Navajo Birth Cohort Study Outreach staff CHERS speak out

FORT DEFIANCE, AZ - A group of Navajo women working for the Navajo Nation Division of Health (NNDH) has been instrumental in helping the Navajo Birth Cohort Study (NBCS) make progress toward its goal of recruiting 1,500 women and their babies in this seminal study of uranium exposures.

The women, called "CHERS," which is short for Community Health and Environmental Research Specialists, have been working in partnership with other agencies, academic institutions and non-governmental organizations to implement the congressionally mandated birth cohort study since enrollment began in February 2013. With the active support of the Navajo Nation, the NNDH is being conducted to address the potential effects of exposure to abandoned uranium mines and mine waste on the health of Navajo women and their babies.

The NBCS field team, which consists of the CHERS, Coordinating Center for Early Life Exposures (CoCCEs) at six hospitals on the Navajo Nation and Research Field Staff (RFS) employed by an Albuquerque NGO, had enrolled 186 mothers, 66 fathers and 76 babies as of the first of May 2014. The CHERS recruit and enroll participants, provide outreach to the public, and promote the study. Most important, the CHERS conduct enrollment surveys during the prenatal period and administer post-birth development assessments of the babies and follow-up surveys of the mothers to help ascertain Navajo women's exposures to uranium wastes.

The study is a partnership of the University of New Mexico Community Environmental Health Program (UNM-CEHP) and the Southwest Research and Information Center (SRIC), both based in Albuquerque, along with the Navajo Area Indian Health Service (NAIHS) and the NNDH before the study takes place at their facilities: the Chinle Comprehensive Health Care Facility, Gallup Indian Medical Center, Northern Navajo Medical Center in Shiprock, Tsehootsoi Medical Center in Fort Defiance, and the Tuba City Regional Health Care Corporation.

The new NAHS Kayenta Hospital is scheduled for completion in late 2015 and the NBCS is preparing to staff the Kayenta Service Unit to begin recruiting participants there, too.

The CHERS outreach staff also collaborates with SRIC's RFS to help conduct home environmental assessments, called HEAs. The HEAs help to identify potential sources of exposure in and around the homes of expectant mothers and fathers, and later, on, their newborns. (See article on HEAs on page 6 for more details.)

You Tube now features short videos promoting the Navajo Birth Cohort Study

KAYENTA, AZ - The Navajo Birth Cohort Study has posted more than a dozen short videos on YouTube and on the NBCS website to provide information about the study to the general public and to reach out to pregnant Navajo women who may be eligible to participate in this landmark investigation of uranium exposures on the Navajo Nation.

The videos can be seen on YouTube (www.youtube.com) by typing "Navajo Birth Cohort Study" into the search window, or by accessing the NBCS website at http://nbcshumanhealth.org.

The website, which were approved by the Navajo Nation Human Research Review Board, give an overview of the study, discuss eligibility criteria, and provide background information on the Navajo Uranium legacy. The videos feature both women and men talking about their decisions to enroll in the study.

"You will find voices from the community, Navajo Nation leaders, service providers, and youth speaking on behalf of the Navajo Birth Cohort Study," said Malcolm Benally, the Forest Lake/Kayenta-based NBCS multimedia specialist who produced the videos. "When the whole culture is speaking, that's when everyone learns."

The videos are intended to raise awareness about the legacy of uranium mining on Navajo lands and to serve as a resource for getting out information to the public about the dangers of living near uranium mines and mills. Possible health risks from exposure are expected mothers and fathers, and later, on, their newborns. (See article on HEAs on page 6 for more details.)

The NBCS is funded by the Centers for Disease Control and Prevention (CDC) through grants appropriated by Congress. Dr. Johnnie Lewis, UNM-CEHP director and a board-certified toxicologist, is the principal investigator. Dr. David Begay, a Navajo educator and UNM research professor, and SRI's Chris Shuey, an environmental health specialist, are co-investigators. Both UNM-CEHP and SRIC collaborate with NNDH and NAHS staff to provide study oversight and training for the Navajo staff working in the field. CHERS supervisor Anna Rondan says the study provides an opportunity to ensure healing for the future generations of Navajo people. Read how the CHERS are reaching this goal in a series of interviews in this issue.

Southwest Research and Information Center Continues Work With Navajo Communities Affected by Uranium

Albuquerque, NM - Even in the most isolated regions on the Navajo Nation, a lot of Navajos know Chris Shuey, co-investigator for the Navajo Birth Cohort Study (NBCS) and director of uranium assessment programs at Southwest Research and Information Center (SRIC). They even think of him as their own son.

