Turning Information into Insight: Vermont’s Application of Population Data for Informing Programmatic and Policy Decisions

Laurel Omland, MS
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Part 1: The Long Trail--How Vermont began the journey to see both footsteps and long vistas

Laurel Omland, Director of the Child, Adolescent and Family Unit, Vermont Department of Mental Health

Laurin Kasehagen, CDC Assignee to Vermont’s Department of Health & Mental Health
Where did the Long Trail begin?

Vermont’s story begins about 5 years ago, when the former director of CAFU and colleagues from SAMHSA and CDC who work in early childhood mental health met to discuss how they could get better data around child mental health.

The discussion expanded from not only what was needed, but, if there were data, how could Vermont get epidemiologic support.

Over a 12-18 month period,

- CDC’s MCH Epidemiology Program Team and CDC’s NCBDDD ECHS Team worked to develop a unique pilot of the typical MCH assignment.
- SAMHSA communicated its willingness to help support an epidemiology assignment.
- Vermont communicated its need and willingness to accept an assignee.
- And, through a fortuitous series of events, a potential assignee was identified.
What is an assignee?

- Maternal and Child Health Epidemiology Program
- Located within CDC’s Center for Chronic Disease Prevention and Health Promotion in the Field Support Branch
- 14 assignees and about 6 fellows in the field, including Vermont
- Assignment first of its kind
  - VT, CDC, NCBDDD, SAMHSA, HRSA / MCHB
  - Primary focus on child and family behavioral, emotional, and mental health and wellness
  - Significant investment
  - VT selected for its innovation, collaboration, and size

http://www.cdc.gov/reproductivehealth/mchepi/assignees.htm
What makes an assignee from the CDC different from state analysts or epidemiologists?

- Unique aspect of assignment -- working across programs, divisions, departments, and agencies in Vermont on issues that transcend the boundaries of any one program, division, department, and agency
- Provides subject matter expertise, technical expertise, leadership, oversight of fellows / EIS officers
- Provides analyses using more complex analytic techniques
- Usually does not have responsibility for a particular surveillance system or for analyzing and compiling reports or data for a specific surveillance system or program

\[ \text{INJ} = \text{Injury} \quad \text{MCH} = \text{Maternal and Child Health} \quad \text{MH} = \text{Mental Health} \quad \text{SU} = \text{Substance Use} \]
What is the population health approach and evidence-based public health?

Population Health is an approach that

- focuses on interrelated conditions and factors that influence the health of populations over the life course,
- identifies systematic variations in their patterns of occurrence, and
- applies the resulting knowledge to develop and implement policies and actions to improve the health and well-being of those populations.

Evidence-based public health is the mechanism by which population health information is used for the ... development, implementation, and evaluation of effective programs and policies ....

Implementation of a Population Health Approach in Vermont

- Adverse experiences, behavioral, emotional and mental health and wellness and resilience
- Suicide, suicidal ideation, and non-suicidal self-harm
- Anxiety, depression, conduct disorders
- ADHD
  - School performance
  - Impact of inattention
  - Use of 504 Plans and Individualized Education Programs (IEPs)
  - Use of antipsychotic / psychotropic prescription medications
- Substance Use Disorders (opioids, tobacco)
- Neonatal abstinence syndrome
- Moderately / most effective contraceptive use
<table>
<thead>
<tr>
<th>Assignee</th>
<th>Project</th>
<th>Topical Areas</th>
<th>Potential Sources of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Adverse Family / Childhood / Prenatal Experiences</td>
<td>NSCH, BRFSS, PRAMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Attention Deficit / Hyperactivity Disorder (ADHD)</td>
<td>NSCH, NS-DATA*, Medicaid claims, VHCURES, VPMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Youth / Lifespan Suicide</td>
<td>Vital records, NVDRS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Youth / Lifespan Suicidal Ideation, Self-Directed Violence, &amp; Accidental Poisonings</td>
<td>YRBS, VUHDDS, Medicaid claims, VHCURES, syndromic surveillance, QI initiatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Anxiety, Depression, Conduct Disorders,</td>
<td>NSCH, YRBS, BRFSS, PRAMS, VUHDDS, Medicaid claims, VHCURES, DMH service data, NSDUH, QI initiatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tobacco Cessation among Pregnant Women</td>
<td>Vital records, PRAMS, Tobacco Program data, Adult Tobacco Survey, QI initiatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Substance Use among Youth (12-17 years) and Women of Reproductive Age (15-44 years)</td>
<td>YRBS, BRFSS, PRAMS, VUHDDS, syndromic surveillance, ADAP service data, VPMS, SBIRT ED data, NSDUH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SUDs / OUDs / Neonatal Abstinence Syndrome (NAS)</td>
<td>VUHDDS, Medicaid claims, VHCURES, VRPHP QI initiatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unintended Pregnancies / Long-Acting Reversible Contraceptives (LARCs)</td>
<td>BRFSS, PRAMS, Vital records, Medicaid claims, VHCURES, Title X Clinic data / Planned Parenthood</td>
</tr>
</tbody>
</table>

