ADOLESCENT SUICIDE PREVENTION:

THE RESEARCH AND DEVELOPMENT PATH TOWARD THE APACHE YOUTH ENTREPRENEURSHIP PROGRAM

ACF
The Way Forward II
November 4, 2015

Allison Barlow, MPH, PhD

JOHNS HOPKINS CENTER FOR AMERICAN INDIAN HEALTH
Presentation Overview

Background

- White Mountain Apache / JHU Center for American Indian Health History
- Youth Suicide Prevention Research that led to the Apache Youth Entrepreneurship Program
  - Study 1: Understanding Rates, Patterns of Youth Suicide
  - Study 2: Understanding Precipitants (what were they thinking and feeling?) of Youth who Attempted Suicide
  - Study 3: Understanding Protective Factors for Suicide and Binge Substance Use

Apache Youth Entrepreneurship Program: A Positive Approach to Preventing Youth Suicide

- Intervention Design
- Outcome Measures – Choices and Rationale
- Pilot Data
Background

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 JHU & Center for American Indian Health (JHCAIH)
- Infectious Disease, Behavioral and Mental Health, & Training programs
Apache Youth Suicide

- Very low suicide rates prior to 1950
- Episodic spikes in youth suicide rates beginning in early 1980s
- 1993: WMAT – call for help to JHU
- Informal prevention programs through 1990s
TIMELINE – Toward Youth Suicide Prevention

- **Baseline Suicide Rates/Patterns**
  - 2001-2004

- **Quantitative/Qualitative Youth who Attempted Suicide**
  - 2005-2009

- **Case-Control Study of Binge Users and Healthy Controls**
  - 2009-2013

- **Youth Entrepreneurship Prevention and Outcome Study**
  - 2013-present
TIMELINE – Toward Youth Suicide Prevention

We are losing our children!

2001-2004
Tribal Response to Crisis

• 2001: Tribe mandates suicide surveillance and registry system

• First Tribal Registry
  – Paper and pencil reporting system
  – Limited follow-up & financial resources

• Formalized Partnership with JHCAIH since 2004 to Address Suicide
  – Registry management
  – Technical assistance for analysis and data reporting
  – Train/Employ Apache Community Mental Health Workers/Case Managers “Celebrating Life Team”
  – Design and evaluate public health approaches
Surveillance Measurement and Follow-Up Tools
White Mountain Apache Tribe “Celebrating Life” (Suicide Prevention) Registry Intake Form

Date of Report: __________

Name (Last name, First name): __________________________________________

Gender (circle one): Male     Female

Date of Birth: __/__/____ Age: _____ (please estimate if you do not know)

Tribal affiliation (check one):
- White Mountain Apache
- San Carlos Apache
- Navajo
- Other Tribe: __________________________
- Unknown
- N/A

Marital status (check one):
- Single
- Married
- Co-Habitating (Unmarried and living together)
- Separated
- Divorced
- Widowed
- Unknown

Educational status (check one):
- Currently enrolled in school (specify grade/level): ______
- Graduated high school
- Graduated from college
- Other: __________________________
- Dropped out (specify month/date): __/__/____
- Attended some college
- Graduated from graduate school

Community of residence (check one):
- Canyon Day
- Carrizo
- Cedar Creek
- Cibecue
- East Fork
- Forestdale
- Hon-Dah
- McNary
- Seven Mile
- Turkey Creek
- Whiteriver
- Unknown
- Other: __________________________
INSTRUCTIONS: COMPLETE THIS FORM BASED ON ALL THE INFORMATION AVAILABLE TO YOU (INCLUDING WHAT PERSON TELLS YOU, YELLOW FORM, POLICE REPORT, ER LOG, ETC)

Date of visit: __/__/______
Initials of case manager: __________

Name (Last name, First name): ________________________________

Gender (circle one): Male  Female

Date of Birth: __/__/______  (mm/dd/yyyy)
Registry ID Number: WMAR  _____  ____  ___

Age (estimate if need be): ______

Tribal affiliation (check all that apply):
  _White Mountain Apache
  _San Carlos Apache
  _Navajo
  _Unknown
  _Other Tribe: ________________________________
  _N/A

Living status (check all that apply):
  _With mother
  _With father
  _With spouse
  _With boyfriend / girlfriend
  _With brother(s) / sister(s)
  _With children (how many? _____)
  _No one; live alone
  _With non-relative(s) (eg, friend)
  _Other: __________________________________