For more than 30 years, Shuey and his staff from their Albuquerque office have helped Navajo communities make sense of how to deal with contaminated water sources and the possible health effects of living near abandoned uranium mines and mills. At a July 2013 meeting near Churchrock, NM where the Red Water Pond Road Community holds its annual commemoration of the now infamous uranium mill tailings spill into the Pecos River in July 1979, Phil Harrison, who was the master of ceremonies for the event, elicited much laughter and applause when he had this to say about Shuey during his introduction: "Our son Chris, his hair has turned grey helping our community overcome all this push for uranium."

Founded in 1971, SRIC has worked on uranium issues in the Southwest since the mid-1970s, providing technical assistance to communities affected by past and proposed uranium mining to help raise the legacy of uranium contamination as a priority issue on the Navajo Nation. To this day, Shuey and his colleague Paul Robinson are giving technical support to several Navajo communities with their efforts in pushing for cleanup of nearby abandoned uranium mines.

In implementing the NBCS, SRIC works in collaboration with the University of New Mexico's Community Environmental Health Program (CEHP), the Navajo Nation Division of Health, Navajo Area Indian Health Service, and the Atlanta-based Centers for Disease Control and Prevention's Agency for Toxic Substances and Disease Registry. SRIC employs four Navajo Research Field Staff (RFS): Lynda Laslaski, Two Grey Hills; Teddy Nez, Gallup; Sandy Ramone, Crownpoint; and Maria Welch, Tuba City. Nez and Ramone also worked on the DINEB Project, a study of uranium exposures in 20 chapters of the Eastern Navajo Agency that preceded and informed the NBCS.
Letter from the Director

The Navajo Birth Cohort Study is an exciting opportunity to answer questions that we have heard from community members across Navajo Nation for decades who want to know if the waste remaining from the uranium mining period is affecting health in communities. Of particular concern has been the affect on children and future generations.

In 2007, representatives of the Navajo Nation attended a series of hearings to understand why the more than 500 mines and their more than 1000 waste sites remain on Navajo land more than 20 years after the last mines closed. These hearings led to a 5-year plan to bring together federal agencies led by USEPA to first understand and then begin to clean up these sites.

In 2010, the congressional committee overseeing the process requested that health studies be added to the effort, and the Navajo Birth Cohort Study (NBCS) was born in response to community concerns. The NBCS is an opportunity to bring together community members, researchers, tribal and federal programs, and clinical health providers to learn from each other and try to determine if there is any relationship between uranium waste, birth outcomes, and child development in Navajo communities.

The exciting thing about the NBCS is that we all learn important information that will improve health throughout the study — even though the answer to the main question will take several years. The involvement of Navajo Division of Health in collecting information helps to build research skills for future studies. Home environmental assessments provide participating families with information on risks for their children’s health, as well as information on any metals identified in their urine or blood that might indicate other exposures of concern as well — or confirm that there is nothing to be concerned about! Assessments of child development will also provide early warning of any possible problems, and make sure children are connected to services that will maximize their developmental potential at earlier times when they are most beneficial.

The NBCS and its broad partnership outlined in the figure below will also provide Navajo Division of Health and other tribal agencies with information on where there are needs to improve the health of Navajo children, whether those are in better clinical care, removal of environmental hazards, better nutritional options, or increased developmental services.

And of course participants will receive gifts throughout their involvement including the beautiful two-volume set of Native Woman books to provide guidance from a Native woman’s perspective to resolve health questions.

So learn about the NBCS and its partners in this series of inserts, listen to our radio Women’s Health Minutes, watch our YouTube videos on the Navajo Birth Cohort Study, visit us on Facebook, visit HealthVoices.org, or call for information to 1-877-545-6775. Spread the word to your family and friends, and join us if you are a 15-45 years old, pregnant, have lived on Navajo Nation for 5 years at any point in your life, and plan to deliver your baby at Chinle, Tuba City, Shiprock, Tsehootsooi, or Gallup Indian Medical Center.

"We should be reading about our own soil. Our own Dine Bikaye. We need to worry about that being acknowledged and know what’s out there."

-Honorable Chair Jonathan Hale, Navajo Nation Health and Human Services Committee
Study / You Tube videos

From Page 1

uranium have been critical concerns for Navajo communities since the first mines began setting up camps in Canyon de Chelly, Navajo Nation, Arizona. The Navajo Nation has long been impacted by the legacy of uranium mining that has affected our air, land, and water. The animals and plant life have also been impacted in a detrimental process.

The hope that Navajo Birth Cohort Study provides is to bring the community together to encourage and view this as an intersection in public health, the environment and social justice.