*Only national level data

**Acronyms:**
- BRFSS = Behavioral Risk Factor Surveillance System
- NS-DATA = National Survey of the Diagnosis and Treatment of ADHD and Tourette Syndrome
- NSCH = National Survey of Children’s Health
- NSDUH = National Survey on Drug Use and Health
- NVDRS = National Violent Death Reporting System
- PRAMS = Pregnancy Risk Assessment Monitoring System
- QI = quality improvement
- VHCURES = Vermont Health Care Uniform Reporting and Evaluation System
- VPMS = Vermont Prescription Monitoring System
- VRPHP = Vermont Regional Perinatal Health Project
- VUHDDS = Vermont Uniform Hospital Discharge Data Set
- YRBS = Youth Risk Behavior Survey
Population Health – seeing the long vista

- **Outcomes of Well-Being for Vermonters** (Act 186 for the Agency of Human Services) codified the use of Results Based Accountability
  

- For years we’ve had service-level data on How Much?
- We have identified more of the How Well? (service delivery process). And are improving our ability to solidly say whether Anyone is Better Off (client outcomes).
- We also wanted to know: How are all children, youth and families in Vermont doing?
The “Value Add” of having an epidemiologist

- An epidemiologist has helped us
  - Access and use Vermont population level data for behavioral and mental health analyses and action

- Population level data has helped us
  - **Understand the context** of behavioral health within our Vermont populations
  - **Identify problems that affect the health of the whole population or a subpopulation**
  - See more clearly **the life span implications** of emotional, behavior and mental health conditions as well as the generational influences
  - Communicate the connection to the **social determinants of health**
  - Strengthen partnerships via **strong communication value** – it’s *all* Vermonters; it’s *us*, our families, friends, colleagues
The “Value Add” of having an epidemiologist - 2

- Population level data, continued
  - Identify **systems issues** that prevent Vermont from achieving whole person wellness
  - Identify opportunities to **address the stigma of mental illness and substance use disorders**
  - Think about how to **tailor mental health promotion and prevention messages** in a way that resonate with the whole population
- Example: perinatal mood and anxiety disorders
  - VDH Maternal Child Health and DMH partnership to screen caregivers at well-child visits and develop system of mental health treatment providers knowledgeable about PMADs
Part 2: The “mounting” evidence for resilience

Laurel Omland, Director of the Child Adolescent Family Unit, Vermont Department of Mental Health

Laurin Kasehagen, CDC Assignee to Vermont’s Department of Health & Mental Health
Project 0: Explore and develop an analytic plan for VT Adverse Childhood Experiences (ACEs)

• Analysis of the prevalence of:
  ✓ Adverse family experiences
  ✓ Protective factors: Flourishing and Resilience
  ✓ Outcomes for school aged children, like school engagement

• Statistical modelling to understand:
  ✓ how adverse family experiences impact school engagement and the ability of a child to be able to do their homework, and
  ✓ how this relationship is moderated or mediated by resilience
Source of Data: 2016 National Survey of Children’s Health (NSCH)

- **Conducted annually, starting in 2016**
- **Designed and data collected in a manner that allow **valid state-to-state, regional, and national comparisons**
- **Yield weighted** data prevalence estimates for comparable non-institutionalized populations in each state and nationally
- **Samples** 1 in 106 Vermont children
- **Why this survey works well for Vermont?**
  - **HUGE sample of child population (n~125,000)**
- Parents / guardians respond for child
How is adversity measured?

Live with anyone (parent / guardian) who ...