Why was the report made? For each of the different sources of information below, fill in the number from the list to the right that corresponds to the best response:

SOURCES OF INFORMATION:
  According to what the person said: ___
  According to what Yellow Registry Form said: ___
  According to what Police Department/report said: ___

RESPONSE OPTIONS:

Suicide attempt
  1. Actual attempt
  2. Interrupted attempt (stopped by others before making attempt)
  3. Aborted attempt (stopped self before making actual attempt)

Suicide ideation (thoughts)
  4. With plan and preparatory action (ex. wrote note, gave away belongings, got materials)
  5. With plan, but no preparation (ex. know how they want to do it, but haven't made preparations, gotten material, etc.)
Study 1: Understanding Rates, Patterns and Precipitants

GOALS

• Understand rates and patterns of White Mountain Apache Suicide

• Gain deeper understanding of what precipitates youth suicide through in-depth interviews with youth who’ve attempted suicide
How Do Apache Rates Compare to Others?

Average suicide incidence rates per 100,000/year

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Total Population, Age Adjusted</td>
<td>10.7</td>
<td>10.3</td>
<td>40.1 (~4x US)</td>
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<tr>
<td>Ages 15-24</td>
<td>9.8</td>
<td>17.25 (~2x US)</td>
<td>129.9 (~13x US)</td>
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</table>
Summary: Rates and Patterns

- Apache youth 15-24 year old rate: 13x U.S. All Races, ~6x AI/AN rates
- Highest death rates: 20-24 yr olds
- Highest attempt rates: 15-19 yr olds
- Male:Female ratios: 6:1 suicide; ~1:1 attempts
Gaining a deeper understanding of precipitants from youth who attempted (n=71)

- Aged 10 to 19; recently attempted suicide
- One time, in-depth, quantitative assessment battery (n=71)
  - Self-report
  - Structured interview
- Sub-sample did year-long qualitative interviews (n=25)
- Assessments conducted by Apache research staff
What we learned from Youth who Attempted

• Precipitants/reasons for attempt:
  – Family problems: 35%
  – Anger/depression: 19%
  – Relationship problems: 16%
  – Suicide/death of another: 15%
  – “Nothing”: 22%

• Treatment
  – 64% referred
  – Of those referred, 60% attended
    = < 40%

• Important Role of Substance Use
How they were feeling and thinking before they attempted (themes)

**Impulsivity & Reactivity**

“It just happened out of nowhere.”

“I didn’t really think about it, I just took off and tried to look for that rope…”

**Family Dynamics**

“I would have to say that… our relationship is a boat and it’s got holes in it and we’re both trying to haul out the water so we don’t talk like we used to.

**Substance Use**

“My mom was hardly ever around. I always knew what she was doing even when I was about four years old, I always stayed with my grandma. I only wanted to be around my mom when I knew she was trying to quit. And it wasn’t that long, before she would take off and drink more.”
Intersection of Suicide and Substance Use

• 68% of deaths ages 10-25 confirmed drunk/high at time of death (the majority of rest unknown)

• 44% of attempts ages 10-25 drunk/high and not primary method (i.e., not the methods of OD)
  – Methods – 35% OD; 18% hanging, thus \( \Rightarrow \) 79% using related to attempt
Tribal Expansion of Mandated Reporting

2001
Suicide Death, Attempt, Ideation

2007
Non-Suicidal Self-Injury and SA at time of act

2010
Binge SA as form of Self Injury
TIMELINE – Toward Youth Suicide Prevention

- **Baseline Suicide Rates/Patterns**
- **NARCH III**
  - Using a CBPR Model to Prevent Youth Suicide
- **NARCH V-VI**
  - Exploring Binge Drinking and Drug Use as a form of Self-Injury
- **NARCH VII**
  - Promoting Protective Factors against Youth Suicide and Substance Use:
    - The Arrowhead Youth Entrepreneurship Prevention and Outcome Study
Study Design: Case-Control Binge Substance Use

• Community-engaged process
  – Native and non-Native researchers
  – Community Advisory Board

• Case-control -- quantitative/qualitative data
  – All: Ages 10-19, AI ethnicity; from Apache community
  – Case: Binge alcohol/drug use, past 90 days
  – Control: No lifetime binge use

