Healthy Children, Strong Families: Primary Cancer Prevention in American Indian Communities

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Outline

• Cancer statistics in American Indian people
• Regional differences in cancer in Indian Country
• Why focus on obesity for primary prevention
• Healthy Children, Strong Families
• Lessons learned
• Work to be done
Rates of New Cancer Diagnoses in US, 2009-2013

Number of New Cases per 100,000 Persons, Age-adjusted

- White
- Black
- Asian/Pacific Islander
- American Indian/Alaska Native
- Hispanic*

Cancer of any site, SEER Cancer Statistics Review (CSR), SEER 18
Rates of New **AI/AN** Cancer Diagnoses by **Region**, 1999-2009

Rates of **AI/AN** Cancer Deaths by Region, 1999-2009

AICR Cancer Prevention Recommendations

WCRF/AICR 2007 Report
Obesity and Cancer risk

• In 2007 in the United States:
  • about 34,000 new cases of cancer in men (4 percent) and 50,500 in women (7 percent) were due to obesity.
  • Rates for specific cancers vary, but as high as 40 percent for some, particularly endometrial cancer and esophageal adenocarcinoma.

• By 2030, obesity will lead to about 500,000 additional cases of cancer in the United States.

• If every adult reduced their BMI by 1 percent, equivalent to a weight loss of roughly 1 kg (or 2.2 lbs) for an adult of average weight, this would prevent the increase in the number of cancer cases and actually result in the avoidance of about 100,000 new cases of cancer.

• Obesity is associated with increased risks of the following cancer types:
  - Esophagus
  - Pancreas
  - Colon and rectum
  - Breast (after menopause)
  - Endometrium
  - Kidney
  - Thyroid
  - Gallbladder

Obesity and Cancer risk

• Increased levels of insulin and insulin growth factor-1 (IGF-1), which may help some cancers develop

• Chronic, low-level inflammation, which is more common in people who are obese and is linked with an increased cancer risk

• Higher amounts of estrogen produced by fat tissue, which can drive the development of some cancers, such as breast and endometrial cancers

• Fat cells may also effect processes that regulate cancer cell growth.
Rates of New **AI/AN Colorectal Cancer** Diagnoses by Region, 1999-2009

Rates of **AI/AN Colorectal Cancer Deaths by Region**, 1999-2009

![Graph showing rates of colorectal cancer deaths by region and gender, with a comparison to US-wide white rates.](graph.png)

Rates of AI/AN Adult Obesity by Region, 2000 - 2010

Obesity among AI/AN children

• According to a 2009 report by the Centers for Disease Control and Prevention (CDC), **31.2% of AI/AN four year olds are currently obese**, which is a rate higher than any other racial or ethnic group studied.

• Regional differences in overweight/obesity in school-age children vary from 35-75%

• Causes are complex and multiple, ex. HBW, gestational and early life-factors, poor nutrition, low activity, high screen time, etc.


Schell & Gallo’s 2012 Am J Hum Biol
A CBPR study begun in partnership with 4 Wisconsin Tribes for AI families with children ages 2-5.

Initial RCT showed positive results in improving fruit/vegetable consumption, decreased TV watching and decreased BMI in overweight/obese children. No effect of home visiting.

Larger national trial in progress
HCSF Six Healthy Lifestyle Targets

• Be more active
• Reduce screen time
• Eat more fruits and vegetables
• Drink less sugary beverages, eat less candy and other “junk” foods
• Improve sleep habits
• Improve stress management
HCSF Approach Model

Factors Not Targeted by HCSF

- Genetics
- In utero
- Age/Gender
- Early Life
- Gestational DM
- Partner Status
- Maternal BMI

Factors Targeted by HCSF

- Diet
- Screen Time
- Activity
- Sleep
- Diet
- Activity
- Stress
- Sleep
- Screen Time
- Self Efficacy

Caregiver Depression

FAMILY

- Food insecurity
- SES
- Community Environment
- Spirituality
- Culture

COMMUNITY

- Social Support
- Social Networking

Home Environment
- Family Time
HCSF-2 Timeline

Attrition at 12 months 9%
Attrition overall 15.7%
Wellness Journey Toolkit

- Families learn through monthly interactive lessons (designed for both adult & child)

  - 2-page lessons covering nutrition, physical activity, screen time, sleep and stress management topics
  - A ‘Cook With Your Kids’ Cookbook to get the whole family cooking together
  - Text message coaching*
  - Private Facebook group (one per site)*
Facebook & Texting

Try an all green lunch for St. Patrick’s Day!
Make a wrap with a spinach tortilla, deli turkey, and guacamole. Add a baggie of green grapes or a pear, cucumber slices or green pepper strips and a juice box and your healthy lunch is all set.