- Died
- Was depressed, mentally ill, or suicidal
- Was a problem drinker or alcoholic
- Used illegal street drugs / abused prescription medications?
- Served time / was sentenced to serve time in a prison, jail or other correctional facility?
- Got separated or divorced

- See / hear parents or adults in your house slap, hit, kick, punch or beat each other up? Ever the victim or violence / witness neighborhood violence?
- Ever treated / judged unfairly because of race or ethnic group?
- Live in a household where it was hard to cover basics like food or housing?
- Moved more than 4 times since birth
Adverse Family Experiences among Vermont Children, <1-17 years, by Age Group

Data Source: 2016 National Survey of Children’s Health
Individual Strengths & Resilience
9 Domains of Resilience

- Parent-child connections
- Structure
- Consequences
- Rights and responsibilities
- Safety and support
- Strong / key relationships
- A powerful identity
- A sense of control
- A sense of belonging and purpose

Source: Resilience Research Centre, 2014
Flourishing / Resilience among Vermont Children, 6-17 years

Data Source: 2016 National Survey of Children’s Health
School Engagement among Vermont Children, 6-17 years

- **Shows interest and curiosity in new things:**
  - Definitely true: 87.5%
  - Somewhat / Not true: 12.5%

- **Cares about doing well in school:**
  - Definitely true: 78.8%
  - Somewhat / Not true: 21.2%

- **Works to finish tasks started:**
  - Definitely true: 63.4%
  - Somewhat / Not true: 36.6%

- **Does all required homework:**
  - Definitely true: 70.1%
  - Somewhat / Not true: 29.9%

Data Source: 2016 National Survey of Children’s Health
What are the odds of not doing all required homework for children 6-17 years with 3+ AFEs (compared to those with <3 AFEs)?
What are the odds of not doing all required homework for children 6-17 years with 3+ AFEs (compared to those with <3 AFEs)?

Note: all relationships were statistically significant
What are the odds of not doing all required homework for children 6-17 years with 3+ AFEs (compared to those with <3 AFEs)?

As few as 1 or 2 adverse family experiences can have an impact. Resilience moderated the effect of 3+ AFEs on a child’s engagement in school and their ability to complete all homework. Resilience can moderate or buffer the negative effects of adversity.

Note: all relationships were statistically significant
Taking Data to Action: An example of a population approach to adverse experiences, school engagement and resilience

Source: Wordle from Baltimore City Health Department
What happened with this relatively easy analysis and the use of population level data?

- Vermont realized that there were data sources for children and topics that DMH CYF had interest in.
- These data had strong communication value and were used widely with stakeholders, legislators.
- Provided a positive data framework for developing a statewide initiative.
- Helped bridge mental health and public health.
- Started a movement to address adversity and build resilience.
From planning and mapping to the hard work of action
Counseling & Education
Clinical Interventions
Long-lasting Protective Interventions
Changing the Context to make individuals’ environments healthy
Socioeconomic Factors

Trauma treatments for children & families such as ARC Framework; treatment for adult MH/SUD
Therapeutic interventions for children and families to mitigate health consequences of abuse and neglect exposure, prevent problem behaviors, reduce violence
SBIRT for substance use, home visiting, teaching parents about child development stages, 5 protective factors
Health in all Policies, Strengthening Families Approach, PBiS, Flourishing Communities, universal childcare
Ameliorating poverty and inequities in education, housing, access to healthcare

ARC Framework

Competency
- Executive Functions
- Self-Development & Identity
- Relational Connection

Regulation
- Identification
- Modulation

Attachment
- Caregiver Affect Management
- Attunement
- Effective Response
- Engagement
- Education
- Routines & Rhythms

Trauma Experience Integration
Vermont’s system of care has embraced the Protective Factors framework

- Parental Resilience
- Social Connections
- Concrete Supports
- Knowledge of Parenting and Child Development
- Social and Emotional Competence of Children
VT Legislation 2017 & 2018

  - Established Principles for VT’s Trauma-Informed System of Care

- 2018 Act 204: “An act relating to ensuring a coordinated public health approach to addressing childhood adversity and promoting resilience”
  - Director of Trauma Prevention and Resilience Development
  - Childhood Adversity Response Plan
  - ACO provides incentives to existing community services for preventing and addressing the impact of childhood adversity
Building Flourishing Communities initiative

- Two statewide multi-disciplinary conferences focused on ACEs and Building Flourishing Communities
- Information saturation* for communities by Master Trainers on NEAR Sciences (neuroscience, epigenetics, ACEs, and resilience)
- Build community and family resilience
  - develop community capacity
  - inspire innovation across diverse groups of people
  - support local groups as they address the issues that are important to them
- Turns out there’s population-level data on family resilience and community strengths, too…

*Laura Porter, Self-Healing Communities
Family Resilience among Vermont Children 17 Years and Younger