• Analysis
  – Individual, peer, family, cultural/community level risk and protective variables
Risk & Protective Factors –
*Protective Factors that Mattered*

• **Individual**
  - Aggression
  - Emotion regulation
  - Impulsivity
  - Social problem solving skills
  - Mental health symptoms
  - School attendance
  - College interest
  - Contact with courts/juvenile
  - Index of stressful events

• **Family**
  - Household composition
  - Multigenerational
  - Number in home
  - Residential stability
  - Moved ≥1, last year
  - Family closeness
  - Family functioning

• **Peer**
  - Deviant peer group
  - Poor social relations
  - Argument with friend (last 6 mo)
  - Romantic break-up (last 6 mo)

• **Cultural/Community**
  - Ethnic Identity
  - Value Apache identity
  - Value traditional AI values
  - Desire tradition as adult
# Measures -- Case-Control Binge Substance Use

<table>
<thead>
<tr>
<th>ASSESSMENTS FOR YOUTH</th>
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<tbody>
<tr>
<td>ASSESSMENTS FOR YOUTH-ONLY (CASES &amp; CONTROLS)</td>
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<tr>
<td>Demographics</td>
</tr>
<tr>
<td>Problem Oriented Screening Instrument for Teenagers</td>
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<td>Multigroup Ethnic Identity Measure</td>
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<td>Self-Injurious Thoughts and Behaviors Interview</td>
</tr>
<tr>
<td>Drug and Alcohol Assessment</td>
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<td>Aggression Questionnaire</td>
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<tr>
<td>Social Problem Solving Inventory</td>
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<tr>
<td>Difficulties in Emotion Regulation Scale</td>
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<td>Apache-JHU Family Assessment (Family Apgar)</td>
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<td>Voice of Indian Teens – Happenings Scale</td>
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<td>UPPS Impulsive Behavior Scale</td>
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</table>

| ASSESSMENTS FOR YOUTH & PARENT TOGETHER (CASES & CONTROLS) |
| Children and Adolescent Services Assessment |

| GENERAL STUDY RELATED FORMS |
| Suicide Ideation Questionnaire (cases only) |
| Suicide Ideation Questionnaire – Past few days (cases only) |
| Study Visitation Form (cases and controls) |
| Study Exit Form (cases and controls) |

= AI- or Apache-specific
<table>
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<th>Variable Name</th>
<th>AOR</th>
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<td>Physical²</td>
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<td>Verbal³</td>
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<td>Anger²</td>
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<td>Hostility¹</td>
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<td>Indirect²</td>
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<td>Non-Acceptance</td>
<td>1.06</td>
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<td>Goals</td>
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<td>Impulse</td>
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<td>Awareness</td>
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<td>Strategies</td>
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<td>Clarity</td>
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<td><strong>Impulsivity</strong></td>
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<td>Total Score</td>
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<td>Premeditation</td>
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<td>Urgency</td>
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<td>Sensation Seeking</td>
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<td>Perseverance</td>
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<td>Social Problem Solving Skills³</td>
<td>0.65</td>
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<td>Mental Health Problems-Symptoms⁴</td>
<td>1.19</td>
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<td><strong>Currently in School</strong></td>
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<td>College Aspiration¹</td>
<td>0.12</td>
<td>0.067</td>
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<tr>
<td>Contact with Court/Juvenile Justice, last 6 months⁵</td>
<td>5.31</td>
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<td>Stressful Events⁶</td>
<td>1.30</td>
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<td><strong>Peer Level</strong></td>
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<tr>
<td>Deviant Peer Group⁴</td>
<td>1.40</td>
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<tr>
<td>Poor Social Relations⁴</td>
<td>1.33</td>
<td>0.029</td>
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<tr>
<td>Serious Argument: Friend, last 6 months²</td>
<td>2.98</td>
<td>0.016</td>
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<tr>
<td>Break-up: Romantic Partner, last 6 months⁷</td>
<td>1.81</td>
<td>0.238</td>
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</table>
## Results-Exploratory: Family/Culture/Community

