

Strategic direction for suicidal behavior prevention: Promoting connectedness



Coming Together to Care:
Texas Suicide Prevention
Symposium

Alex E. Crosby

Division of Violence Prevention
National Center for Injury
Prevention and Control

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The findings and conclusions in this report are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention/the Agency for Toxic Substances and Disease Registry.”

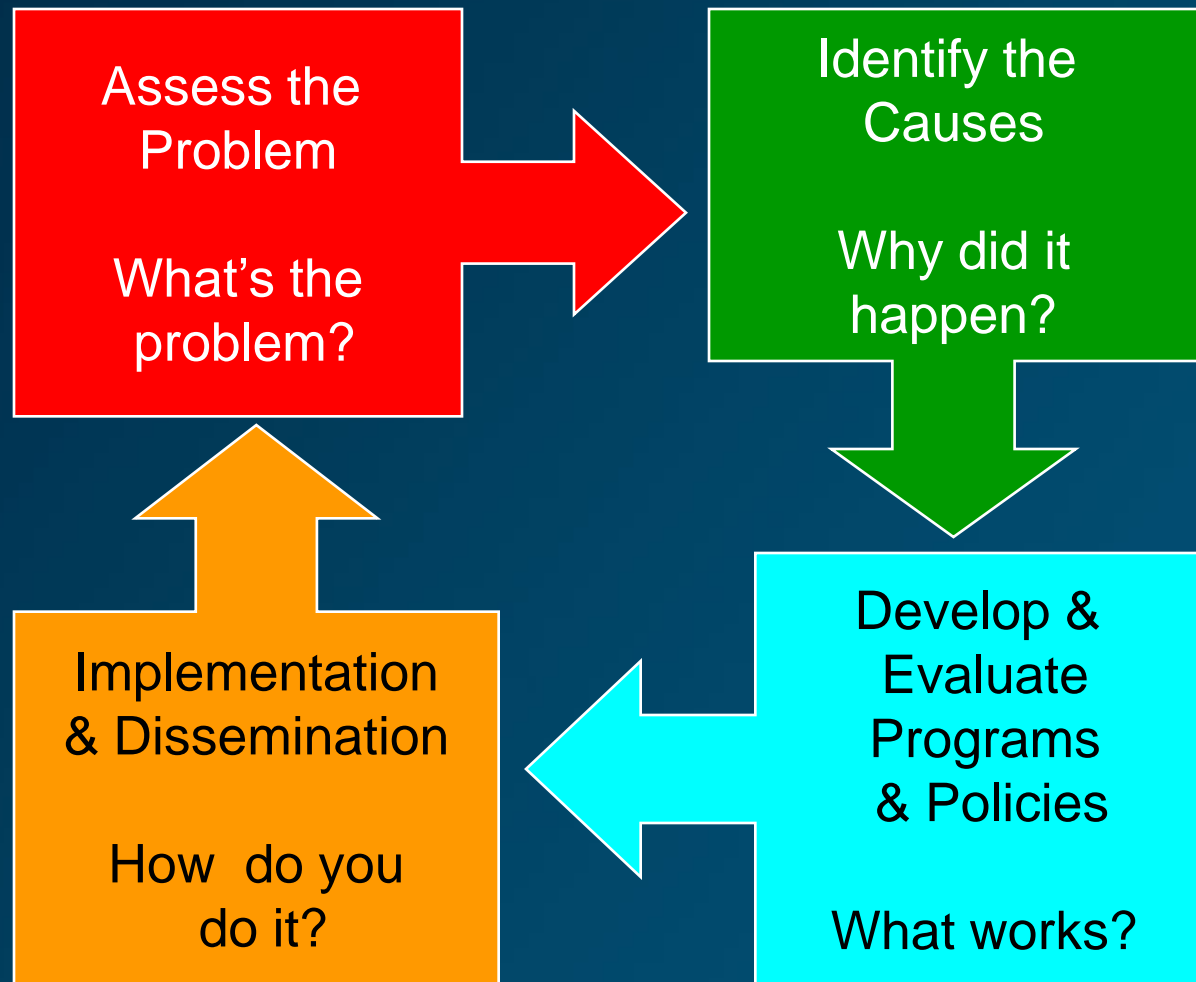


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Objectives

- Describe relevance of strategic direction to the issue
- Describe process of developing strategic direction
- Challenges and opportunities for the future

The Public Health Approach to Prevention



Why a public health issue?