Anna Rondon, CHERS Supervisor

Anna Rondon, Program Supervisor, Community Health Environmental Research Specialist (CHERS) oversees the community health research with the Navajo Birth Cohort Study. She provides outreach and assistance with home environmental assessment surveys and recruiting participants. Window Rock, AZ

Photo by Malcolm Benally

The Navajo Birth Cohort Study provides important data on the health effects of uranium mining on Navajo communities, including the health of their children. This information is critical for understanding the long-term impacts of uranium mining on the Navajo people and for developing effective public health strategies.

Anna is Kiyaan’ani born for Nakai Dine’e. Her maternal grandparents are Tabahaah and her paternal grandparents are Nakai Dine’e.

Mae Gilene Begay, CHR/Outreach Director, Navajo Division of Health in Fort Defiance, AZ partners with the Navajo Birth Cohort Study to train staff and implement the study on the Navajo reservation.

Mae Gilene Begay, CHR/Outreach Director, Navajo Nation Attorney, Navajo Division of Health in Fort Defiance, AZ partners with the Navajo Birth Cohort Study to train staff and implement the study on the Navajo reservation.

The Navajo Birth Cohort Study brings long overdue public education through an in-depth maternal wellness health study for our Navajo mothers, babies and their families due to the fact that uranium mining and milling has taken an immense toll on our people and the environment.

Since 2011, I have had the honor to ensure that the Navajo Birth Cohort Study was housed in the CHR/Outreach Program, which now provides staff members with many years of experience in health promotion and fieldwork.

The Navajo Nation Council’s Health, Education and Human Services Committee and their honorable Chairperson Jonathan Hale advocate strongly for this study and their support is growing stronger.

Our staff of Community Health Environmental Research Specialists (CHERS) see the need for taking on studies that impact the health of our Navajo People.

The videos are aimed at pregnant women and women of child-bearing age, who may be concerned about living near uranium wastes or who simply want to have healthy babies. The study’s logo, an original painting by NIBCS staffer Sandy Ramone of Crowpoint, NM, depicts a woman holding a newborn while surrounded by traditional Navajo symbols, and stresses a Beautiful Life - I’ina T’ah - for mother and baby. These positive images help promote the study’s goal of enrolling 1,500 mother-infant pairs and following the baby’s health and development through its first year of life.

The Navajo Birth Cohort Study Part XII: Journey Woman

Our newest video introduces the Journey Woman series which features the voices of our very own CHERS staff member covering the Tuba City-Kayenta area. Josey Watson relates short verses about how Native Women view their skin, their hair, and their bodies. The reading series titled "The Native Women's Health Minute" is adapted from Journey Woman: A Native Women's Journey to Wellness, Volumes I & II, edited by Betsy Buckingham, and published by Native Journey Woman, a nonprofit organization which provides wellness education and guidance to Native women. Visit http://www.nativewedrovers.org for more information.

http://youtu.be/kNrpYcRcwb

Navajo Birth Cohort Study Part XIII: Update 1

BLUE GAP, AZ - Helen Neez and her daughter Seraphina talk about the Navajo legacy of uranium mining near their home in Blue Gap-Tachee Chapter, a small, tight-knit community on a mesa near Black Mesa. About 30 miles north of Chiricahua National Monument, AZ, tells the story of going to Washington D.C. to lobby on behalf of her children who she believes are suffering from health problems associated with living near uranium mine sites and drinking contaminated water. Her statement is filled with stories about mining children who were born with rare debilitating disease called "Navajo neuropathy." As she saw lands being born with physical deformities every birthing season, the story of these people suffering from these signs of adverse health effects for her community's health now or in the near future. Does this long-term exposure to abandoned uranium mines affect the development of children? she asked.

http://youtu.be/NjQ-A15W1M

Navajo Birth Cohort Study Part XIV: Join The Study

ALBUQUERQUE, NM - This video provides some basic background on the study and begins with Carol Blackhorse, a storyteller from the Diné. Chapter of Navajo Nation, talking about her mother, Helen, and her father, Johnnie. She tells her story of going to Washington D.C. to lobby on behalf of her children who she believes are suffering from health problems associated with living near uranium mine sites and drinking contaminated water. Her statement is filled with stories about mining children who were born with rare debilitating disease called "Navajo neuropathy." As she saw lands being born with physical deformities every birthing season, the story of these people suffering from these signs of adverse health effects for her community's health now or in the near future. Does this long-term exposure to abandoned uranium mines affect the development of children? she asked.

http://youtu.be/D07feg5Kts

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CHERS speak out...

Doris Tsinnijinnie, Red Mesa Chapter- Navajo Nation CHERS

Red Mesa, AZ - Doris Tsinnijinnie works with the Shiprock Service Unit. She is the vice-president for the Red Mesa Chapter. Doris is Tsahil'ii, Red Streak Running Into Water born for Nakoii Dine'ee.