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>AOR</th>
<th>p-value</th>
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<tbody>
<tr>
<td><strong>Family Level</strong></td>
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<td>Household</td>
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<tr>
<td>Both parents</td>
<td>0.50</td>
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<tr>
<td>Mother only</td>
<td>0.96</td>
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<td>Non-family members</td>
<td>3.04</td>
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<tr>
<td>Multigenerational</td>
<td>2.26</td>
<td>0.087</td>
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<tr>
<td>Number in home^2</td>
<td>1.26</td>
<td>0.027</td>
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<tr>
<td>Residential Mobility</td>
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<tr>
<td>In current home &gt; 10 years^2</td>
<td>0.26</td>
<td>0.003</td>
</tr>
<tr>
<td>Lived in &gt; 1 home, last year</td>
<td>1.68</td>
<td>0.235</td>
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<tr>
<td>Family Dynamic</td>
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<tr>
<td>Family closeness</td>
<td>0.26</td>
<td>0.007</td>
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<tr>
<td>Poor family functioning</td>
<td>1.38</td>
<td>0.003</td>
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<tr>
<td><strong>Cultural/Community Level</strong></td>
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<tr>
<td>Values, Beliefs &amp; Practices</td>
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<tr>
<td>Follow traditional AI beliefs</td>
<td>0.65</td>
<td>0.050</td>
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<tr>
<td>Follow Christian beliefs</td>
<td>0.72</td>
<td>0.171</td>
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<tr>
<td>As an adult, desire to follow traditional AI beliefs</td>
<td>0.65</td>
<td>0.081</td>
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<tr>
<td>Important to have traditional AI values, practices^2</td>
<td>0.34</td>
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<tr>
<td>Ethnic Identity</td>
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<td>Total Score</td>
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<tr>
<td>Affirmation and Belonging</td>
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<td>Identity Achievement</td>
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<td>Ethnic Behavior</td>
<td>0.53</td>
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<tr>
<td>Other Group Orientation</td>
<td>0.31</td>
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</table>
Highlight on School Attachment:

- Cases spoke negatively about school; many suspended/dropped out due to drinking
- Controls strongly attached to school; source of pride
- Controls connected academic success and skill development to long-term college and employment goals
- Controls accessed school-based adults in times of need (counselor, nurse, teacher, coach, etc.)
Apache Conceptual Model of Suicide

Risk

**Individual**
- Predisposing characteristics
- Impulsivity
- Anomie

**Family**
- Strained relationships
- Substance use

**Community**
- School drop-out
- Violence & grief burden

**Society**
- High suicide rates
- Imitation

Prevention

**Individual**
- Emotion regulation skills
- Goal Setting / Vision for Future

**Family**
- Parent engagement
- Family support

**Community**
- School attachment
- Support from Positive adults

**Society**
- Strong Apache identity & morale
- Positive peer networks
- Opportunities for productivity
TIMELINE – Toward Youth Suicide Prevention

Baseline Suicide Rates/Patterns

NARCH III: Using a CBPR Model to Prevent Apache Youth suicide

NARCH V, VI Exploring Binge Drinking and Drug Use as a Form of Intentional Self-Injury

NARCH VII Promoting Protective Factors against Apache youth suicide and substance use: The Arrowhead Youth Entrepreneurship Program

2001-2006
2005-2009
2009-2013
2013-present
APACHE ARROWHEAD
YOUTH ENTREPRENEURSHIP PROGRAM
The Key Aims of the Youth Entrepreneurship Model

### Prevention

**Individual**
- Emotion regulation skills
- Goal Setting / Vision for Future
- Active lifestyles

**Family**
- Parent engagement
- Family support

**Community**
- School attachment
- Support from Positive adults

**Society**
- Strong Apache identity & morale
- Positive peer networks
- Opportunities for productivity
Arrowhead Youth Entrepreneurship Program: The Intervention

- Recruit 13-16 year olds
- One-week residential camp
  - Coping/Problem Solving
  - Goal setting
  - Entrepreneurship skill development
- Stay in school incentives
- Positive cultural identity
- 6 months guided small business development
- Adult/Elder mentors
- Business incubator

Supported by Barclays
Structured Curriculum and Native Facilitators

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Facilitator Guide Color Key:

- All black text (apart from what is written on the overview page of the lesson) is information to share with youth.
- All text in blue boxes is information to share with youth. It includes additional information that they don’t have printed in their workbooks.
- All orange script and orange boxes should not be read out loud. Orange indicates a note to the facilitator.
- All green script and green boxes are examples you can use to support a point. You can choose to use these examples or provide your own.
- All purple script and purple boxes are questions to ask the youth. You don’t have to ask all of the questions, just the ones that you think are appropriate.
Experiential Learning and Team Presentations
Program Evaluation