- Morbidity and mortality
- Potential for impact
- Mission of public health

Leading causes of death – United States, 2007

| Rank | Cause | Number of deaths |
|-----------|------------------------------|------------------|
| 1 | Heart Disease | 616,067 |
| 2 | Malignant Neoplasms | 562,875 |
| 3 | Cerebrovascular | 135,952 |
| 4 | Chronic Lower Respiratory Ds | 127,924 |
| 5 | Unintentional Injuries | 123,706 |
| 6 | Alzheimer's Disease | 74,632 |
| 7 | Diabetes mellitus | 71,382 |
| 8 | Influenza & pneumonia | 52,717 |
| 9 | Nephritis | 46,448 |
| 10 | Septicemia | 34,828 |
| 11 | Suicide | 34,598 |

Leading causes of death – Texas, 2007

| Rank | Cause | Number of deaths |
|-----------|------------------------------|------------------|
| 1 | Heart Disease | 38,912 |
| 2 | Malignant Neoplasms | 35,074 |
| 3 | Cerebrovascular | 9,796 |
| 4 | Unintentional Injuries | 9,392 |
| 5 | Chronic Lower Respiratory Ds | 8,107 |
| 6 | Diabetes mellitus | 5,109 |
| 7 | Alzheimer's Disease | 4,814 |
| 8 | Nephritis | 3,291 |
| 9 | Influenza & pneumonia | 3,230 |
| 10 | Septicemia | 2,857 |
| 11 | Liver Disease | 2,535 |
| 11 | Suicide | 2,433 |

Leading causes of death for selected age groups – United States, 2007

| Rank | 10-14 years | 15-19 years | 20-29 years | 30-39 years | 40-49 years | 50-59 years |
|------|------------------------------|------------------------------|--------------------------|------------------------|------------------------|------------------------------|
| 1 | Unintentional Injuries | Unintentional Injuries | Unintentional Injuries | Unintentional Injuries | Malignant Neoplasms | Malignant Neoplasms |
| 2 | Malignant Neoplasms | Homicide | Homicide | Malignant Neoplasms | Heart Disease | Heart Disease |
| 3 | Homicide | Suicide | Suicide | Heart Disease | Unintentional Injuries | Unintentional Injuries |
| 4 | Suicide | Malignant Neoplasms | Malignant Neoplasms | Suicide | Suicide | Liver Disease |
| 5 | Congenital Malformations | Heart Disease | Heart Disease | Homicide | Liver Disease | Diabetes Mellitus |
| 6 | Heart Disease | Congenital Malformations | HIV | HIV | HIV | Cerebro-Vascular |
| 7 | Chronic Lower Respiratory Ds | Cerebro-vascular | Congenital Malformations | Diabetes Mellitus | Cerebro-vascular | Chronic Lower Respiratory Ds |
| 8 | Influenza and pneumonia | Chronic Lower Respiratory Ds | Diabetes mellitus | Cerebro-vascular | Diabetes Mellitus | Suicide |

