Evaluation of the White Mountain Apache Suicide Surveillance and Prevention System

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Presenter Disclosures

- **Dr. Cwik** has no relevant financial relationships with the manufacturer(s) of commercial services discussed in this CME activity.
- Dr Cwik does not intend to discuss an unapproved/investigative use of a commercial product/device in this presentation.
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- SAMHSA Suicide Prevention grants
- Native American Research Centers for Health – NIGMS, NIDA, NIMH
White Mountain Apache Tribe

- ~17,000 enrolled tribal members
- Fort Apache Res. (1.6 million acres)
- Geographically isolated
- Spectrum of traditional and mainstream cultures
- Governed by Apache Tribal Council
- Over 30 year relationship with Johns Hopkins Center for American Indian Health (JHU)
  - Infectious Disease,
  - Behavioral and Mental Health
  - Training programs
Apache Youth Suicide

- Very low suicide rates prior to 1950
- Spikes in youth suicide since late 1980s
Community Strengths

- Tribal sovereignty, respect for cultural identity and values
- Family is center of culture. Large family networks strengthen community
- Traditions support sacredness of life and youth
- Strong capacity to adopt, adapt, diffuse new innovations
Celebrating Life Surveillance System

- Tribal resolution in 2001
- All community members (all persons, departments, and schools) are responsible for reporting individuals at risk for self-injurious behaviors
- Reportable behaviors include:
  - suicide death
  - suicide attempt
  - suicide ideation
  - non-suicidal self-injury
  - binge substance use
- Follow up by CL Team and Referral
Celebrating Life Prevention Programming

• Prevention methods developed from surveillance system

• Primary intervention targets include:
  – **Universal**: community-wide education to promote protective factors and reduce risks
  – **Selected**: early identification and triage of high-risk youth
  – **Indicated**: intensive prevention intervention with youth who attempt suicide and their families

  – Activities are supported and guided by a Community Advisory Board and Elders’ Council
Surveillance System: Community Specific Patterns

- Apache youth suicide rate: 13x U.S. All Races, ~6x AI/AN rates
- Progression of rates by age group
  - Deaths – 19-25 years
  - Attempts - 15-19 years
  - Ideation - 11-15 years
- Male:Female ratios: 6:1 deaths; ~1:1 attempts
- Methods - 80% Hanging despite availability of firearms
- Known triggers for attempters: conflict with partner or close relative; loss of loved one; substance use
Celebrating Life Prevention Programming

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Critical Risk Factors and Development

- Progression of rates by age group
  - Deaths – 19-25 years
  - Attempts - 15-19 years
  - Ideation - 11-15 years
Critical Risk Factor: Substance Use in Youth who Attempted (Avg. age - 15 years)

• High rates of early substance use
  – Males > Females
  – ETOH (93%) > MJ(89%) > Cocaine( 41%)> Methamphetamine (36%)
Grief Burden among Youth who Attempted: Death of Family Member or Peer

- Mother or father died by suicide
  - Males - 18%; Females - 7%
- Sibling died by suicide
  - Males - 18%; Females - 9%
- Friend died by suicide
  - Males - 18%; Females - 39%
Grief Burden among Youth who Attempted: Suicide Attempts by Family Member or Peer

- Family member attempted suicide in past 6 months
  - Males - 32%; Females - 18%
- Friend attempted suicide in past 6 months
  - Males - 46%; Females - 34%
Grief Burden among Youth who Attempted: Substance use

- Important adult with substance problem in past 6 months
  - Males – 63%; Females – 57%
- Important adult with substance problem, lifetime
  - Males – 50%; Females – 70%
Celebrating Life Prevention Programming

Universal Activities include:

• Interagency meetings
• A public education multi-media campaign
• Suicide prevention walks
• Suicide prevention conferences
• Door to door campaign
• Booths at health and tribal fairs
Celebrating Life Prevention Programming

Selected and Indicated Activities include:

- ASIST Trainings
- Cultural and strengths-based activities led by Apache Elders
  - Elementary school workshops
  - Middle school curriculum
  - Field Trips
- Brief intervention (2-4 hours) with a powerful, locally adapted video and manualized curriculum (“New Hope”); now also targets substance abuse
- Multi-session life skills curriculum (“Empowering our Spirits”)
Celebrating Life Impact
Celebrating Life Evaluation