Doris says, "My job is unique because I get to work with our young Navajo ladies. When it comes to a study, one always thinks we are being used as guinea pigs. I explain what the project is about. I get all these looks like "WOW". Just having at least one individual understanding and interested makes my job enjoyable. It's also a learning process for me. I get to gain more information about environmental health and prevention while I explain this to the participants. Working with the younger generation is also very challenging. They ask a lot of questions, where you have to go back and do your homework. I enjoy working with the participants getting to see them at different times.

"Just having at least one individual understanding and interested makes my job enjoyable. It's also a learning process for me."

Doing a referral for them and getting them help is satisfying and makes me believe my job is worth it. It's very tiring - driving hundreds of miles per day. Some of the roads are not paved. The other challenging thing is communication. Many of the participants have limited minutes on their phone and those are the times we go out to find them. The other part about this job is the people I work with. All those who are involved, I enjoy working with them."

"Some living with low income, some do not know there are resources available for assistance."

Melissa Samuels, Chinle, Arizona - CHERS Staff

Chinle, AZ - Melissa Samuel works for the Chinle Service Unit. Melissa is Téléhéedníí, Water Flow Together born for Asáléeh, the Salt People clan. Her maternal grandparents are Téléhééshíí, the Red Cheeks people. Her paternal grandparents are Todí'ch'íi'nii.

"Helping our younger and future generation to grow in beauty is a great asset."

She goes by the nickname "Missy". Missy has a short video on You Tube that she produced about the importance of having your water tested. Check it out! Navajo Birth Cohort Study: Get Your Water Tested at this link - http://www.youtube.com/YesUfnSH7oQ

Asked to talk about her experience so far, she says, "I have been working with the Navajo Birth Cohort Study since February 2013, and I enjoy the duties that I perform every day. Before, I worked more with the Elders. They are special people with great wisdom and kindness; now I work closely with the younger generation. It gives me great joy to be close to the younger people and especially babies. I feel like they are my children! I want them to have a safe home, be happy, to learn the knowledge of environmental contaminates and educate their child about early child development. You see what I'm saying? I am a grandma. Helping our younger and future generation to grow in beauty is a great asset."
Velma Harold, Tuba City, Arizona

Tuba City, AZ - Velma Harold works with the Tuba City Service Unit. She is Tódích’iini, Bitter Water clan born for the T’o6énii, Manygoats. Her maternal grandparents are Tlo’olii, Red Streak Running into Water clan.

Velma says, "As a Community Health Environmental Research Specialist (CHERS) with the Navajo Nation Division of Health, I am involved and collaborate with other agencies on the Navajo Birth Cohort Study. I believe this study will benefit our future generation to hopefully alleviate some of the growth and developmental concerns caught upon by exposure to uranium on the Navajo Nation by way of our Dine elders. I enjoy going out into the field to visit during Enrollment Surveys with expecting mothers and fathers to be.

"Some of the mothers and fathers are quite young, some are older. Being exposed to various demographics of our participants, I have come to appreciate my work even more. Not every home life is the same. There are times when I encounter individual(s) who want to express certain issues they might be going through. By making myself open, I hope to show that I do care and that someone is willing to listen to their problems and concerns.

"I may not have the answers but my presence and understanding can bring them somewhat of an inner peace. I do what I can to assist them so that they are aware of some of the available resources their community provides. The ultimate and most rewarding part of my job is when I visit the family again after the baby is born and it is great to see how mothers and fathers grow and are adored their new addition to the family. At each of the four visits of the Ages & Stages Questionnaires-Inventory, I get to see the transformation in the family unit as a whole.

"Being a CHERS, I have come upon struggles within families who have been impacted by uranium exposure especially on our Elders who worked in the mines or mills and exposed it to their love ones. With this study, we may finally get some answers with the hope of providing appropriate and adequate health care services to our future generations to break the cycle of the effects of Uranium on our Dine people."

Qeturah R. Anderson, Fort Defiance, Arizona

Qeturah R. Anderson works with the Fort Defiance Service Unit. She is Tábąąhii, Water Edge clan born for Bit’ií, Under His Cover Clan. Her maternal grandparents are T’áátsi, the Red Bottom People and the Tódích’iini, the Bitter Water and her paternal grandparents.

Navajo Birth Cohort Study is a one of a kind program on the Navajo reservation. What I mean is that we are the very first tribe to actually have a study to look at the public health impacts of past uranium mining and milling operations on Navajo children. To be part of

"We are the first tribe to have a study to look at the public health impacts of past uranium mining and milling operations."

history is exciting and worth doing my job as a Community Health Environmental Research Specialist.

I know that myself as well as other co-workers are making an impact about prenatal care among Navajo mothers. We ensure early intervention to reduce the impact of birth defects and developmental delays. Most importantly, we want to strengthen understanding on environmental health risk and capacity on the Navajo land.