<table>
<thead>
<tr>
<th>Family resilience</th>
<th>Family resilience score</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Does family know where to go for help in their community?</td>
<td></td>
</tr>
<tr>
<td>▪ When your family faces problems, how often are you likely to do each of the following?</td>
<td></td>
</tr>
<tr>
<td>- Talk together about what to do</td>
<td></td>
</tr>
<tr>
<td>- Work together to solve our problems</td>
<td></td>
</tr>
<tr>
<td>- Know we have strengths to draw on</td>
<td></td>
</tr>
<tr>
<td>- Stay hopeful even in difficult times</td>
<td></td>
</tr>
</tbody>
</table>

Prevalence (Weighted Percent)

<table>
<thead>
<tr>
<th>All/Most of the time to 0-1 items</th>
<th>All/Most of the time to 2-3 items</th>
<th>All/Most of the time to all 4 items</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.8</td>
<td>14.7</td>
<td>78.6</td>
</tr>
</tbody>
</table>

Data Source: 2016 National Survey of Children’s Health
VT Mental Health Payment Reform

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Pregnant women and young children are thriving</th>
<th>Families/Communities are safe, stable, nurturing, and supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population Indicators</td>
<td>a. Demonstrates Resilience / Flourishing</td>
<td>a. Family Strengths</td>
</tr>
<tr>
<td></td>
<td>b. Prevalence of Emotional, mental or behavioral conditions</td>
<td>b. Child involvement in Community Activities</td>
</tr>
<tr>
<td></td>
<td>c. Level of severity of Emotional, mental or behavioral conditions</td>
<td>c. Parent’s physical health, mental/emotional health</td>
</tr>
<tr>
<td></td>
<td>d. How often have these conditions affect child’s ability to do things, severity of impact</td>
<td></td>
</tr>
</tbody>
</table>
Discussion & Questions
Hands-on activity to get to the “peak” of our work!

Using population-level data
Translating Data to Action

- **Group work:**
  - You’ve partnered with your state health department to obtain data about ED visits for suicidal ideation, self-directed violence and accidental poisonings. The epidemiologist conducted the analysis.
  - Now you have the numbers, what’s next?
Suicidal ideation, suicidal and undetermined self-directed violence, and accidental poisoning, among Vermont Youth 10-24 Years, Vermont Uniform Hospital Discharge Data, 2010-2016, n=9,128

**Figure Legend**

SI = suicidal ideation

SDV = suicidal and undetermined self-directed violence

AP = accidental poisoning
From 2010-2016, crude rates of suicidal ideation and SDV significantly increased from 236.9 to 333.8 (p for trend <0.0001) and 208.6 to 345.1 (p for trend <0.0001) per 100,000 youth 10-24 years, respectively. Accidental poisoning rates increased, but the increase was not statistically significant.

Crude Rates of Suicidal Ideation, Self-Directed Violence (SDV), and Accidental Poisoning among Vermont Youth
<table>
<thead>
<tr>
<th>Episode Types</th>
<th>All Youth</th>
<th>10-12 years</th>
<th>13-15 years</th>
<th>16-18 years</th>
<th>19-21 years</th>
<th>22-24 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicidal Ideation</td>
<td>crude rate / 100,000 youth</td>
<td>77.6</td>
<td>283.7</td>
<td>351.7</td>
<td>311.9</td>
<td>372.5</td>
</tr>
<tr>
<td>Combined Suicidal &amp; Undetermined SDV</td>
<td>crude rate / 100,000 youth</td>
<td>61.4</td>
<td>364.9</td>
<td>380.8</td>
<td>271.1</td>
<td>243.5</td>
</tr>
<tr>
<td>Accidental Poisoning</td>
<td>crude rate / 100,000 youth</td>
<td>189.6</td>
<td>171.5</td>
<td>223.3</td>
<td>265.8</td>
<td>356.7</td>
</tr>
</tbody>
</table>
How Could Your State Translate Data into Action?

