Thinking Zinc —
Béésh Dootł’izh Bantsáhákees

A study to assess how taking the recommended daily amount of zinc may help repair damage from harmful metals among Navajo Nation residents

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Funding, Disclosures, Disclaimer, Approvals

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Thinkg Zinc Research Team: Laurie Hudson, PhD, PI; David Begay, PhD; Erica Dashner-Titus, PhD; Esther Erdei, PhD, MPH; Sarah Henio-Adeky; Debra MacKenzie; PhD; Mallery Quetawki, BS; Chris Shuey, MPH

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Approvals:
Human research is monitored and approved by UNM Human Research Protections Office (HRPO), the Navajo Nation Human Research Review Board (NNHRRB) and the New Mexico Cancer Care Alliance, as required by federal, state and Tribal law. UNM HRPO approved Thinking Zinc on December 11, 2018 (HRPO #18-381). NNHRRB approved the study on January 22, 2019 (#NNR-18.330T).

Staff and collaborator acknowledgements on slide 14.
This study will be conducted in the Blue Gap-Tachee Chapter and Red Water Pond Road area of the Navajo Nation, 2018-2021

Blue Gap-Tachee Chapter adopted resolution supporting its participation in the Zinc Study in October 2017, reaffirmed in November 2018

Red Water Pond Road Community supported UNM METALS Center in 2014 and 2016, adopted a resolution of support in May 2018

Enrollment and sample collections beginning in May 2019

Community review and comment on these outreach and educational materials are always welcomed!

*From “Code Talker” by Chester Nez and Judith Schiess Avila, 2011.
We are concerned about exposure to some metals, especially uranium and arsenic, because they can damage your health. Here are some examples:

- Kidney disease
- Cardiovascular Disease
- Immune Disorders
- Cancers
- Skin Problems
This painting shows how metals like uranium can damage DNA and cells, through the lens of Mallery Quetawki, a Zuni artist and biologist.
In this painting, Ms. Quetawki shows how DNA damage may be repaired, like re-stringing a broken bead strand. Zinc is necessary for this process.

Painting by Mallery Quetawki, Zuni Pueblo
Why take zinc?

- In the right amounts, zinc — a metal that comes from Mother Earth — is an essential nutrient that promotes good health.

- Studies have shown that many people do not get enough zinc in their diet to keep their body healthy, to achieve balance.

- Some Navajo women and men enrolled in the Navajo Birth Cohort Study were found to have insufficient levels of zinc.

- Taking a zinc pill is NOT a cure-all for all your ailments, and too much zinc may be harmful.

- Taking a zinc supplement at the recommended daily allowance of 11 milligrams zinc per day is considered safe.
Is zinc in our diets?

• Yes, but it might not be in high enough amounts
• Some Navajo foods that have higher levels of zinc include:
  • Lamb
  • *Blue corn mush with juniper ash*
  • Pinon nuts
  • Chicken
  • Beef
  • Eggs

Sarah Henio-Adeky (left) serves blue corn mush at Thinking Zinc table at Red Water Pond Road Community gathering, July 2019
**Beesh Dootł’izh  Bantsáhákees Eligibility***

**Research volunteers needed**
We are conducting research to understand if taking the daily recommended level of zinc protects our bodies from the effects of heavy metals in the environment.

*To be eligible, you must be*
- 21-64 years of age
- Not diabetic
- Not allergic to zinc
- Not pregnant or nursing

*You will:*
- Have 4 study visits over 9 months
- Take a zinc supplement tablet
- Provide blood and urine samples
- Receive a gift card each visit

**INTERESTED?**
For more information or to participate, send email to zinc@sric.org, call 877-545-6775, or visit www.sric.org/Zinc

**Your eligibility to be enrolled in the study will be determined at your first visit to a community collection event.**
## Thinking Zinc Study Timeline