Olivia Muskett, Gallup, New Mexico

Gallup, NM - Olivia Muskett works with the Gallup Service Unit as a Community Health Environmental Research Specialist.

Olivia says, "The Navajo Birth Cohort Study has given me the opportunity to gain knowledge on how the environment affects our health. So, even though a person eats right, exercises right, and takes care of their health in every way possible; just because of where they live, that alone has an effect on their health.

"Every time I am out in the field interviewing participants, I am amazed at the strength our people have. Here we are, conducting interviews to find out if participants are being exposed to any toxic materials or contaminants, and you find that participants are not only dealing with this issue but also with everyday struggle providing for their families.

"The Health Education that I have had gives me the opportunity of providing information about uranium and the uranium legacy that our Navajo people have endured was a learning experience for me. I was learning right along side our participants.

"Many of the community members had stories to share on how the Uranium Mines affected their lives and it was because of this that I continue to do field work, being able to interact with community members.

"I’m very thankful to everyone participant that has allowed me into their home and given me a couple of hours of their time to interview and conduct the surveys. I believe their input will help to answer the questions that many of our people have been asking for many years. I want to also thank all of the staff with the Navajo Birth Cohort Study for all their hard work and guidance. Continue your hard work for our people!"

You and your community can learn more about the Navajo Uranium Legacy and the Navajo Birth Cohort Study by inviting a NBCS staff person to make a presentation at your local chapter, community event, or group. Call toll free 1-877-545-6775, for more information.
NBCS Home Environmental Assessment Data Summary Update

By Chris Shuey

(Albuquerque, NM) - The Navajo Birth Cohort Study home environmental assessments (HEAs) are conducted at the home of each participant enrolled in the study. Most HEAs are conducted during the prenatal period to measure exposures during each participant's pregnancy. We look for the presence of uranium from either naturally occurring sources or from mine waste. We measure gamma radiation and indoor radon gas, and determine if there are metals present in dust from inside the home. We monitor some participant homes for hydrogen sulfide gas, which often occurs where oil and natural gas are produced or processed.

These contaminants in homes might not cause immediate health problems, but may not be considered safe over a lifetime of exposure. Knowing the amounts of contaminants in and outside of the home helps us to understand how they might affect pregnancies, births, and early childhood development. We do not require participants to wear radiation badges or air pollution monitors, nor do we check for other contaminants like asbestos or formaldehyde.

Participants in the study live in all areas of the Navajo Nation as well as border towns, such as Gallup, Farmington, Ignacio, Page and Flagstaff. Enrollment in the NBCS is open to all pregnant women who meet the eligibility requirements. You don't have to live in an area impacted by abandoned uranium mines to participate in the study.

HEAs are conducted by our Navajo-Speaking Research Field Staff (RFS) employed by Southwest Research and Information Center (SRIC) and assisted by staff of the Navajo Nation Division of Health (NNDOH), both of which are partners in the birth cohort study. The RFS use special meters to measure gamma radiation outside and inside of each home and will tell participants immediately if gamma radiation levels look higher than normal (see photo). Tests for the other contaminants require two weeks to four months before results are known.

The RFS and NNDOH's CHERS (Community Health and Environmental Research Specialists) also ask the participants about their drinking water and the NBCS staff search for water quality data for each system or unregulated source, and in the absence of existing data, collect water samples from water sources used by participants for later laboratory analysis.

One of the surprising findings of our study so far is that more than 3 out of every 4 participants have running water piped into their homes from a community water system. Previous estimates had indicated that about 35% of Navajo families do not have running water from a community system in their homes, necessitating water hauling for many families, often from unregulated water sources such as windmills, developed springs and hand-dug wells.

Results of the HEAs to date are shown in Figure 1. The most frequently occurring metals are in dust samples and include lead, arsenic, manganese, iron and antimony. Measureable levels of uranium metal have been found in dust in most homes tested, but at low levels. Frequent cleaning, especially around heat sources, and reducing tracking of mud and dirt into the home will help reduce dust contamination.

Some homes have had radon levels that represent unacceptable health risks for family members, especially children. Participants who have unsafe indoor radon levels are referred to the Navajo Nation Environmental Protection Agency (NNEPA) for follow up. USEPA recommends that homeowners "fix" their homes to reduce radon levels. This recommendation, which is not binding on the homeowner, is intended to reduce lifetime risk of lung cancer. Participants who are told they have radon exceeding the NBCS referral criteria are encouraged to increase airflow through the home by opening doors and windows whenever possible. Keeping a pot on water steaming on the stove is another way to lessen indoor radon levels. Radon tends to build up inside homes in the winter when the doors and windows are closed.