- Context
  - Need
  - Information/Data Partnerships

- Utilization
  - Implementation

- Data Access
  - Analysis Interpretation

- Transfer
  - Disseminate Diffusion

- Translation Products

Improving population health

Utilization Implementation

Context Need Information/Data Partnerships

Translation Products

Transfer Disseminate Diffusion

Data Access Analysis Interpretation

Utilization Implementation

Context Need Information/Data Partnerships
Small Group Activity – 10 min

- What’s missing? Is there other data you need?
- What does this tell you about your state child/youth population’s health?
- What stands out to you?
- Consider how this might relate to the population in MH service
- How would you use this data? Think about policy, communication, programmatic, fiscal, partnerships…
- Who do you need to bring to the table (roles)?
Bear with us, it is almost break time ... but now’s the time to Report Out!
BREAK
Translating Data into Action: Vermont

**Need, Partnerships, Analysis & Interpretation**
- Built partnerships / participate in VDH & AHS workgroups
- Participate in the CDC-UIC multi-year training on the use of claims-based data
- Analyzed data from vital records and hospital discharge data systems
- Interpreted analysis

**Translation & Dissemination**
- Wrote manuscript around ideation and self-directed violence
- Developed QI project on coding and ED processes
- Participated in Child Safety CoILN

**Utilization & Implementation**
- Learn what works / doesn’t work and apply NMC experience to other community hospitals in VT
- Write manuscript on QI experience
- Suicide STAT
Part 3: Preparing for the Journey Ahead

Anita Wade, CSTE Applied Epidemiology Fellow, Vermont Departments of Health & Mental Health

ssw.umaryland.edu/traininginstitutes
Implementation of a Population Health Approach in Vermont
What should you pack?
What should you pack?
What should you pack?
What is public health surveillance?
What is public health surveillance?

“The ongoing, systematic collection, analysis, and interpretation of health data, essential to the planning, implementation and evaluation of public health practice, closely integrated with the dissemination of these data to those who need to know and linked to prevention and control.”

Recommended CSTE Surveillance Indicators for Substance Abuse and Mental Health, Version 2, December 2017

- **Purpose**
  - Provide guidance on monitoring substance use and mental health
  - Standardize surveillance activities across states
  - Monitor needs and trends
  - Bring key stakeholders to the table

18 indicators identified and defined during October 2015-2016
3 groups
- Alcohol (5 indicators)
- Other Drugs (5 indicators)
- Mental health (8 indicators)
Pilot 1- January- June 2017
- 4 States
Pilot 2- March-June 2018
- 15 States and counties
Mental Health Indicators
<table>
<thead>
<tr>
<th>Surveillance Indicators</th>
<th>Data Source</th>
<th>Age Range of Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Suicide rate</td>
<td>Death Certificate Data</td>
<td>5 years and older</td>
</tr>
<tr>
<td>2. Hospital discharges for mental disorders</td>
<td>Hospital Discharge Data</td>
<td>12 years and older</td>
</tr>
<tr>
<td>• Overall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Mood and Depressive Disorders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Schizophrenic Disorders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Mental Disorders, except drug and alcohol-induced Mental Disorders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Emergency department visits for intentional self-harm</td>
<td>Emergency Department Data</td>
<td>5 years and older</td>
</tr>
<tr>
<td>Indicators using Survey Data</td>
<td>Data Source</td>
<td>Age Range of Focus</td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>4. Self-reported youth suicide attempts</td>
<td>Youth Risk Behavior Surveillance System (YRBSS)</td>
<td>Students in grades 9-12</td>
</tr>
<tr>
<td>5. Depressive episodes in the past year</td>
<td>National Survey of Drug Use and Health (NSDUH)</td>
<td>12-17 and 18 years and older</td>
</tr>
<tr>
<td>6. Any adult mental illness in the past year</td>
<td>NSDUH</td>
<td>18 years and older</td>
</tr>
<tr>
<td>7. Any adult serious mental illness in the past year</td>
<td>NSDUH</td>
<td>18 years and older</td>
</tr>
<tr>
<td>8. Frequent mental distress</td>
<td>Behavioral Risk Factor Surveillance System (BRFSS)</td>
<td>18 years and older</td>
</tr>
</tbody>
</table>
The “Map”

How to use the Surveillance Indicators to reach our destination

https://www.greenmountainclub.org/the-long-trail/
**Indicator Group: Mental Health**

**Indicator 14. Self-reported youth suicide attempts**

<table>
<thead>
<tr>
<th>Demographic group</th>
<th>Students in grades 9-12.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numerator</td>
<td>Students in grades 9-12 who reported attempted suicide at least once in the past 12 months</td>
</tr>
<tr>
<td>Denominator</td>
<td>All students in grades 9-12 (excluding those who refused to answer, had missing answers, or answered “don't know/not sure”).</td>
</tr>
<tr>
<td>Measure of frequency to be reported</td>
<td>Biennial (odd years) prevalence with 95% confidence intervals.</td>
</tr>
</tbody>
</table>

| Time period for case definition | Past year. |
| Additional demographic characteristics to stratify by when feasible | Stratify by grade level, sex, race, ethnicity, and geographic subarea if feasible given number of events for jurisdiction. |