<table>
<thead>
<tr>
<th>0</th>
<th>3 months later</th>
<th>3 months later</th>
<th>3 months later</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Start of study</strong></td>
<td><strong>3 months later (3rd to 4th month)</strong></td>
<td><strong>3 months later (6th to 7th month)</strong></td>
<td><strong>3 months later (9th to 10th month)</strong></td>
</tr>
<tr>
<td><strong>Baseline</strong></td>
<td><strong>Baseline/Zinc</strong></td>
<td><strong>Zinc</strong></td>
<td><strong>Last visit</strong></td>
</tr>
<tr>
<td>- Education</td>
<td>- Education</td>
<td>- Education</td>
<td>- Education</td>
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<tr>
<td>- Eligibility screening</td>
<td>- Continued eligibility</td>
<td>- Continued eligibility</td>
<td>- Continued eligibility</td>
</tr>
<tr>
<td>- Consent</td>
<td>- Food frequency questionnaire</td>
<td>- Collection of blood (1 tbs) &amp; urine (3 tbs)</td>
<td>- Food frequency questionnaire</td>
</tr>
<tr>
<td>- Collection of blood (1 tbs) &amp; urine (3 tbs)</td>
<td>- Collection of blood (1 tbs) &amp; urine (3 tbs)</td>
<td>- 3-month supply of 15 mg Zn tablets provided</td>
<td>- Collection of blood (1 tbs) &amp; urine (3 tbs)</td>
</tr>
<tr>
<td>- gift card</td>
<td>- 3-month supply of 15 mg Zn tablets provided</td>
<td>- gift card</td>
<td>- gift card</td>
</tr>
</tbody>
</table>

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**Our staff will contact you during the study to remind you to keep taking your zinc tablets and to attend the next visit.**

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1 tablespoon (tbs)
• Approvals
  • Navajo HRRB January 2019; UNM HRPO December 2018
  • Registration: Clinicaltrials.gov NCT03908736

• Continued Community Engagement (CEC/SRIC)
  • >50 community activities (i.e. chapter meetings, booths at events, collection days)

• Enrollment (38 of 80 goal as of February 2020)
  • 24 women, 14 men, ages 21-64, median 59
  • First enrollment, sample collection in Red Water Pond Road Community, May 2019

• COVID-19 study pause, March 2020-July 2021
• Sample analyses and data reports —in progress
• Resuming study August 2021
Preliminary Data on Metals Levels in Urine

Data Table – example of the detailed information comparing urine-metals levels in Thinking Zinc participants with national values and values in NBCS participants

Some overall results so far:
- Arsenic is similar to national values
- Lead is below national values
- Uranium is about 4 times higher than national values

We will provide metals information for each participant in Thinking Zinc
Different patterns of exposure over time

- Some people have *small changes* in metal levels between visits (bars on left side of chart).

- Some people have *much bigger changes* in metal levels between visits (bars on right side of chart).

- *We will find out whether there are activities that might cause the differences so people can find ways to modify their exposure risk.*

Upcoming: Report-back letters to each participant who completed 4 visits will be sent in August 2021.
Ahéhee’ – Thank You!
Acknowledging Community Partners

Blue Gap-Tachee Chapter, Tachee Uranium
Concerns Committee (Faith Baldwin, Nadine Begay, Sadie Bill, Johnny Naize, Christopher Nez, Helen Nez, Seraphina Nez, Marcus Tulley, Aaron Yazzie)

Red Water Pond Road Community Association
(Peterson Bell, Thompson and Rose Bell, Anna Benaly, Grace Henio, Edith Hood, Tony Hood, Jacquelyn Bell-Jefferson, Teracita Keyanna, Larry J. King)

Annette Aguayo, Rose Dan, Don Hancock, Sarah Henio-Adeky, Lynda Lasiloo, Teddy Nez, Sandy Ramone, Paul Robinson (retired), Chris Shuey, Kyle Swimmer, Maria Welch
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- Cameron Farm Enterprise

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- UNM College of Pharmacy
- UNM Comprehensive Cancer Center

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