The good news is that gamma radiation levels exceeding natural "background" have been found in less than 5% of homes tested, indicating that more than 95% of homes in the study have no signs of contamination from uranium mine wastes or other human-made sources of radiation. Participants who do have homes with high gamma rates are referred to the NNEPA Superfund Program for follow-up. According to the National Research Council Committee on the Biological Effects of Ionizing Radiation, radiation at any level damages human tissues, meaning there is no absolutely "safe" level of radiation exposure. But at natural or normal levels, any adverse effects may not be noticeable over a lifetime of exposure.

The NBCS should not hesitate to call the project's toll-free line, 1-877-564-8775, with questions about any of the HEA results they receive. If you would like more information on these contaminants, please visit www.srinc.org/NBCS. You will find Frequently Asked Questions (FAQs) on interpreting the results of our home environmental assessments and biomonitoring, fact sheets on radon, metals and water contaminants, and basic outreach materials for the NBCS Birth Cohort Study. You may also visit http://nbcn.hhs.gov to learn more about the ongoing activities of the NBCS.

Gammas radiation is the most common type of ionizing radiation, it is all around us and inside us, but you cannot see, smell, taste, feel or hear it. It comes from the soils and rocks of the Earth and in the form of cosmic rays from the Sun and outer space. Gamma radiation is like X-rays — tiny particles of light that pass through you. At levels that occur naturally, gamma radiation contributes to the human aging process and may harm us only over our entire lives. Higher levels of gamma radiation may be harmful to human health, especially to children and the elderly. Gamma radiation may also interact with the immune system and other defenses, and may affect DNA, absorbing only very small amounts of energy in the body.

Radon is a natural occurring radioactive gas that, like gamma radiation, cannot be seen, smelled, touched, felt or heard. Like gamma radiation, radon is all around us, inside the house and outdoors. Radon in the air is a byproduct of the uranium series. Because of this, radon in the indoor is second only to cigarette smoking in causing lung cancer in the U.S. Radon, which comes from natural uranium, can be found in any home anywhere on the Navajo Nation as well as across the U.S., and is usually found in higher levels in homes in the winter when windows and doors are closed.

Metals present in dust occur naturally and can be breathed in, eaten or absorbed through the skin. Dust containing metals comes from the weathering of dirt and rocks around the home or from materials inside the home, such as wood and coal burning stoves. Each dust sample collected in the home is analyzed for 22 different metals. The metals, or concentrations, of the metals in your home may be higher than the national levels (see chart). These concentrations may be hazardous to human health over long periods of exposure. Some metals, like arsenic and mercury, are more toxic to the human body than others.

Water Contaminants are naturally occurring and human-made substances that are dissolved in water or introduced into water by human activities that make water unsafe for people to drink. Some contaminants are dangerous to human health at very low levels while other contaminants give water unpleasant tastes, colors and smells but are not considered "unsafe" to drink. Water contaminants include metals (like uranium, lead, arsenic and mercury); radioactive elements (like uranium and radium); elements that make water acid (like sodium and chloride); bacteria and viruses from human and animal wastes or by bacteria. Some contaminants are naturally found in soils and rocks; petroleum, gas and by-products; chemical compounds that are generated as a result of treating water with chlorine; and man-made chemicals like solvents, pesticides and plastics.

Unregulated water sources may not be tested or treated to ensure their safety, and many have been found to contain potentially harmful bacteria. A small percentage of participants were found to be drinking water from a community water system that has levels of arsenic, uranium and other contaminants exceeding federal and Navajo Nation drinking water standards. The NNEPA Public Water Supply Supervision Program (928-717-7715) is working with the Navajo Tribal Utility Authority (NTUA) in the service area to help reduce contamination levels to below drinking water standards to ensure that customers are not consuming contaminated drinking water. If you are a customer of NTUA and want to know more about the quality of the water you are paying, please visit www.ntua.com and click on "Water Quality Report 2012 Consumer Confidence Report" for your area.

Lynda Lasio and Teddy Nez, SRIC research field staff member conduct a home assessment survey. Photo by Chris Shuey.
Haul Your Drinking Water Safely

Forest Lake, AZ - The Navajo Birth Cohort Study is currently conducting home environmental assessment in the study's participants' homes to help detect traces of possible "environmental contaminants" in and around the home. The University of New Mexico's Community Environmental Health Program and Southwest Research and Information staff members would like to share these tips for safety in your home: safe drinking water.