**Background**

Suicide attempts are highly correlated with suicide mortality, and are a major cause of morbidity. Persons who attempt suicide are at increased risk for completed suicide. The ratio between attempts and completions is not the same for men and women, or for boys and girls. Suicide is one of the 5 leading causes of death for U.S. youth. In the 2013 YRBS, nationwide, 8.0% of students had attempted suicide one or more times during the 12 months before the survey. The prevalence of having attempted suicide was higher among female (10.6%) than male (5.4%) students. Among the 40 states with analyzable data, the percentage of students reporting having attempted suicide ranged from 6.0% to 14.3% (1).

**Significance**

YRBS data define the risk for suicide attempt and indirectly for completed suicide by subpopulation. Successful efforts to prevent suicide should also prevent suicide attempts, and this should be evident in the data. The relationship between attempts and completed suicides may differ by subpopulation and by method.

**Limitations of Indicator**

Data are conducted biennially in participating states (2).
Indicator Group: Mental Health

Indicator 14. Self-reported youth suicide attempts

Demographic group: Students in grades 9-12.

Numerator: Students in grades 9-12 who reported attempted suicide at least once in the past 12 months.

Denominator: All students in grades 9-12 (excluding those who refused to answer, had missing answers, or answered “don’t know/not sure”).

Measure of frequency to be reported: Biennial (odd years) prevalence with 95% confidence intervals.

Time period for case definition: Past year.


Additional demographic characteristics to stratify by when feasible:
- Stratify by grade level, sex, race, ethnicity, and geographic subarea if feasible given number of events for jurisdiction.

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</table>

**Background**

Suicide attempts are highly correlated with suicide mortality, and are a major cause of morbidity. Persons who attempt suicide are at increased risk for completed suicide. The ratio between attempts and completions is not the same for men and women, or for boys and girls. Suicide is one of the 5 leading causes of death for U.S. youth. In the 2013 YRBS, nationwide, 8.0% of students had attempted suicide one or more times during the 12 months before the survey. The prevalence of having attempted suicide was higher among female (10.6%) than male (5.4%) students. Among the 40 states with analyzeable data, the percentage of students reporting having attempted suicide ranged from 6.0% to 14.3% (1).

**Significance**

YRBS data define the risk for suicide attempt and indirectly for completed suicide by subpopulation. Successful efforts to prevent suicide should also prevent suicide attempts, and this should be evident in the data. The relationship between attempts and completed suicides may differ by subpopulation and by method.

**Limitations of Indicator**

Data are conducted biennially in participating states (2).
Organizing the data

CSTE Indicator Reporting Tool

Photo source: https://www.rei.com/blog/hike/how-to-pack-for-an-appalachian-trail-thru-hike
Instructions for collecting and organizing census data

Note: clear all selections and start a new search in "Your Selections"


State

County/Region/Sub-State

Year 2016

<table>
<thead>
<tr>
<th>Total</th>
<th>Count</th>
<th>Age Groups</th>
<th>Population Count</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>0</td>
</tr>
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<td></td>
<td></td>
<td>5-9</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>0</td>
</tr>
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<td>40-44</td>
<td>0</td>
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<td></td>
<td></td>
<td>45-49</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>50-54</td>
<td>0</td>
</tr>
</tbody>
</table>

1. Organize table layout: "Group Results By:" select Age in the drop down menu
2. Select location: select your state
3. Select demographics and years: Under "Yearly July 1st Estimates", select the appropriate year
   Click "Send", then copy and paste the table, right click in the yellow cell below and paste.
Age-adjustment template based on the 2000 standard population US population distribution.

**Step 1:** Choose appropriate standard population distribution.

**Step 2:** Enter the observed population totals for each age group, and the event counts for each age group into the appropriate blue cell (corresponding to the specific age-group)

**Step 3:** Report the age-adjusted percent/prevalence per specified population (10,000 or 100,000 where appropriate) from the green cells.

**Step 4:** To get desired information in appropriate cell, right click select copy. Go to appropriate cell where information will be pasted, right click, select Paste Special, select Value, Ok.

Note for the 5 and older age distribution: the adjustment weight for the 65-74 age group (highlighted in yellow) was modified from 0.070941. All adjustment weights must sum to 1, and modifying the 65-74 age group was determined to have the least impact in accordance with the Klein et al. (2001) paper. Due to this correction, the age adjustment calculation utilizes the age-adjustment weights and adjustment factor.

