triethyltin. J. Am. Coll. Toxicol. 10:705–718; 1992.
24. Kernan, W. J.; Meeker, W. Q. A statistical test to assess changes in spontaneous behavior of rats observed with a computer pattern recognition system. J. Biopharm. Stat. 2:115–135; 1992.
25. Kernan, W. J.; Mullenix, P. J. Stability and reproducibility of time structure in spontaneous behavior in male rats. Pharmacol. Biochem. Behav. 39:747–754; 1991.
26. Kernan, W. J.; Mullenix, P. J.; Hopper, D. L. Pattern recognition of rat behavior. Pharmacol. Biochem. Behav. 27:559–564; 1987.
27. Kernan, W. J.; Mullenix, P. J.; Hopper, D. L. Time structure analysis of behavioral acts using a computer pattern recognition system. Pharmacol. Biochem. Behav. 34:863–869; 1989.
28. Kernan, W. J.; Mullenix, P. J.; Kent, R.; Hopper, D. L.; Cressie, N. A. Analysis of the time distribution and time sequence of behavioral acts. Intern. J. Neuroscience 43:35–51; 1988.
29. Legraverend, C.; Mode, A.; Wells, T.; Robinson, I.; Gustafsson, J.-A. Hepatic steroid hydroxylating enzymes are controlled by the sexually dimorphic pattern of growth hormone secretion in normal and dwarf rats. FASEB J. 6:711–718; 1992.
30. McEwen, B. S. Actions of sex hormones on the brain: "Organization" and "activation" in relation to functional teratology. Prog. Brain Res. 73:121–134; 1988.
31. Mohan, S.; Stauffer, M.; Baylink, D. J. Clinical use of fluoride in osteoporosis. In: Kanis, J. A., ed. Calcium metabolism. Basel: Karger; 1990:137–164.
32. Mullenix, P. J. Evolution of motor activity tests into a screening reality. Toxicol. Indust. Health 5: 203–219; 1989.
33. Mullenix, P. J.; Kernan, W. J. Extension of the analysis of the time structure of behavioral acts. Intern. J. Neuroscience 44:251–262; 1989.
34. Mullenix, P. J.; Kernan, W. J.; Tassinari, M. S.; Schunior, A. Generation of dose–response data using activity measures. J. Am. Coll. Toxicol. 8:185–197; 1989.
35. Mullenix, P. J.; Kernan, W. J.; Tassinari, M. S.; Schunior, A.; Waber, D. P.; Howes, A.; Tarbell, N. J. An animal model to study toxicity of central nervous system therapy for childhood acute lymphoblastic leukemia: Effects on behavior. Cancer Res. 50:6461–6465; 1990.
36. Mullenix, P. J.; Kernan, W. J.; Schunior, A.; Howes, A.; Waber, D. P.; Sallan, S. E.; Tarbell, N. J. Interactions of steroid, methotrexate, and radiation determine neurotoxicity in an animal model to study therapy for childhood leukemia. Pediatr. Res. 35:171–178; 1994.
37. Paez, D.; Dapas, O. Biochemistry of fluorosis X: Comparative study of fluoride levels in biological fluids. Fluoride 15:87–96; 1982.
38. Painson, J.-C.; Tannenbaum, G. S. Sexual dimorphism of somatostatin and growth hormone-releasing factor signaling in the control of pulsatile growth hormone secretion in the rat. Endocrinology 128:2858–2866; 1991.
39. Rotton, J.; Tikofsky, R. S.; Feldman, H. T. Behavioral effects of chemicals in drinking water. J. Appl. Psychol. 67:230–238; 1982.
40. Shung-Guan, C. M.; Luo, J. Y.; Wang, W. G.; Wang, K. M.; Ge, Z. H.; Sun, G. Y. The nonskeletal lesions of endemic fluorosis. Chinese J. Int. Med. 21:217–219; 1982..
41. Singer, L.; Armstrong, W. D.; Lavender, D. R. Fluoride levels of plasma and cerebrospinal fluid. J. Dent. Res. 46:455; 1967.
42. Singer, L.; Ophaug, R. Ionic and nonionic fluoride in plasma (or serum). CRC Crit. Rev. Clin. Lab. Sci. 18:111–140; 1982.
43. Stanton, M. E.; Spear, L. P. Workshop on the qualitative and quantitative comparability of human and animal developmental neurotoxicity, work group I report: Comparability of measures of developmental neurotoxicity in humans and laboratory animals. Neurotoxicol. Teratol. 12: 261–267; 1990.
44. Strivastava, R. N.; Gill, D. S.; Moudgil, A.; Menon, R. K.; Thomas, M.; Dandona, P. Normal ionized calcium, parathyroid hypersecretion, and elevated osteocalcin in a family with fluorosis. Metabolism 2:120–124; 1986.
45. Theuer, R. C.; Mahoney, A. W.; Sarett, H. P. Placental transfer of fluoride and tin in rats given various fluoride and tin salts. J. Nutr. 101:525–532; 1971.
46. Tucker, D. M.; Williamson, P. A. Asymmetric neural control systems in human self-regulation. Psychol. Rev. 91:185–215; 1984.
47. Turner, B. B. Sex differences in the binding of type I and type II corticosteroid receptors in rat hippocampus. Brain Res. 581:229–236; 1992.
48. Whitford, G. M. The metabolism and toxicity of fluoride. Monogr. Oral Sci. 13:1–160; 1989.
49. Whitford, G. M. The physiological and toxicological characteristics of fluoride. J. Dent. Res. 69:539–549; 1990.
50. Whitford, G. M.; Pashley, D. H.; Reynolds, K. E. Fluoride tissue distribution: Short-term kinetics. Am. J. Physiol. 236:F141–F148; 1979.
51. Whitford, G. M.; Reynolds, K. E. Plasma and developing enamel fluoride concentrations during chronic acid-base disturbance. J. Dent. Res. 58:2058–2065; 1979.
52. Woodbury, D. M. Maturation of the blood–brain and blood-CSF barriers. In: Vernadakis, A.; Weiner, N., eds. Drugs and the developing brain. New York: Plenum Press; 1974:259–280.

Fluoride in Water Linked to Lower IQ in Children

Is this the end of water fluoridation?

NEW YORK, Dec. 21, 2010 /PRNewswire-USNewswire/ -- Exposure to fluoride may lower children's intelligence says a study pre-published in *Environmental Health Perspectives*, a publication of the National Institute of Environmental Health Sciences (online December 17, 2010).

Fluoride is added to 70% of U.S. public drinking water supplies.

According to Paul Connett, Ph.D., director of the Fluoride Action Network, "This is the 24th study that has found this association, but this study is stronger than the rest because the authors have controlled for key confounding variables and in addition to correlating lowered IQ with levels of fluoride in the water, the authors found a correlation between lowered IQ and fluoride levels in children's blood. This brings us closer to a cause and effect relationship between fluoride exposure and brain damage in children."

"What is also striking is that the levels of the fluoride in the community where the lowered IQs were recorded were lower than the EPA's so-called 'safe' drinking water standard for fluoride of 4 ppm and far too close for comfort to the levels used in artificial fluoridation programs (0.7 – 1.2 ppm)," says Connett.