**Water Barrels**

* Use Barrels that are made to haul drinking water.
1. Clean water barrels once a month.
2. Scrub: Mix 1 cup chlorine bleach with 15 gallons of water. Scrub barrel with mixture. Clean all hoses and any other water hauling equipment with the water and bleach mixture.
3. Rinse: Rinse the container and all other equipment with clean water.
4. Disinfect: Mix 7 cups of bleach and 15 gallons of water to disinfect the tank until ready to use, or for at least 30 minutes.
5. Rinse: Rinse the container again. Your are now ready to haul water!

* Use clean food containers. Plastic milk jugs or other food containers may be used. Scrub, clean, rinse, disinfect, and rinse the container if it was used for food.
1. Scrub and rinse with warm water, use bottle brush if needed, especially for milk jugs.
2. Clean with dish soap and hot water.
3. Rinse completely with warm water.
4. Disinfect by filling the container with a mixture of 3 tablespoons of bleach and 5 gallons of water.

**Hoses**

* Use hoses that are made for drinking water, such as hoses for RVs and boats.
* Do not use garden hoses, green, or orange water hoses.
* Look for approval on the label for "Drinking Water".
* Do not let the hose fitting touch the ground.
* Clean hose fittings well and often.

A natural water reservoir near Shonto, Arizona. In the past, these natural ponds were the only water source for homes and livestock. Photo by Malcolm Benally.

Tuba City Native Explains The Work of A Research Field Staff

My name is Maria Welch. I am currently a member of Southwest Research and Information Center working as a research field staff with the Navajo Birth Cohort Study. I was born and raised in Tuba City, Arizona. I am an enrolled member of the Navajo Nation.

I have worked with the Navajo Birth Cohort Study for approximately one year as a clinical liaison, and as a part of the research field staff. Conducting field research for the study includes a Home Environmental Assessment (HEA) for the consenting participants. This HEA is one source of data to investigate possible uranium contamination among the Navajo Nation for consenting pregnant Navajo Nation members. This home assessment includes, gamma radiation screening, radon testing, dust sampling, and inquiring about home water usage and sources. The HEA is conducted at the participant's residence and takes approximately one hour to complete. If any causes for concern are present, the research team takes appropriate action. Each participant receives a HEA report that details the results/findings of the HEA investigation in the mail.

Figure 1: This graph shows results from the home assessment surveys. The most frequently occurring heavy metals found in dust samples during the HEAs are lead, arsenic, manganese, iron, and antimony; but at low levels. Keeping the home free of dust, especially in the kitchen area and around the wood stove is important.

Olivia Muskett, CHERS staff conducts an interview with a participant at her home. Photo by Chris Shuey.
Navajo Birth Cohort Study Videos on YouTube: Parts I to X

FOREST LAKE, AZ – The Navajo Birth Cohort Study has 10 videos featured on YouTube for public information and outreach to possible participants for this landmark study on Navajo lands. As the study kicked off in February 2013, the first participant was recruited at Chinle Comprehensive Health Care Facility. As the study got underway, more participants were recruited at Navajo Nation Health Care Centers, Gallup Indian Medical Center, Tsehootsoi Medical Center, Fort Defiance, AZ and Northern Navajo Medical Center in Shiprock, NM. The Navajo Cohort Study staff is trained, and each participating hospital has made a complete run through of the study’s protocol. Here are the 10 Navajo Birth Cohort Study videos on YouTube.

Overview of Navajo Birth Cohort Study Part I

An introduction to the Navajo Birth Cohort Study, a brief narration about why the study is taking place on moms-to-be, baby, and dad, too! Participants in the study must have lived on the Navajo reservation for at least five years or more. The study was approved and funded by Congress for five additional years in January 2013. The study will be conducted with partnerships between the University of New Mexico’s Community Environmental Health Program (CEHP), Southwest Research and Information Center (SRIC), Navajo Nation Health Department, Navajo Nation Division of Health (NNDIOH), Navajo Area Indian Health Services, and the Center for Disease Control/Agency of Toxic Substances Disease Registry.

Navajo Birth Cohort Study Part II: Eligibility Screening.

The group of “staff-members-turned-actors” in this lively video featured Navajo actors and was produced with the help of Women’s Clinic staff at the Chinle Comprehensive Health Care Facility when the Navajo Birth Cohort Study staff trainings were first being conducted during winter and spring 2012. The production shows how a lot of younger Navajo women and youth alike wanted to, and then lent their support into spearheading the project from its very beginnings. The short mock survey that was re-enacted for this video can also be conducted entirely in the Navajo language at the participant’s request during enrollment.

Navajo Birth Cohort Study Part III: Legacy of Uranium.

A short educational piece about the history of uranium and the need for studies to be done on the Navajo reservation as told by co-Investigator for the Navajo Birth Cohort Study, Dr. David Begay from the Navajo Nation Health Department, providing a communication link to the traditional Navajo speaking communities and the scientific community. This short video shows how the study utilizes the Navajo and English languages to educate the public about uranium.