SAMPLE TEXT MESSAGES

❖ Tasty Tip! When you make quick breads or muffins – freeze the extra loaf or extra muffins. When you’re having a crazy week – just pull them out and breakfast or snacks are D-O-N-E.

❖ Snack Attack! Peel a banana and dip in yogurt. Roll in crushed cereal and freeze. Make these the night before and they’ll be perfect for after school snacking! Don’t forget to check Facebook for new snack recipes.

❖ Walk tall as the trees. Live strong as the mountains. Be gentle as the spring winds. Keep the warmth of the summer sun in your heart, and the great spirit will always be with you.

❖ Piles of fun! Leaves are falling. Have your kids help rake them into big piles, then jump into them. Mom and Dad can get into the fun too!

❖ Grab the kids and turn up the volume on the radio. Jump up and down, touch your toes, boogie till the cows come home!

❖ Turn house cleaning into a race – assign each kid one chore and see who can finish first.

❖ Active kids are happy kids! Being active gives kids a chance to socialize, will help them feel good and kids who are physically active every day will sleep better too!
HCSF Outcome Measures

➢ **Primary outcomes**: BMI z-score for children and caregiver BMI

➢ **Secondary outcomes** for both child and caregiver include:
  • increased fruit and vegetable intake
  • increased physical activity
  • decreased TV watching
  • decreased sugared beverages/candy intake
  • adequate sleep
  • decreased stress (adults)
## Demographics

### Age

<table>
<thead>
<tr>
<th>Category</th>
<th>Mean</th>
<th>SD</th>
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<tbody>
<tr>
<td>Adult years</td>
<td>31.38</td>
<td>8.45</td>
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<td>Child months</td>
<td>45.00</td>
<td>12.98</td>
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### Gender

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<tr>
<th>Category</th>
<th>Number</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Adult (number/% female)</td>
<td>426</td>
<td>94.7</td>
</tr>
<tr>
<td>Child (number/% female)</td>
<td>226</td>
<td>50.2</td>
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### Education

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<th>Percent</th>
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<tbody>
<tr>
<td>HS equivalent or less</td>
<td>169</td>
<td>37.6</td>
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<tr>
<td>Some college / Assoc. Degree</td>
<td>235</td>
<td>52.2</td>
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<tr>
<td>College degree / post-graduate</td>
<td>46</td>
<td>10.2</td>
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### Income

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<td>&lt; $5,000</td>
<td>132</td>
<td>30</td>
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<tr>
<td>$5,000 to $19,999</td>
<td>124</td>
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<tr>
<td>$20,000 to $34,999</td>
<td>94</td>
<td>21.4</td>
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<tr>
<td>&gt; $35,000</td>
<td>90</td>
<td>20.5</td>
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### American Indian

<table>
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<tr>
<th>Category</th>
<th>Number</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Adult</td>
<td>368</td>
<td>81.8</td>
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<tr>
<td>Child</td>
<td>390</td>
<td>86.7</td>
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</table>
“Good choices on books...we enjoyed reading them together...and my daughter was engaged and asked questions.”

“And when we eat at the table, we were having more conversations about school and different things the kids were into, where before we were being really occupied with the TV instead.”

“When the stuff would come in the mail the kids would get so excited, they would open all the games and want to hear about all the different ideas...it encouraged us to be more active, to go bike ride or to play outside.”

“What really helped me about the sleep schedule was actually being thoughtful about transition time...so we start winding down and turn off everything so we have time to brush teeth and get out our books and generally have quiet time so we’re all ready for bed”.
Lessons learned

• Substantive barriers exist to primary prevention
• Challenges of a 5 site RCT
• Facebook better than cell phones for connection
• Mailed intervention was very well received
• Challenges of social factors and site differences
• Obesity is very complex and BMI is an inadequate and insensitive measure
• Target age-group is formative time for habits but maybe too early to show clear outcomes given the strong prenatal influence
• Participating families and communities are highly interested in change
What to do next?

• Better understand how AI/AN and other communities can overcome economic barriers to healthy food and activity

• Work with communities on culturally responsive interventions that focus on traditional foods and activities where possible and involve the family and community

• Work with tribes, IHS and local clinics on dissemination of programs to ensure sustainability
Thanks to all of our participating families, the communities and the site coordinators.

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