In this study, 512 children aged 8-13 years in two Chinese villages were studied and tested – Wamaio with an average of 2.47 mg/L water fluoride (range 0.57-4.50 mg/L) and Xinhuai averaging 0.36 mg/L (range 0.18-0.76 mg/L).

The authors eliminated both lead exposure and iodine deficiency as possible causes for the lowered IQs. They also excluded any children who had a history of brain disease or head injury and none drank brick tea, known to contain high fluoride levels. Neither village is exposed to fluoride pollution from burning coal or other industrial sources.

About 28% of the children in the low-fluoride area scored as bright, normal or higher intelligence compared to only 8% in the "high" fluoride area of Wamaio.

In the high-fluoride city, 15% had scores indicating mental retardation and only 6% in the low-fluoride city.

The study authors write: "In this study we found a significant dose-response relation between fluoride level in serum and children's IQ."

In addition to this study, and the 23 other IQ studies, there have been over 100 animal studies linking fluoride to brain damage (all the IQ and animal brain studies are listed in Appendix 1 in

The Case Against Fluoride available online at
http://fluoridealert.org/caseagainstfluoride.appendices.html).

One of the earliest animal studies of fluoride's impact on the brain was published in the U.S. This study by Mullenix et. al (1995) led to the firing of the lead author by the Forsyth Dental Center. "This sent a clear message to other researchers in the U.S. that it was not good for their careers to look into the health effects of fluoride – particularly on the brain," says Connett. Connett adds, "The result is that while the issue of fluoride's impact on IQ is being aggressively pursued around the world, practically no work has been done in the U.S. or other fluoridating countries to repeat their findings. Sadly, health agencies in fluoridated countries seem to be more intent on protecting the fluoridation program than protecting children's brains."

When the National Research Council of the National Academies reviewed this topic in their 507-page report "Fluoride in Drinking Water: A Review of EPA's Standards" published in 2006, only 5 of the 24 IQ studies were available in English. Even so the panel found the link between fluoride exposure and lowered IQ both consistent and "plausible."

According to Tara Blank, Ph.D., the Science and Health Officer for the Fluoride Action Network, "This should be the study that finally ends water fluoridation. Millions of American children are being exposed unnecessarily to this neurotoxin on a daily basis. Who in their right minds would risk lowering their child's intelligence in order to reduce a small amount of tooth decay, for which the evidence is very weak." (see *The Case Against Fluoride,* Chelsea Green, October 2010*)*
http://www.FluorideAction.org
SOURCE Fluoride Action Network

Back to top
RELATED LINKS
http://www.fluoridealert.org/

Why EPA's Headquarters Professionals' Union Opposes Fluoridation

National Treasury Employees Union - Chapter 280 | May 1, 1999

by Dr. J. William Hirzy

The following documents why our union, formerly National Federation of Federal Employees Local 2050 and since April 1998 Chapter 280 of the National Treasury Employees Union, took the stand it did opposing fluoridation of drinking water supplies. Our union is comprised of and represents the approximately 1500 scientists, lawyers, engineers and other professional employees at EPA Headquarters here in Washington, D.C.

The union first became interested in this issue rather by accident. Like most Americans, including many physicians and dentists, most of our members had thought that fluoride's only effects were beneficial - reductions in tooth decay, etc. We too believed assurances of safety and effectiveness of water fluoridation. For a history of how drinking water fluoridation began, see "Fluoride, Teeth and the Atomic Bomb" , by investigative reporters Joel Griffiths and Chris Bryson.

Then, as EPA was engaged in revising its drinking water standard for fluoride in 1985, an employee came to the union with a complaint: he said he was being forced to write into the regulation a statement to the effect that EPA thought it was alright for children to have "funky" teeth. It was OK, EPA said, because it considered that condition to be only a cosmetic effect, not an adverse health effect. The reason for this EPA position was that it was under political pressure to set its health-based standard for fluoride at 4 mg/liter. At that level, EPA knew that a significant number of children develop moderate to severe dental fluorosis , but since it had deemed the effect as only cosmetic, EPA didn't have to set its health-based standard at a lower level to prevent it. We tried to settle this ethics issue quietly, within the family, but EPA was unable or unwilling to resist external political pressure, and we took the fight public with a union amicus curiae brief in a lawsuit filed against EPA by a public interest group. The union has published on this initial involvement period in detail (1) .

Since then our opposition to drinking water fluoridation has grown, based on the scientific literature documenting the increasingly out-of-control exposures to fluoride, the lack of benefit to dental health from ingestion of fluoride and the hazards to human health from such ingestion. These hazards include acute toxic hazard, such as to people with impaired kidney function , as well as chronic toxic hazards of gene mutations ,cancer ,reproductive effects ,neurotoxicity ,bone pathology and dental fluorosis . First, a review of recent neurotoxicity research results.

In 1995, Mullenix and co-workers (2) showed that rats given fluoride in drinking water at levels that give rise to plasma fluoride concentrations in the range seen in humans suffer neurotoxic effects that vary according to when the rats were given the fluoride - as adult animals, as young animals, or through the placenta before birth. Those exposed before birth were born hyperactive and remained so

throughout their lives. Those exposed as young or adult animals displayed depressed activity. Then in 1998, Guan and co-workers (3) gave doses similar to those used by the Mullenix research group to try to understand the mechanism(s) underlying the effects seen by the Mullenix group. Guan's group found that several key chemicals in the brain - those that form the membrane of brain cells - were substantially depleted in rats given fluoride, as compared to those who did not get fluoride.

Another 1998 publication by Varner, Jensen and others (4) reported on the brain- and kidney damaging effects in rats that were given fluoride in drinking water at the same level deemed "optimal" by pro-fluoridation groups, namely 1 part per million (1 ppm). Even more pronounced damage was seen in animals that got the fluoride in conjunction with aluminum. These results are especially disturbing because of the low dose level of fluoride that shows the toxic effect in rats -rats are more resistant to fluoride than humans. This latter statement is based on Mullenix's finding that it takes substantially more fluoride in the drinking water of rats than of humans to reach the same fluoride level in plasma. It is the level in plasma that determines how much fluoride is "seen" by particular tissues in the body. So when rats get 1 ppm in drinking water, their brains and kidneys are exposed to much less fluoride than humans getting 1 ppm, yet they are experiencing toxic effects. Thus we are compelled to consider the likelihood that humans are experiencing damage to their brains and kidneys at the 'optimal' level of 1 ppm.

In support of this concern are results from two epidemiology studies from China (5,6) that show decreases in I.Q. in children who get more fluoride than the control groups of children in each study. These decreases are about 5 to 10 I.Q. points in children aged 8 to 13 years. Another troubling brain effect has recently surfaced: fluoride's interference with the function of the brain's pineal gland. The pineal gland produces melatonin which, among other roles, mediates the body's internal clock, doing such things as governing the onset of puberty. Jennifer Luke (7) has shown that fluoride accumulates in the pineal gland and inhibits its production of melatonin. She showed in test animals that this inhibition causes an earlier onset of sexual maturity , an effect reported in humans as well in 1956, as part of the Kingston/Newburgh study, which is discussed below. In fluoridated Newburgh, young girls experienced earlier onset of menstruation (on average, by six months) than girls in non-fluoridated Kingston (8) .