### 2000 Standard Population: Distribution #1

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Standard Population</th>
<th>Adjustment Weight (w)</th>
<th>Observed Population (p)</th>
<th>Observed Population Event Counts (d)</th>
<th>Observed Population Percent (m)</th>
<th>Number of Events (adjusted)</th>
<th>Age-Adjusted Prevalence (%)</th>
<th>Age-Adjusted Prevalence per 10,000</th>
<th>Age-Adjusted Prevalence per 100,000</th>
</tr>
</thead>
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<tr>
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<td>1-4</td>
<td>15,192,000</td>
<td>0.05317</td>
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<td>5-14</td>
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<td>65-74</td>
<td>18,136,000</td>
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<td>12,315,000</td>
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<td>85+</td>
<td>4,259,000</td>
<td>0.015508</td>
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<td>All Ages</td>
<td>274,634,000</td>
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<td>#DIV/01</td>
</tr>
</tbody>
</table>

**Created from Master list: 2000 US projected population and age-adjustment**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Standard Population</th>
<th>Adjustment Weight (w,)</th>
<th>Observed Population (p)</th>
<th>Observed Population Event Counts (d)</th>
<th>Observed Population Percent (m)</th>
<th>Adjustment Factor</th>
<th>Age-Adjusted Prevalence (%)</th>
<th>Age-Adjusted Prevalence per 10,000</th>
<th>Age-Adjusted Prevalence per 100,000</th>
</tr>
</thead>
<tbody>
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<tr>
<td>15-24</td>
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<td>0.149854</td>
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</table>
### Mental Health Indicator

#### 12. Hospital Discharge Rate for Mental Disorders

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Overall Hospital Discharges for Mental Disorders</th>
<th>Hospital Discharges for Mood and Depressive Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Crude Annual Discharge Rate per 10,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
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<tr>
<td>Age groups</td>
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<tr>
<td>12-24</td>
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</tr>
<tr>
<td>25-44</td>
<td></td>
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</tr>
<tr>
<td>45+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian or Alaskan Native, non-Hispanic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian/Pacific Islander, non-Hispanic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other, non-Hispanic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data Resource:


1. Select your State from the "State Location" drop down
2. Click "GO"
3. Under "Question", click Unintentional Injuries and Violence, select Attempted suicide
4. Under "Year", select the year of interest
5. Click "GO"
6. Select the demographic variables of interest in the "Column Variable" drop down
7. Click "GO"
8. Report Crude percents and CIs

### 14. Prevalence Rate of Youth Suicide Attempts

<table>
<thead>
<tr>
<th>YEAR</th>
<th>2015</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Weighted Prevalence</th>
<th>Per 100 respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Crude Prevalence</td>
</tr>
<tr>
<td></td>
<td>95% CI</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Female</td>
</tr>
<tr>
<td>Grades</td>
<td>9th</td>
</tr>
<tr>
<td></td>
<td>10th</td>
</tr>
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<td></td>
<td>11th</td>
</tr>
<tr>
<td></td>
<td>12th</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>American Indian or Alaskan Native, non-Hispanic</td>
</tr>
<tr>
<td></td>
<td>Asian, non-Hispanic</td>
</tr>
<tr>
<td></td>
<td>Black, non-Hispanic</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
</tr>
<tr>
<td></td>
<td>Native Hawaiian or Pacific Islander, non-Hispanic</td>
</tr>
<tr>
<td></td>
<td>White, non-Hispanic</td>
</tr>
<tr>
<td></td>
<td>Multiple Race, non-Hispanic</td>
</tr>
</tbody>
</table>

Example calculation for overall crude annual discharge rate per 10,000 when data year is 2015:

\[ \text{Crude Annual Discharge Rate per 10,000} = \left( \frac{\text{Count}}{\text{Population Count 2015}} \right) \times 10,000 \]