Navajo Birth Cohort Study Part IV: Perspectives

After screening the first videos to the Navajo communities, a lot of Elders and community leaders suggested that the project use photos of the landscape and animals to temper the difficult story of uranium exposure and health. This video features President Ben Shelly giving a background on the work the Navajo communities took on until they testified before the U.S. Congress during the Uranium Hearings in Washington D.C. The short video comes with perspectives from activists who gathered during the July 2013 Red Water Pond Commemoration of the Church Rock uranium spill over 30 years ago.

Navajo Birth Cohort Study Part V: Red Water Pond Road.

Every year in mid-July, the Red Water Pond Road, a community near Church Rock, NM commemorates the 1979 United Nuclear dam break that is considered one of the worst uranium disasters comparable to Chernobyl and Three Mile Island. The leaders who speak out in this video represent the main issues that face Navajo communities today.

Navajo Birth Cohort Study Part VI: Outreach?

The Navajo Birth Cohort Study staff is continually doing outreach throughout the Navajo Reservation with the goal of getting 1,500 moms-to-be, baby, and dad, too! to participate in the study. Videos like this serve as updates to the work that is ongoing with the study. The elders and community members who viewed these short videos enjoy the landscape photography that accompanies the more heartfelt wrenching stories that belong to the Navajo legacy of uranium.

Navajo Birth Cohort Study Part VII: Adams Speaks Out

In this short video, a heavy metal musician and guitarist from the Poison rural community talks about coping with health issues as a young father. The film is a monologue that reveals the vast resources available to Navajo youth and their willingness to take it for granted, until it really matters. It has been a great opportunity for the Navajo Birth Cohort Study to have many community members who provided their own stories and inspired more to come forward and tell their stories. The staff is always looking for fathers to tell their stories. Look out for more testimony from dads and dads-to-be. Or, join us on Facebook and share your views and your stories! Like Us!

Navajo Birth Cohort Study Part VIII: Get Your Water Tested

Produced and Directed by Melissa Samuels, this short piece on the importance of getting your water tested is just over two minutes long, but the depth of information in this piece makes this video compelling. The safety of water in Navajo communities has become a major issue reservation wide. Now, Navajo Birth Cohort Study participants can have their homes, surrounding area, and water quality surveyed for environmental contaminants. Join the study, this is a good way to become more aware of your community with documentation through survey instruments.

Navajo Birth Cohort Study Part IX: The Leadership

The Navajo Nation leaders speaking about the importance of doing more studies on uranium issues to develop a more comprehensive understanding about “environmental contamination” is ongoing. The idea that prevention is the best way to keep from getting sick requires good education, which the study is featuring as a public outreach initiative. The goal is to involve everyone! The goal of this outreach program on YouTube is to share the information that focuses on the development of children, their development, and their health. The need for more documentation of the lands and water that has already been contaminated and the need to find monies for specialists to help those afflicted by long-term exposure to uranium are all long-term goals.

Navajo Birth Cohort Study Part X: Public Outreach

The Public Outreach video uses brochure information from the Navajo Birth Cohort Study along with information that has been discovered while implementing the study out in the field. The field staff often meets with family and community members who want to speak out and tell their stories. Some are more than happy to have parts of their daily life captured on video. Here we have the land and sheep from the Blackhorse family, a Navajo family who lives near Big Mountain, Arizona. This video shows footage of the daily task of taking the sheep out to graze and go to the nearest windmill with the flock get their daily drink of water, including the shepherd.

Navajo Birth Cohort Study Part XI: PSA

The short videos in our outreach series features our radio and public events submit. The Navajo Birth Cohort Study has been on radio shows like Native American Calling, KTNV Focus Forum, and on news reports on NPR and reservation radio stations. Some of these radio show are available on our www.healthyvoices.org website. Some of the earlier radio shows document the times when the inter-agencies and partnerships developed through the Navajo Birth Cohort Study, as the voices come from people coming together to promote the study. Getting everyone to talk about this important study and get people to participate requires support and leadership. You will find those from the community, Navajo Nation leaders, service providers, and youth speaking out on behalf of the Navajo Birth Cohort Study. Like the Elders say, when the whole culture is speaking, that is when everyone learns. Let get everyone talking!

Dorena Benally, Johnna Rogers, and Charlotte Swindal attend a NBCS report back and training session at Chinle I.H.S. Photo by Anna Rondon.

Chris Shuey and Jennifer Ong present information on gamma radiation, radon, and uranium exposure at Chinle I.H.S. Photo by Anna Rondon.

Daniel Jr. and Freedom Provincial-Blackhorse ride their bike and enjoy the summer weather. Photo by Davona Blackhorse (mom).