From a risk assessment perspective, all these brain effect data are particularly compelling and disturbing because they are convergent. We looked at the cancer data with alarm as well. There are epidemiology studies that are convergent with whole-animal and single-cell studies (dealing with the cancer hazard), just as the neurotoxicity research just mentioned all points in the same direction. EPA fired the Office of Drinking Water's chief toxicologist, Dr. William Marcus , who also was our local union's treasurer at the time, for refusing to remain silent on the cancer risk issue (9) . The judge who heard the lawsuit he brought against EPA over the firing made that finding - that EPA fired him over his fluoride work and not for the phony reason put forward by EPA management at his dismissal. Dr. Marcus won his lawsuit and is again at work at EPA. Documentation is available on request.

The type of cancer of particular concern with fluoride, although not the only type, is osteosarcoma , especially in males. The National Toxicology Program conducted a two-year study (10) in which rats and mice were given sodium fluoride in drinking water. The positive result of that study (in which malignancies in tissues other than bone were also observed), particularly in male rats, is convergent with a host of data from tests showing fluoride's ability to cause mutations (a principal 'trigger' mechanism for inducing a cell to become cancerous) (e.g. 11a, b, c, d and data showing increases in osteosarcomas in young men in New Jersey 12 , Washington and Iowa 13) based on their drinking fluoridated water. It was his analysis, repeated statements about all these and other incriminating cancer data, and his requests for an independent, unbiased evaluation of them that got Dr. Marcus fired.

Bone pathology other than cancer is a concern as well. An excellent review of this issue was published by Diesendorf et al. in 1997 (14). Five epidemiology studies have shown a higher rate of hip fractures in fluoridated vs. non-fluoridated communities (15a, b, c, d, e) . Crippling skeletal fluorosis was the endpoint used by EPA to set its primary drinking water standard in 1986, and the ethical deficiencies in that standard setting process prompted our union to join the Natural Resources Defense Council in opposing the standard in court, as mentioned above.

Regarding the effectiveness of fluoride in reducing dental cavities , there has not been any double-blind study of fluoride's effectiveness as a caries preventative. There have been many, many small scale, selective publications on this issue that proponents cite to justify fluoridation, but the largest and most comprehensive study, one done by dentists trained by the National Institute of Dental Research, on over 39,000 school children aged 5-17 years, shows no significant differences (in terms of decayed, missing and filled teeth) among caries incidences in fluoridated, non-fluoridated and partially fluoridated communities (16) . The latest publication (17) on the fifty-year fluoridation experiment in two New York cities, Newburgh and Kingston, shows the same thing. the only significant difference in dental health between the two communities as a whole is that fluoridated Newburgh, N.Y. shows about twice the incidence of dental fluorosis (the first, visible sign of fluoride chronic toxicity) as seen in non-fluoridated Kingston.

John Colquhoun's publication on this point of efficacy is especially important (18) . Dr. Colquhoun was Principal Dental Officer for Auckland, the largest city in New Zealand, and a staunch supporter of fluoridation - until he was given the task of looking at the world-wide data on fluoridation's effectiveness in preventing cavities. The paper is titled, "Why I changed My Mind About Water Fluoridation." In it Colquhoun provides details on how data were manipulated to support fluoridation in English speaking countries, especially the U.S. and New Zealand. This paper explains why an ethical public health professional was compelled to do a 180 degree turn on fluoridation.

Further on the point of the tide turning against drinking water fluoridation, statements are now coming from other dentists in the pro-fluoride camp who are starting to warn that topical fluoride (e.g. fluoride in tooth paste) is the only significantly beneficial way in which that substance affects dental health (19, 20,

21). However, if the concentrations of fluoride in the oral cavity are sufficient to inhibit bacterial enzymes and cause other bacteriostatic effects, then those concentrations are also capable of producing adverse effects in mammalian tissue, which likewise relies on enzyme systems. This statement is based not only on common sense, but also on results of mutation studies which show that fluoride can cause gene mutations in mammalian and lower order tissues at fluoride concentrations estimated to be present in the mouth from fluoridated tooth paste (22) . Further, there were tumors of the oral cavity seen in the NTP cancer study mentioned above, further strengthening concern over the toxicity of topically applied fluoride.

In any event, a person can choose whether to use fluoridated tooth paste or not (although finding non-fluoridated kinds is getting harder and harder), but one cannot avoid fluoride when it is put into the public water supplies. So, in addition to our concern over the toxicity of fluoride, we note the uncontrolled - and apparently uncontrollable - exposures to fluoride that are occurring nationwide via drinking water, processed foods, fluoride pesticide residues and dental care products. A recent report in the lay media (23) , that, according to the Centers for Disease Control, at least 22 percent of America's children now have dental fluorosis , is just one indication of this uncontrolled, excess exposure. The finding of nearly 12 percent incidence of dental fluorosis among children in un-fluoridated Kingston New York (17) is another. For governmental and other organizations to continue to push for more exposure in the face of current levels of over-exposure coupled with an increasing crescendo of adverse toxicity findings is irrational and irresponsible at best. Thus, we took the stand that a policy which makes the public water supply a vehicle for disseminating this toxic and prophylactically useless (via ingestion, at any rate) substance is wrong.

We have also taken a direct step to protect the employees we represent from the risks of drinking fluoridated water. We applied EPA's risk control methodology, the Reference Dose, to the recent neurotoxicity data. The Reference Dose is the daily dose, expressed in milligrams of chemical per kilogram of body weight, that a person can receive over the long term with reasonable assurance of safety from adverse effects. Application of this methodology to the Varner et al. (4) data leads to a Reference Dose for fluoride of 0.000007 mg/kg-day. Persons who drink about one quart of fluoridated water from the public drinking water supply of the District of Columbia while at work receive about 0.01mg/kg-day from that source alone. This amount of fluoride is more than 100 times the Reference Dose. On the basis of these results the union filed a grievance, asking that EPA provide un-fluoridated drinking water to its employees.

The implication for the general public of these calculations is clear. Recent, peer-reviewed toxicity data, when applied to EPA's standard method for controlling risks from toxic chemicals, require an immediate halt to the use of the nation's drinking water reservoirs as disposal sites for the toxic waste of the phosphate fertilizer industry (24) .