Design (funded by NIH/NARCH):
- RCT – 450 youth – 2:1 design
- Comparison group: Recreation/cultural activities

Targeted Outcomes targets:
- Education Achievement (HS completion, attendance, GPA)
- College Aspirations
- Behavior/mental health outcomes
  - Hopefulness vs. Hopelessness
  - Self-Efficacy/Locus of Control
  - Substance Abuse
  - Depression
  - Risk-Taking
Youth Entrepreneurship Intervention Measures collected through ACASI (computer-assisted)

<table>
<thead>
<tr>
<th>Indicator Topic</th>
<th>Data Source (Metric)</th>
<th>Baseline</th>
<th>Post-interv.</th>
<th>6-mos post-interv.</th>
<th>12 mos post-interv.</th>
<th>24 mos post-interv.</th>
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<td>Demographics</td>
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<td><strong>I. Psychosocial Outcomes</strong></td>
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<td>Depressive symptoms</td>
<td>Patient Health Questionnaire 9- (PHQ-9)</td>
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<td>Norwichi-Strickland Locus of Control</td>
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<td>Social connectedness</td>
<td>Hemingway Measure of Adolescent Connectedness</td>
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<td>Hopelessness and hopefulness</td>
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<td>Substance use</td>
<td>Youth Risk Behavior Survey (substance use subscales)</td>
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<td>Sexual and risk-taking behaviors; violence</td>
<td>Youth Risk Behavior Survey (various subscales)</td>
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<td><strong>II. Educational Outcomes</strong></td>
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<td>School achievement/attendance (GPA, absenteeism, tardiness), completion and performance</td>
<td>School Records (no time burden)</td>
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<td>College and occupational interest</td>
<td>Across Time Orientation Measure (ATOM)</td>
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<tr>
<td><strong>IV. Entrepreneurial and Economic Outcomes</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Entrepreneurial knowledge and activities</td>
<td>Investigator-developed survey items</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economic advancement and empowerment</td>
<td>Investigator-developed survey items</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Participant program satisfaction</td>
<td>Investigator-developed survey items</td>
<td>0</td>
<td>10</td>
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<td>0</td>
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<tr>
<td>Maximum Total Time Burden (in minutes):</td>
<td></td>
<td>75</td>
<td>85</td>
<td>75</td>
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</table>

=previously proven w/community
Preliminary Data: Changes in GPA – Cohort 1 (Enrolled Summer 2014)

<table>
<thead>
<tr>
<th></th>
<th>GPA of Youth in Intervention/Comparison</th>
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<tbody>
<tr>
<td>Baseline - Spring 2014</td>
<td>1.92</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>2.65</td>
</tr>
<tr>
<td>Spring 2015</td>
<td>2.6</td>
</tr>
<tr>
<td>n=56</td>
<td>+35%</td>
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<tr>
<td>n=35</td>
<td>+8%</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>GPA of Youth in Intervention/Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline - Spring 2014</td>
<td>2.27</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>2.37</td>
</tr>
<tr>
<td>Spring 2015</td>
<td>2.46</td>
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</tbody>
</table>
School Achievement of Pilot Cohort (2013)
Enrolled Summer 2013 (n=72)

- Some College: 15% (WMAT), 19% (Barclays)
- Highschool Graduates: 25% (WMAT), 38% (Barclays)
- Still in School: 51% (Barclays)
- Highschool Dropouts: 75% (Barclays), 11% (Barclays)
Continuing the Journey Toward Wellness....
The good news:

Suicide Death Rates per 100,000 Population

- **US All Races (CDC)**
- **US White (CDC)**
- **AI/AN (IHS)***
- **White Mountain Apache Tribe**

*AI/AN Rates were provided by IHS and are only available through 2008
Our Team and Support

Melanie Alchesay
Allison Barlow
Mary Cwik
Hector Garcia
Novalene Goklish
Sonny Goseyun
Francene Larzelere-Hinton
Kristin Lake

Angelita Lee
Anthony Parker
Rosemarie Suttle
Lauren Tingey
John Walkup
SAMHSA Suicide Prevention grants
NARCH grants
Barclays