Example calculation for overall crude annual discharge rate per 10,000 when data year is 2016:

\[ \text{Crude Annual Discharge Rate per 10,000} = \left( \frac{\text{Count}}{\text{Population Count 2016}} \right) \times 10,000 \]
<table>
<thead>
<tr>
<th>Indicator Category</th>
<th>Indicator #</th>
<th>Indicator Name/Description</th>
<th>Year</th>
<th>Count</th>
<th>Crude Prevalence (per specified population)</th>
<th>Lower Limit</th>
<th>Upper Limit</th>
<th>95% CI</th>
<th>Age-adjusted Prevalence (per specified population)</th>
<th>Lower Limit</th>
<th>Upper Limit</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Drugs</td>
<td>10.6</td>
<td>Past Year Prescription Pain Reliever Misuse</td>
<td>2015-2016</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
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<td>Mental Health</td>
<td>11</td>
<td>Suicide rate</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mental Health</td>
<td>12</td>
<td>Hospital discharges for mental disorders, all</td>
<td></td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>Mental Health</td>
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<td>Mood And Depressive Disorders</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
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<td>Schizophrenic Disorders</td>
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<td>0</td>
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<td>0</td>
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</tr>
<tr>
<td>Mental Health</td>
<td>12.3</td>
<td>All Mental Disorders Except Drug- And Alcohol-Induced Mental Disorders</td>
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<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>Mental Health</td>
<td>13</td>
<td>Emergency department visits for intentional self-harm</td>
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</tr>
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<td>Mental Health</td>
<td>14</td>
<td>Self-reported youth suicide attempts</td>
<td>2015</td>
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<td>0</td>
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</tr>
<tr>
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<td>Depressive episodes in the past year, 18 yrs and older</td>
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</tr>
<tr>
<td>Mental Health</td>
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<td>Any adult mental illness in the past year, 18 yrs and older</td>
<td>2015-2016</td>
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<tr>
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<td>Serious adult mental illness in the past year, 18 yrs and older</td>
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<td>0</td>
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<td>18</td>
<td>Frequent mental distress (≥14 days out of 30)</td>
<td>2016</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
</tbody>
</table>
Time to start walking

Hands-on example using indicator 14: Self-reported youth suicide attempts
   - Select your State from the "State Location" drop down
   - Some metropolitan areas available as well
2. Click "GO"
3. Under "Question", click “Unintentional Injuries and Violence”
4. Select “Attempted suicide”
4. Under "Year", select the year of interest
5. Click "GO"

Vermont 2017 Results
7. Select the demographic variables of interest in the "Column or Row Variable" drop down (Ex. Sex, Grade, Race/ethnicity)

8. Click "GO"
9. Report Crude percent's and Confidence Intervals

<table>
<thead>
<tr>
<th>Grade</th>
<th>Sex</th>
<th>Total</th>
<th>Female</th>
<th>Male</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>20,525</td>
<td>9,946</td>
<td>10,259</td>
</tr>
<tr>
<td>Total</td>
<td>5.4 (5.1–5.8)</td>
<td>7.3 (6.8–7.8)</td>
<td>3.5 (3.2–3.9)</td>
<td></td>
</tr>
<tr>
<td>9th</td>
<td>5.8 (5.2–6.5)</td>
<td>9.2 (8.1–10.3)</td>
<td>2.5 (1.9–3.1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5,524</td>
<td>2,753</td>
<td>2,736</td>
<td></td>
</tr>
<tr>
<td>10th</td>
<td>5.8 (5.2–6.5)</td>
<td>8.3 (7.3–9.4)</td>
<td>3.4 (2.8–4.2)</td>
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<tr>
<td></td>
<td>5,465</td>
<td>2,682</td>
<td>2,744</td>
<td></td>
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<tr>
<td>11th</td>
<td>5.2 (4.6–5.9)</td>
<td>6.4 (5.5–7.4)</td>
<td>4.0 (3.3–4.8)</td>
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<td></td>
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<td>2,408</td>
<td>2,495</td>
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<tr>
<td>12th</td>
<td>4.3 (3.7–4.9)</td>
<td>4.7 (3.8–5.7)</td>
<td>3.7 (3.0–4.6)</td>
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<tr>
<td></td>
<td>4,300</td>
<td>2,048</td>
<td>2,204</td>
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</tr>
</tbody>
</table>

Footnotes

† Percentage, confidence interval, cell size
10. Fill in the reporting toolkit

11. Explore other ways of stratifying the data on the YRBS website
Questions & Discussion
Breakout questions

- Do you agree with the rates for your jurisdiction?
  - Does anything surprise you?
- How could this information be used?
- Has your jurisdiction used mental health surveillance indicators to inform policy?
  - What’s worked and what hasn’t?
Summary

- Standardized indicators help states:
  - Get a handle on severity, frequency, economic impact, and preventability of various conditions
  - Conduct planning and evaluation

- Limitations
  - Data access
  - Analytic capacity
  - Age ranges of survey data

- Work-in-progress
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Thank You

We hope you get out on the trail soon to enjoy the footsteps and vistas!