*Read an interview with Dr. Hirzy concerning the NTP's Fluoride Cancer study
*Read Dr. Hirzy's June 2000 Testimony to the US Senate

This document was prepared on behalf of the National Treasury Employees Union Chapter 280 by Chapter Senior Vice-President J. William Hirzy, Ph.D. For more information please call Dr. Hirzy at 202-260-4683. His E-mail address is <hirzy.john@epa.gov>

END NOTE LITERATURE CITATIONS

1. Applying the NAEP code of ethics to the Environmental Protection Agency and the fluoride in drinking water standard. Carton, R.J. and Hirzy, J.W. Proceedings of the 23rd Ann. Conf. of the National Association of Environmental Professionals. 20-24 June, 1998. GEN 51-61. On-line at http//:www.rvi.net/~fluoride/naep.htm

2. Neurotoxicity of sodium fluoride in rats. Mullenix, P.J., Denbesten, P.K., Schunior, A. and Kernan, W.J. Neurotoxicol. Teratol. 17 169-177 (1995)

3. Influence of chronic fluorosis on membrane lipids in rat brain. Z.Z. Guan, Y.N. Wang, K.Q. Xiao, D.Y. Dai, Y.H. Chen, J.L. Liu, P. Sindelar and G. Dallner, Neurotoxicology and Teratology 20 537-542 (1998).

4. Chronic administration of aluminum- fluoride or sodium-fluoride to rats in drinking water: alterations in neuronal and cerebrovascular integrity. Varner, J.A., Jensen, K.F., Horvath, W. And Isaacson, R.L. Brain Research 784 284-298 (1998).

5. Effect of high fluoride water supply on children?s intelligence. Zhao, L.B., Liang, G.H., Zhang, D.N., and Wu, X.R. Fluoride 29 190-192 (1996)

6. Effect of fluoride exposure on intelligence in children. Li, X.S., Zhi, J.L., and Gao, R.O. Fluoride 28 (1995).

7. Effect of fluoride on the physiology of the pineal gland. Luke, J.A. Caries Research 28 204 (1994).

8. Newburgh-Kingston caries-fluorine study XIII. Pediatric findings after ten years. Schlesinger, E.R., Overton, D.E., Chase, H.C., and Cantwell, K.T. JADA 52 296-306 (1956).

9. Memorandum dated May 1, 1990. Subject: Fluoride Conference to Review the NTP Draft Fluoride Report; From: Wm. L. Marcus, Senior Science Advisor ODW; To: Alan B. Hais, Acting Director Criteria & Standards Division ODW.

10. Toxicology and carcinogenesis studies of sodium fluoride in F344/N rats and B6C3F1 mice. NTP Report No. 393 (1991).

11a. Chromosome aberrations, sister chromatid exchanges, unscheduled DNA synthesis and morphological neoplastic transformation in Syrian hamster embryo cells. Tsutsui et al. Cancer Research 44 938-941 (1984).

11b. Cytotoxicity, chromosome aberrations and unscheduled DNA synthesis in cultured human diploid fibroblasts. Tsutsui et al. Mutation Research 139 193-198 (1984).

11c. Positive mouse lymphoma assay with and without S-9 activation; positive sister chromatid exchange in Chinese hamster ovary cells with and without S-9 activation; positive chromosome

aberration without S-9 activation. Toxicology and carcinogenesis studies of sodium fluoride in F344/N rats and B6C3F1 mice. NTP Report No. 393 (1991).

11d. An increase in the number of Down's syndrome babies born to younger mothers in cities following fluoridation. Science and Public Policy 12 36-46 (1985).

12. A brief report on the association of drinking water fluoridation and the incidence of osteosarcoma among young males. Cohn, P.D. New Jersey Department of Health (1992).

13. Surveillance, epidemiology and end results (SEER) program. National Cancer Institute in Review of fluoride benefits and risks. Department of Health and Human Services. F1-F7 (1991).

14. New evidence on fluoridation. Diesendorf, M., Colquhoun, J., Spittle, B.J., Everingham, D.N., and Clutterbuck, F.W. Australian and New Zealand J. Public Health. 21 187-190 (1997).

15a. Regional variation in the incidence of hip fracture: U.S. white women aged 65 years and older. Jacobsen, S.J., Goldberg, J., Miles, ,T.P. et al. JAMA 264 500-502 (1990)

15b. Hip fracture and fluoridation in Utah?s elderly population. Danielson, C., Lyon, J.L., Egger, M., and Goodenough, G.K. JAMA 268 746-748 (1992).

15c. The association between water fluoridation and hip fracture among white women and men aged 65 years and older: a national ecological study. Jacobsen, S.J., Goldberg, J., Cooper, C. and Lockwood, S.A. Ann. Epidemiol.2 617-626 (1992).

15d. Fluorine concentration is drinking water and fractures in the elderly [letter]. Jacqmin-Gadda, H., Commenges, D. and Dartigues, J.F. JAMA 273 775-776 (1995).

15e. Water fluoridation and hip fracture [letter]. Cooper, C., Wickham, C.A.C., Barker, D.J.R. and Jacobson, S.J. JAMA 266 513-514 (1991).

16. Water fluoridation and tooth decay: Results from the 1986-1987 national survey of U.S. school children. Yiamouyannis, J. Fluoride 23 55-67 (1990).

17. Recommendations for fluoride use in children. Kumar, J.V. and Green, E.L. New York State Dent. J. (1998) 40-47.

18. Why I changed my mind about water fluoridation. Colquhoun, J. Perspectives in Biol. And Medicine 41 1-16 (1997).

19. A re-examination of the pre-eruptive and post-eruptive mechanism of the anti-caries effects of fluoride: is there any anti-caries benefit from swallowing fluoride? Limeback, H. Community Dent. Oral Epidemiol. 27 62-71 (1999).

20. Fluoride supplements for young children: an analysis of the literature focussing on benefits and risks. Riordan, P.J. Community Dent. Oral Epidemiol. 27 72-83 (1999).

21. Prevention and reversal of dental caries: role of low level fluoride. Featherstone, J.D. Community Dent. Oral Epidemiol. 27 31-40 (1999).

22. Appendix H. Review of fluoride benefits and risks. Department of Health and Human Services. H1-H6 (1991).

23. Some young children get too much fluoride. Parker-Pope, T. Wall Street Journal Dec. 21, 1998.

24. Letter from Rebecca Hanmer, Deputy Assistant Administrator for Water, to Leslie Russell re: EPA view on use of by-product fluosilicic (sic) acid as low cost source of fluoride to water authorities. March 30, 1983.

OTHER CITATIONS (This short list does not include the entire literature on fluoride effects)

a. Exposure to high fluoride concentrations in drinking water is associated with decreased birth rates. Freni, S.C. J. Toxicol. Environ. Health 42 109-121 (1994)

b. Ameliorative effects of reduced food-borne fluoride on reproduction in silver foxes. Eckerlin, R.H., Maylin, G.A., Krook, L., and Carmichael, D.T. Cornell Vet. 78 75-91 (1988).

c.Milk production of cows fed fluoride contaminated commercial feed. Eckerlin, R.H., Maylin, G.A., and Krook, L. Cornell Vet. 76 403-404 (1986).

d. Maternal-fetal transfer of fluoride in pregnant women. Calders, R., Chavine, J., Fermanian, J., Tortrat, D., and Laurent, A.M. Biol. Neonate 54 263-269 (1988).

e. Effects of fluoride on screech owl reproduction: teratological evaluation, growth, and blood chemistry in hatchlings. Hoffman, D.J., Pattee, O.H., and Wiemeyer, S.N. Toxicol. Lett. 26 19-24 (1985).