- Numbers of suicide deaths and attempts (numerator) came from the surveillance system.
- Numbers for the total and age-specific tribal population sizes (denominator) came from 2007–2012 Indian Health Service (IHS) estimates for the Whiteriver Service Unit, which serves the Ort Apache Indian Reservation.
- We calculated age-adjusted suicide rates by using the 2010 US Census population as the reference population.
Celebrating Life Results – Suicide Deaths

*All/AN Rates were provided by IHS and are only available through 2008
# Celebrating Life Results – Suicide Deaths

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2001-2006</th>
<th>2007-2012</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>5-9</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>10-14</td>
<td>17.1</td>
<td>23.6</td>
<td>38.0%</td>
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<tr>
<td>15-19</td>
<td>107.8</td>
<td>101.9</td>
<td>-5.5%</td>
</tr>
<tr>
<td>20-24</td>
<td>151.9</td>
<td>96.0</td>
<td>-36.8%</td>
</tr>
<tr>
<td>25-34</td>
<td>95.0</td>
<td>37.9</td>
<td>-60.1%</td>
</tr>
<tr>
<td>35-44</td>
<td>23.3</td>
<td>9.1</td>
<td>-60.9%</td>
</tr>
<tr>
<td>45-64</td>
<td>15.5</td>
<td>11.7</td>
<td>-24.5%</td>
</tr>
<tr>
<td>65+</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Total (all ages)</td>
<td>40.0 (27.8, 52.1)</td>
<td>24.7 (16.3, 36.2)</td>
<td>-38.3%</td>
</tr>
</tbody>
</table>

**Apache Death Incidence Rate (per 100,000)**
Characteristics of Suicide Deaths

• 29 suicide deaths
• **Age:** 72% under 25 years old; average age 23
• **Gender:** 66% male; 85% in 2001-2006
• **Methods:** 90% hanging
• **Substances:** 59% drinking at the time
• **Precipitating Factor:** 62% interpersonal conflict
Celebrating Life Results – Suicide Attempts

![Graph showing the number of suicide attempts by year for males and females. The graph peaks around 2003 and 2005 for both males and females, with a steady decline thereafter.]
Characteristics of Suicide Attempts

- 433 attempts (366 individuals)
- **Age:** 69% under 25 years old; average age 23
- **Gender:** ~50% male; same as 2001-2006
- **Methods:** 44% overdose, 29% hanging
- **Substances:** 73% using substances; 56% alcohol
- **Precipitating Factor:** 33% interpersonal conflict
Discussion

• Despite decrease, highest incidence still ages 15-19
  – For both deaths and attempts
  – Creative prevention intervention approaches needed

• Role of alcohol
  – Alcohol use co-occurred in more than half of all deaths and attempts

• Young Apache women seem to be at increasing risk

• Deaths among parents:
  – 48% had children, up from 5% in 2001-2006; Females (60%) more often parents than males (42%)

• Cyclical pattern of deaths
  – “Peaks” appearing every 3 years

• Age is protective
  – No deaths in individuals over the age of 49
Future Directions- Southwestern Hub Grant

• Awarded 1 of 3 NIMH Hubs for American Indian youth suicide prevention (*start date April 2017*)
• Sites include White Mountain Apache (AZ), San Carlos Apache (AZ), Navajo Nation (NM), Hualapai Tribe (AZ), and Cherokee Nation (OK)
• Will allow for dissemination of Apache model to other tribes, including transferring surveillance and follow-up system to an online platform using smartphones and tablets for real-time data entry
• Study will utilize a SMART design examining the effects of enhanced follow-up, New Hope and brief Elder’s resiliency curriculum alone and in combination
Conclusions

- Comprehensive, population-specific prevention approaches, like the White Mountain Apache model, can reduce suicide deaths and attempts.
- Tribally-mandated surveillance provided the foundation to identify, provide services and track outcomes for individuals and communities at elevated risk for suicide.
- Community surveillance systems allow for in depth, accurate, high quality data and is critical in prevention programming and evaluation.