f. Fluoride intoxication in dairy calves. Maylin, G.A., Eckerlin, R.H., and Krook, L. Cornell Vet. 77 84-98 (1987).

g. Fluoride inhibition of protein synthesis. Holland, R.I. Cell Biol. Int. Rep. 3 701-705 (1979).

h. An unexpectedly strong hydrogen bond: ab initio calculations and spectroscopic studies of amide-fluoride systems. Emsley, J., Jones, D.J., Miller, J.M., Overill, R.E. and Waddilove, R.A. J. Am. Chem. Soc. 103 24-28 (1981).

i. The effect of sodium fluoride on the growth and differentiation of human fetal osteoblasts. Song, X.D., Zhang, W.Z., Li, L.Y., Pang, Z.L., and Tan, Y.B. Fluoride 21 149-158 (1988).

j. Modulation of phosphoinositide hydrolysis by NaF and aluminum in rat cortical slices. Jope, R.S. J. Neurochem. 51 1731-1736 (1988).

k. The crystal structure of fluoride-inhibited cytochrome c peroxidase. Edwards, S.L., Poulos, T.L., Kraut, J. J. Biol. Chem. 259 12984-12988 (1984).

l. Intracellular fluoride alters the kinetic properties of calcium currents facilitating the investigation of synaptic events in hippocampal neurons. Kay, A.R., Miles, R., and Wong, R.K.S. J. Neurosci. 6 2915-2920 (1986).

m. Fluoride intoxication: a clinical-hygienic study with a review of the literature and some experimental investigations. Roholm, K. H.K. Lewis Ltd (London) (1937).

n. Toxin-induced blood vessel inclusions caused by the chronic administration of aluminum and sodium fluoride and their implications for dementia. Isaacson, R.L., Varner, J.A., and Jensen, K. F. Ann. N.Y. Acad. Sci. 825 152-166 (1997).

o. Allergy and hypersensitivity to fluoride. Spittle, B. Fluoride 26 267-273 (1993)

My NAME IS. . LIVED IN DURHAM FOR 14 YEARS

Please Stop Fluoridating Durham THANK YOU FOR CONSIDERING THIS TOPIC.

1. Most developed countries do NOT fluoridate their water.
2. Fluoridation of water constitutes imposing a medical treatment on citizens without their consent.
    a. If people want to use fluoride they should do so themselves as a personal choice.
    b. Most people would do so using fluoride topically NOT internally.
3. Given the state of the economy, do we not have other safe and healthy ways to spend $100K or more each year?
4. Industrial and civic practices have numerous examples of being terribly wrong:
    a. At one time, lead was said to cause no harm and was considered safe for paints, pipes, and gasoline.
    b. Science once told us that tobacco caused no harm.
    c. Yet today, many studies already exist which indicate that fluoride's effects include:
        i. Damage to the brain
        ii. Lowering of IQ in children
        iii. Damage to endocrine glands including the thyroid and pineal glands
        iv. Damage to the skeletal system and arthritis-like symptoms
        v. And other studies have questioned whether fluoride in water actually benefits teeth.

In summary, it is not disputed that fluoride is a poison—if you jumped in a vat of it you would likely die—and, given the numerous dangers associated with this toxin, why would we spend large amounts of taxpayer money to force all so-called Bull Citizens to ingest this poison every time we drink a glass of water?

Please stop fluoridating Durham's water.

Thank you.

Scott Boggs

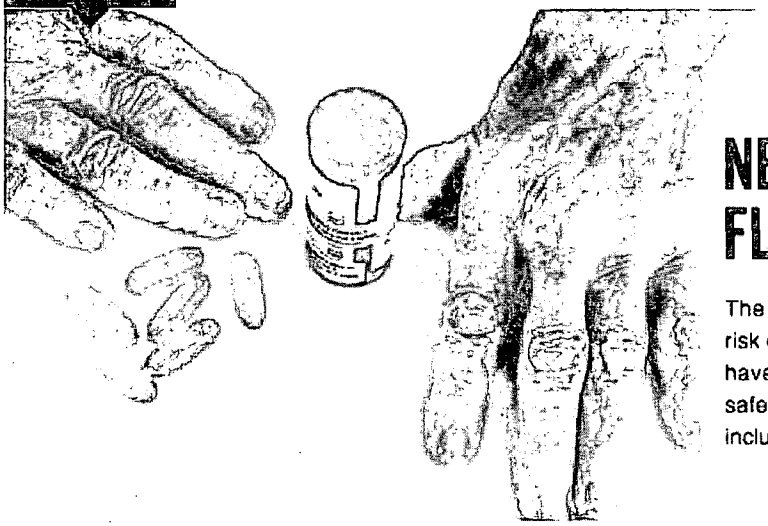
Kelly M

FLUORIDEALERT.ORG
Fluoride Action Network

NEW VISITORS | TAKE ACTION | RESEARCHERS

JOIN US | DONATE | Issues | FAN.tv | F.A.Q. | News | About FAN | Search

NEW RESEARCH | TRENDING TOPICS | 1



NEW DATA HIGHLIGHTS FLUORIDE/ARTHRITIS RISK

The Fluoride Action Network (FAN) has obtained data showing that the risk of fluoride to bone and joints is far worse than U.S. health authorities have thus far acknowledged. The data shows that, under current U.S. safety standards, people can suffer chronic joint pain and stiffness, including the degenerative joint disease osteoarthritis.

LEARN MORE

"THE MOST DAMAGING ENVIRONMENTAL POLLUTANT OF THE COLD WAR"

THE FLUORIDE DECEPTION
Seven Stories Press 2004

22,680
FLUORIDE ACTION NETWORK MEMBERS

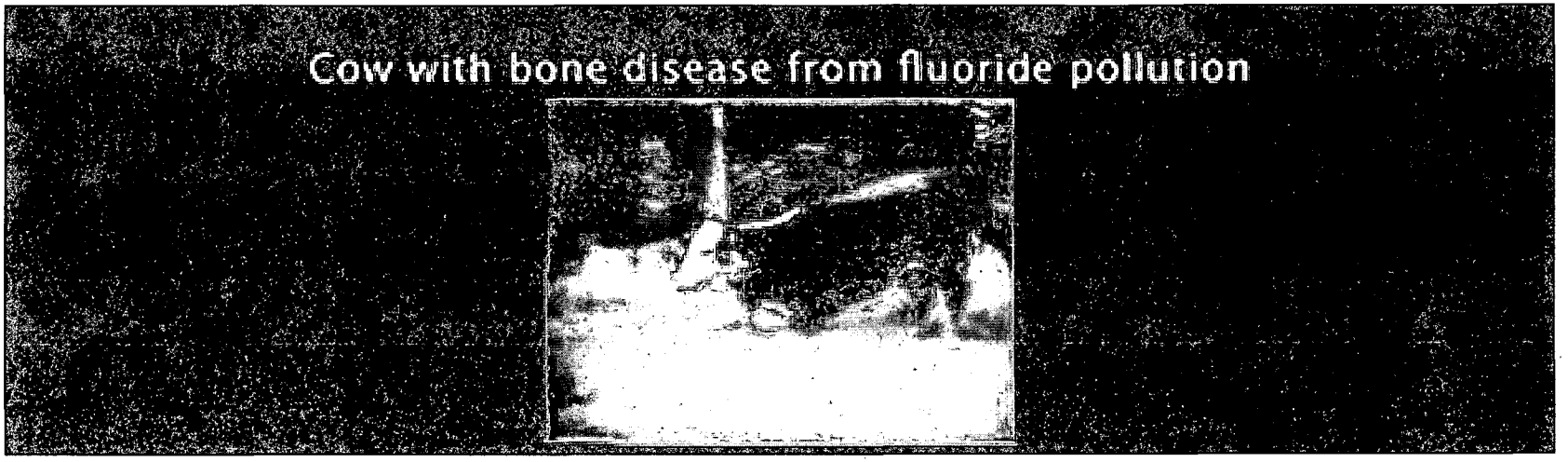
QUICK FACT:
Fluoride is not a nutrient.

SINCE 2010...
56
COMMUNITIES HAVE REJECTED FLUORIDE

QUICK FACT:
40% of American teenagers have discolored teeth caused by fluoride.

QUICK FACT:
Fluoridation disproportionately harms black children.

It impacts other living creatures, too. It causes bone disease in cattle living near plants where it is produced. These cows with weakened bones can't even walk.



From video interview with Bryson at **http://www.youtube.com/watch?v=Ly_QP4rGczo&feature=player_embedded**

In 1970 the US Department of Agriculture said,

"Airborne fluorides have caused more worldwide damage to domestic animals than any other air pollutant."

My name is ...

We've all been told that Fluoride is good for our teeth, but the scientific evidence today is contrary to this myth.

The Fluoride chemical in our water is a **HAZMAT Class 8 Corrosive Substance** (which means it will burn a hole through all layers of your skin and beyond).

Chemically, it is "one of the most active chemicals in nature." (Dr. Waldbott, *Allergic Reaction from Fluorides*, INTERNATIONAL ARCHIVES OF ALLERGY, 1958; Volume 12; Pages 347-355)

It does not magically disappear at the small doses in our water: it interferes with basic chemical processes in our cells and causes disease in our organ systems.

- In the mouth it causes Dental Fluorosis—which is a visible sign of damage to the internal structure of the tooth.
- In the brain it causes hyperactivity, memory problems and lower IQ in children.
- In the lungs, it causes emphysema in people who work around it.
- It impacts our cardiovascular system, our kidneys and the glands of our hormonal system.
- It causes gastrointestinal disorders and weakening of bones.
- It causes many allergic reactions—headaches, nasal congestion, hives and eczema, gastro-intestinal problems, urinary tract problems, and mouth ulcers.
- It is linked to bone and liver cancer.

So, WHY is this chemical in our water?

Fluoride shares a similar history to other toxic agents that we were told were safe.

The major scientific promotor of water Fluoridation was the same doctor who promoted putting lead in gasoline.

The leading scientific proponent of the idea that "1 ppm" of Fluoride in the water was safe is the same doctor responsible for experiments in which citizens in hospitals were injected with plutonium.

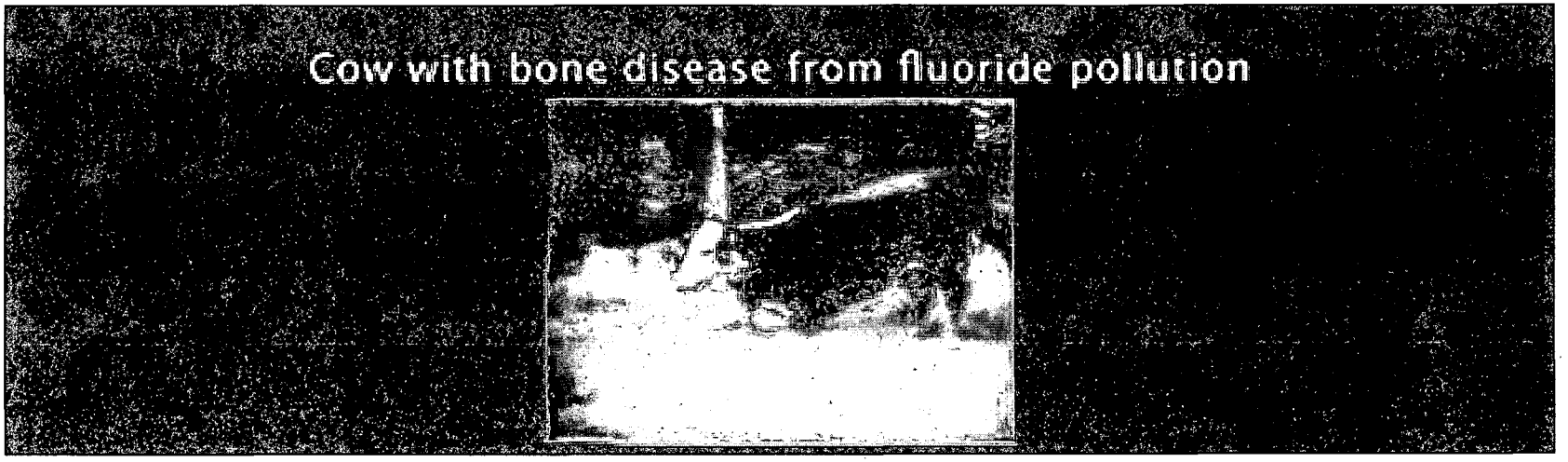
The public relations person who campaigned to put fluoride in water (on behalf of the fluoride lawyers industry) is the same person who portrayed smoking as liberating for women (on behalf of the tobacco industry).

Fluoride is produced by the aluminum and pesticide industries and government bomb projects. It is a by-product of chemical and bomb manufacturing.

The **history** of how it ended up in our water is told in the book ***The Fluoride Deception*** by investigative journalist Christopher Bryson, who was a radio producer for the BBC in New York.

You can also view a video interview with Bryson at
http://www.youtube.com/watch?v=Ly_QP4rGczo&feature=player_embedded

It impacts other living creatures, too. It causes bone disease in cattle living near plants where it is produced. These cows with weakened bones can't even walk.



From video interview with Bryson at **http://www.youtube.com/watch?v=Ly_QP4rGczo&feature=player_embedded**

In 1970 the US Department of Agriculture said,

"Airborne fluorides have caused more worldwide damage to domestic animals than any other air pollutant."

My name is ...

We've all been told that Fluoride is good for our teeth, but the scientific evidence today is contrary to this myth.

The Fluoride chemical in our water is a **HAZMAT Class 8 Corrosive Substance** (which means it will burn a hole through all layers of your skin and beyond).

Chemically, it is "one of the most active chemicals in nature." (Dr. Waldbott, *Allergic Reaction from Fluorides*, INTERNATIONAL ARCHIVES OF ALLERGY, 1958; Volume 12; Pages 347-355)

It does not magically disappear at the small doses in our water: it interferes with basic chemical processes in our cells and causes disease in our organ systems.

- In the mouth it causes Dental Fluorosis—which is a visible sign of damage to the internal structure of the tooth.
- In the brain it causes hyperactivity, memory problems and lower IQ in children.
- In the lungs, it causes emphysema in people who work around it.
- It impacts our cardiovascular system, our kidneys and the glands of our hormonal system.
- It causes gastrointestinal disorders and weakening of bones.
- It causes many allergic reactions—headaches, nasal congestion, hives and eczema, gastro-intestinal problems, urinary tract problems, and mouth ulcers.
- It is linked to bone and liver cancer.

So, WHY is this chemical in our water?

Fluoride shares a similar history to other toxic agents that we were told were safe.

The major scientific promotor of water Fluoridation was the same doctor who promoted putting lead in gasoline.

The leading scientific proponent of the idea that "1 ppm" of Fluoride in the water was safe is the same doctor responsible for experiments in which citizens in hospitals were injected with plutonium.

The public relations person who campaigned to put fluoride in water (on behalf of the fluoride lawyers industry) is the same person who portrayed smoking as liberating for women (on behalf of the tobacco industry).

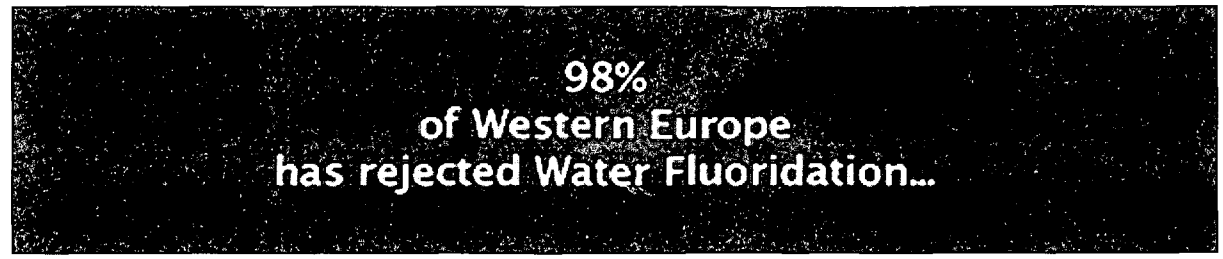
Fluoride is produced by the aluminum and pesticide industries and government bomb projects. It is a by-product of chemical and bomb manufacturing.

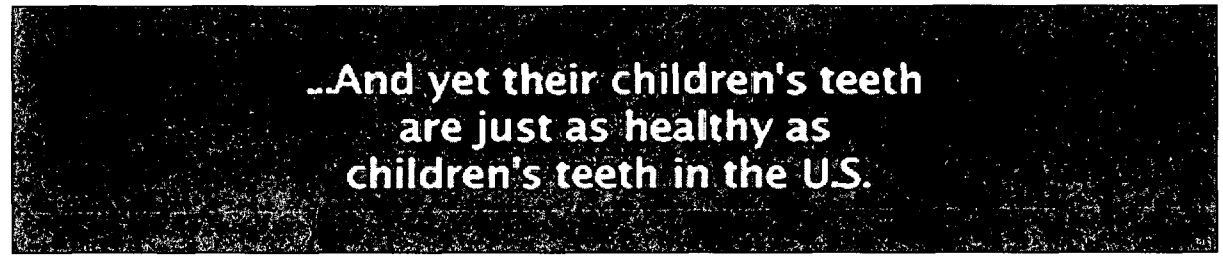
The **history** of how it ended up in our water is told in the book ***The Fluoride Deception*** by investigative journalist Christopher Bryson, who was a radio producer for the BBC in New York.

You can also view a video interview with Bryson at
http://www.youtube.com/watch?v=Ly_QP4rGczo&feature=player_embedded

FLUORIDEALERT.ORG
Fluoride Action Network

The Fluoride Deception: an interview with Christopher Bryson





Having learned more about Fluoride, I do not want my family or animals to continue ingesting this poison. It's my understanding that the City of Durham will implement your recommendation on whether to add it to our water or not. As a citizen here, I am asking that you recommend that the city remove this health hazzard from our drinking water.

My name is Charlee Eades and I am a resident at 14 Poppy Trail in South Durham.

I would also like to say something about the issue of fluoridation.

Over the last year I have witnessed my boyfriend Corey research this subject and attempt to educate government employees, health professionals, dentists, and fellow citizens about the issue of Water Fluoridation. He cites different studies and new science to prove his case that Fluoride is not of critical health benefit, but rather, is a hazardous chemical, dubiously added to our public water supply.

With this said, I am not as scientifically interested in the subject. I have seen enough evidence to be personally convinced that it has no business being in our drinking water. Instead, I would like to ask the simple question,

Whose decision is to medicate our water?

Is it the city's? Is it the water department? Is it the county health department? Since December 2011 I have watched Corey go from person to person within the city government, in an attempt to find the answer to this, and here we are today... we still do not know who makes this decision and still do not know who can, in fact, reverse it.

I believe there is a very good reason for this: it was never any of your decisions to make!

Simply put, Fluoridation has been a practice we've all been duped into believing was good for us. Even you on the health board grew up drinking Fluoride without knowing the damage it has been doing to your own health.

We aren't here to demonize anyone; rather we would like an honest re-evaluation of the practice, given the new data which has been released and highlighted by Corey just now.

Based on what we know about fluoridation after 60 years of using it, we should know better than to abuse this chemical, and should be doing more to have it removed. Fluoridation is Not of Critical Health Benefit and therefore, should be reversed.

Even if you disagree with the new research, or still want to hold on the statements released from our CDC and our state government, you must ask yourself:

Is Fluoridation of the water supply here in Durham the best way to take care of the citizens?

Is it the best use of our taxpayer's money?

It is a fact that 99% of the water used does not get consumed. It is dumped down the bathtub drain or used for washing dishes. Inciting my next question, why does it cost, in excess of $100,000 per year, to fluoridate our water here in Durham? The answer, by now, should be abundantly clear.

As citizens of Durham County and Civil Servants, who hold positions specifically for our "Public Health", I implore you all to consider these questions, and the concerns of others, as serious complaints against a practice which should be stopped immediately.

Thank you for your time.

My name is Corey Sturmer and I am a resident at 14 Poppy Trail in Durham NC.

I am here today to raise awareness and hopefully provoke debate among the durham county health board about the well known practice of fluoridating our public water supplies.

Since December of 2011 I have researched this issue and been in touch with many members of our city government, health department and water treatment plant to get the FACTS on this. For those who are not aware, Fluoride in the form of Hydrofluosilicic acid has been systematically added to our public drinking water since 1962.

The reason according to Durham County and the Center For Disease Control is that fluoride is credited with being successful at preventing dental cavities. according to city and state health officials this is worth the risks associated with fluoridation and is used as the only basis upon which to continue fluoridation.

Ignoring the obvious ethical problems of medicating our water supplies without our approval– such a young practice deserves more scientific examination.

As I have shown, and will show, Fluoridation is factually NOT of critical benefit to the health of our teeth and may be a substantial danger to our health and well being. Since December, 2011 I have brought forward study after study which show links to fluoride being detrimental to our bones, ligaments, learning capability, and of ALL things, Even teeth!

I have also gone so far as to create a website which is dedicated to the removal of this chemical. As you can see by the presence of others here and WTVD Channel 11, the denial of our evidence will not make us go away.

Incredibly, in rebuttal to one of my appearances at the Durham City Council, the water management department ~~brought~~ called upon North Carolina's dental advisor, Kevin Buchholtz who actually admitted Quote: to detect fluoride

"I live in Greensboro where the water is fluoridated. I'm proud of that."

"My 11 year old daughter DOES exhibit what would be classified as mild dental fluorosis, but you wouldn't notice unless you invaded her personal space and you knew what you were looking for."

So Not only are our own government officials having to admit to the negative side effects of Fluoridation, but in July 2012 Harvard released a study which concluded quote:

"Children in high fluoride areas had significantly lower IQ scores than those who lived in low fluoride areas, The results suggest that fluoride may be a developmental neurotoxicant that affects brain development at exposures much below those that can cause toxicity in adults."

We understand where the city gets their guidance. We understand that the Center For Disease Control believe that our concerns aren't warranted - But let me be the first, and not the last to say:

WE ARE NOT THE CENTER FOR DISEASE CONTROL. WE ARE THE CITIZENS OF DURHAM and YOU are our public servants. Furthermore, we are CUSTOMERS of the water department and are PAYING YOU for providing the service of public drinking water. According to even a cursory overview of the evidence, any rational, honest individual can conclude ON THEIR OWN that we should NOT have to pay to poison ourselves. Are you willing to sit there and deny what researchers at Harvard have uncovered?

Even my own teeth, being an athletic 26 year old, require more than 4 root canals and I currently have back molars with gaping HOLES IN THEM. Is that my fault or the city's? We'll never know but it doesn't seem like the City's ploy to help me has worked.

Finally, I would like to cite one last study which was done right here in Durham while I was in grade school attending Parkwood Elementary and I would like to address this directly to Mr. Vincent Allison, who is the dental expert on the board.

The Extract States:

Durham, NC, fluoridated since 1962, had an 11-month cessation of fluoridation between September, 1990, and August, 1991. The purpose of this study was to assess the effects of this break on the development of cavities and fluorosis in children. Study participants were continuously-resident children in Kindergarten through Grade 5 in Durham's elementary schools. There were 1696 children, 81.4% of those eligible, for whom a questionnaire was completed and clinical data recorded. Age cohorts were defined by a child's age at the time that fluoridation ceased. Caries was recorded in children in the Birth Cohort through Cohort 3, and fluorosis for children in Cohorts 1 through 5. Caries was assessed in the primary first and second molars according to the decayed-filled index; fluorosis on the labial surfaces of the upper permanent central and lateral incisors was assessed by the Thylstrup-Fejerskov (TF) index. Mother's education was associated with caries; higher education of the mother had an odds ratio of 0.53 (95% CI 0.40, 0.76) for caries in the child. No cohort effects could be discerned for caries. Overall prevalence of fluorosis was 44%. Prevalence in Cohorts 1, 2, 3, 4, and 5 was 39.8%, 32.3%, 33.0%, 62.3%, and 57.1%, respectively. These cohort differences remained statistically significant in regression analysis. It was concluded that while the break had little effect on caries, dental fluorosis is sensitive to even small changes in fluoride exposure from drinking water, and this sensitivity is greater at 1 to 3 years of age than at 4 or 5 years.

So in conclusion, we have a Harvard study and another study done by our very own Duke University which show conclusively no link between cavity prevention and fluoride, but DO show a link between fluoridation and low IQ + the incidence of fluorosis. This should be all the evidence you need to finally put an end to this practice and I hope you will consider the words here spoken today by me and others as a final WARNING to take this as an opportunity to right a wrong.

Thank you for your time.

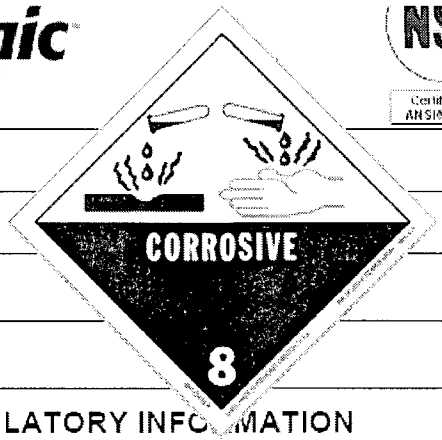
Mosaic

NSF Certified to ANSI/NSF 60

PROTECTIVE EQUIPMENT (PPE):	Skin:	Acid proof gloves, headgear, protective shoes and clothing should be worn to prevent contact.
	Respiratory:	Wear NIOSH approved respiratory protective equipment when vapor or mists may exceed applicable concentration limits.
	Other:	Facilities utilizing or storing this material should be equipped with an eyewash station and a safety shower.
GENERAL HYGIENE CONSIDERATIONS:	Avoid breathing fumes. Avoid ingestion Wash thoroughly after handling Avoid contact with eyes or skin Use with adequate ventilation	
EXPOSURE GUIDELINES:	OSHA Permissible Exposure Limits (PEL):	2.5 mg/m^3 as Fluoride
	ACGIH Threshold Limit Value (TLV): TLV-TWA	2.5 mg/m^3 as Fluoride
	BIOLOGICAL EXPOSURE INDEX (BEI) Index Timing BEI Fluoride in urine Prior to shift 3 mg/L; End of shift 10 mg/L ACGIH 2004	

Mosaic

NSF Certified to ANSI/NSF 60



Hazard Class	Class 8 (Corrosive)
Packing Group	II
Identification Number	UN1778
DOT ERG Number	154
SECTION XV	**REGULATORY INFORMATION**
CERCLA:	Not Regulated
RCRA 261.33:	Not Regulated
SARA TITLE III: (Exemptions at 40 CFR, Part 370 may apply for agricultural use, or for quantities of less than 10,000 pounds on-site.)	Section 302: Not Regulated Section 304: Not Regulated Section 311/312: Acute and Chronic Section 313: Not Regulated
NTP, IARC, OSHA:	The ingredient(s) of this product is (are) not classified as carcinogenic by NTP, IARC, or OSHA
Canada DSL and NDSL:	On Inventory
TSCA:	On Inventory
CA Proposition 65: (Health & Safety Code Section 25249.5)	Not listed
WHMIS:	Fluorosilicic acid is listed as a Class E - Corrosive Material. This MSDS has been prepared according to the hazard criteria of the Controlled Product Regulations (CPR) and the MSDS contains all of the information required by the CPR
CBSA:	N/A
SECTION XVI	**OTHER INFORMATION**
Disclaimer:	The information in this document is believed to be correct as of the date issued. **HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE.** This information and product are furnished on the condition that the person receiving them shall make their own determination as to suitability of the product for their particular purpose and on the condition that they assume the risk of their use thereof. The conditions and use of this product are beyond the control of Mosaic, and Mosaic disclaims any liability for loss or damage incurred in connection with the use or misuse of this substance.

Lawrenceberg Tenn
Pinellas County FL
Albuquerque NM
Palmer Alaska
Pottstown PA