Source: CDC vital statistics

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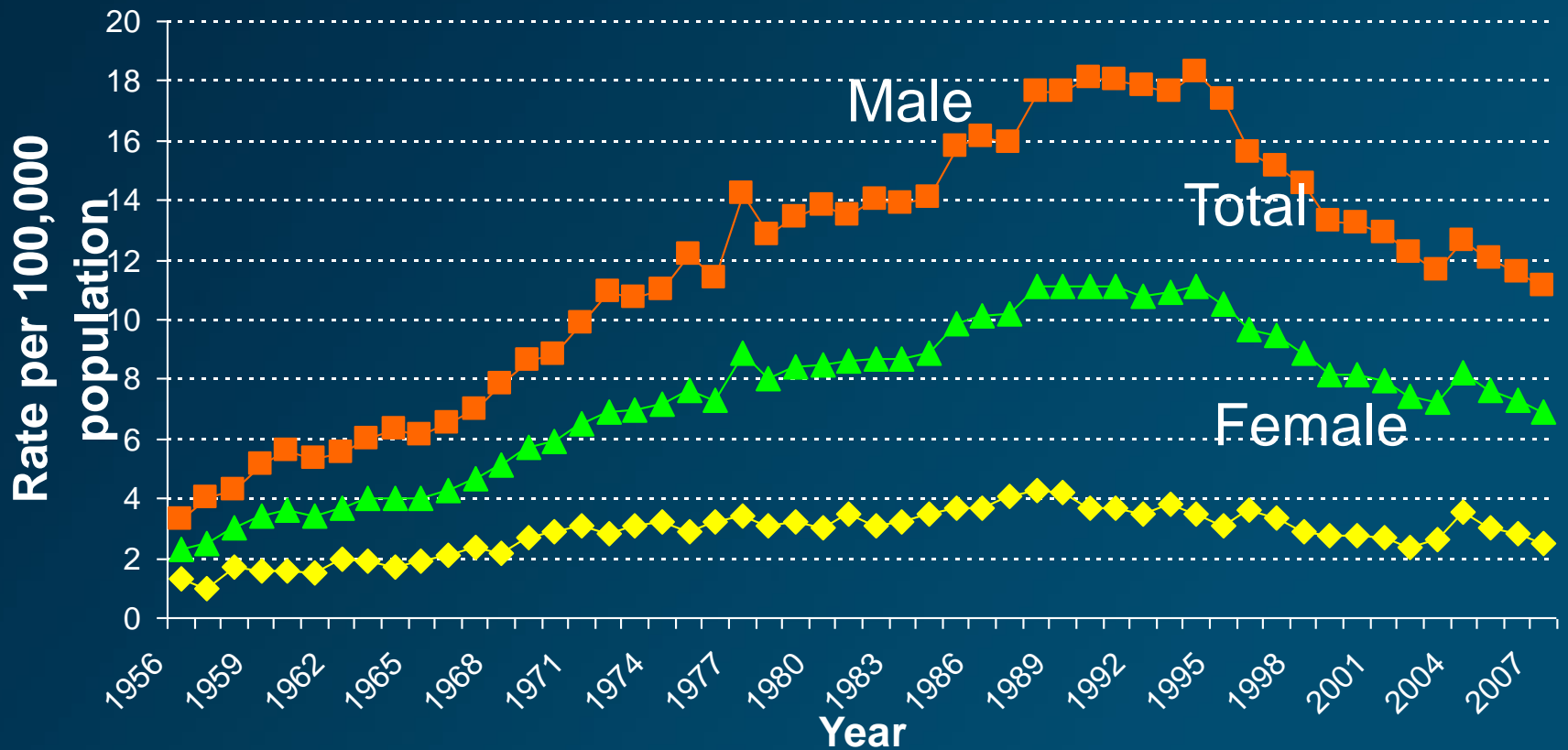
Leading causes of death for selected age groups – Texas, 2007

| Rank | 10-14 years | 15-19 years | 20-29 years | 30-39 years | 40-49 years | 50-59 years |
|------|--------------------------|------------------------------|--------------------------|------------------------|------------------------|------------------------------|
| 1 | Unintentional Injuries | Unintentional Injuries | Unintentional Injuries | Unintentional Injuries | Malignant Neoplasms | Malignant Neoplasms |
| 2 | Malignant Neoplasms | Homicide | Homicide | Malignant Neoplasms | Heart Disease | Heart Disease |
| 3 | Homicide | Suicide | Suicide | Suicide | Unintentional Injuries | Unintentional Injuries |
| 4 | Suicide | Malignant Neoplasms | Malignant Neoplasms | Heart Disease | Suicide | Liver Disease |
| 5 | Heart Disease | Heart Disease | Heart Disease | Homicide | Liver Disease | Diabetes Mellitus |
| 6 | Congenital Malformations | Congenital Malformations | HIV | HIV | HIV | Cerebro-Vascular |
| 7 | Influenza and pneumonia | Complication Pregnancy | Congenital Malformations | Cerebro-vascular | Cerebro-vascular | Chronic Lower Respiratory Ds |
| 8 | Septicemia | Chronic Lower Respiratory Ds | Influenza and pneumonia | Diabetes Mellitus | Diabetes Mellitus | Suicide |

Source: CDC vital statistics

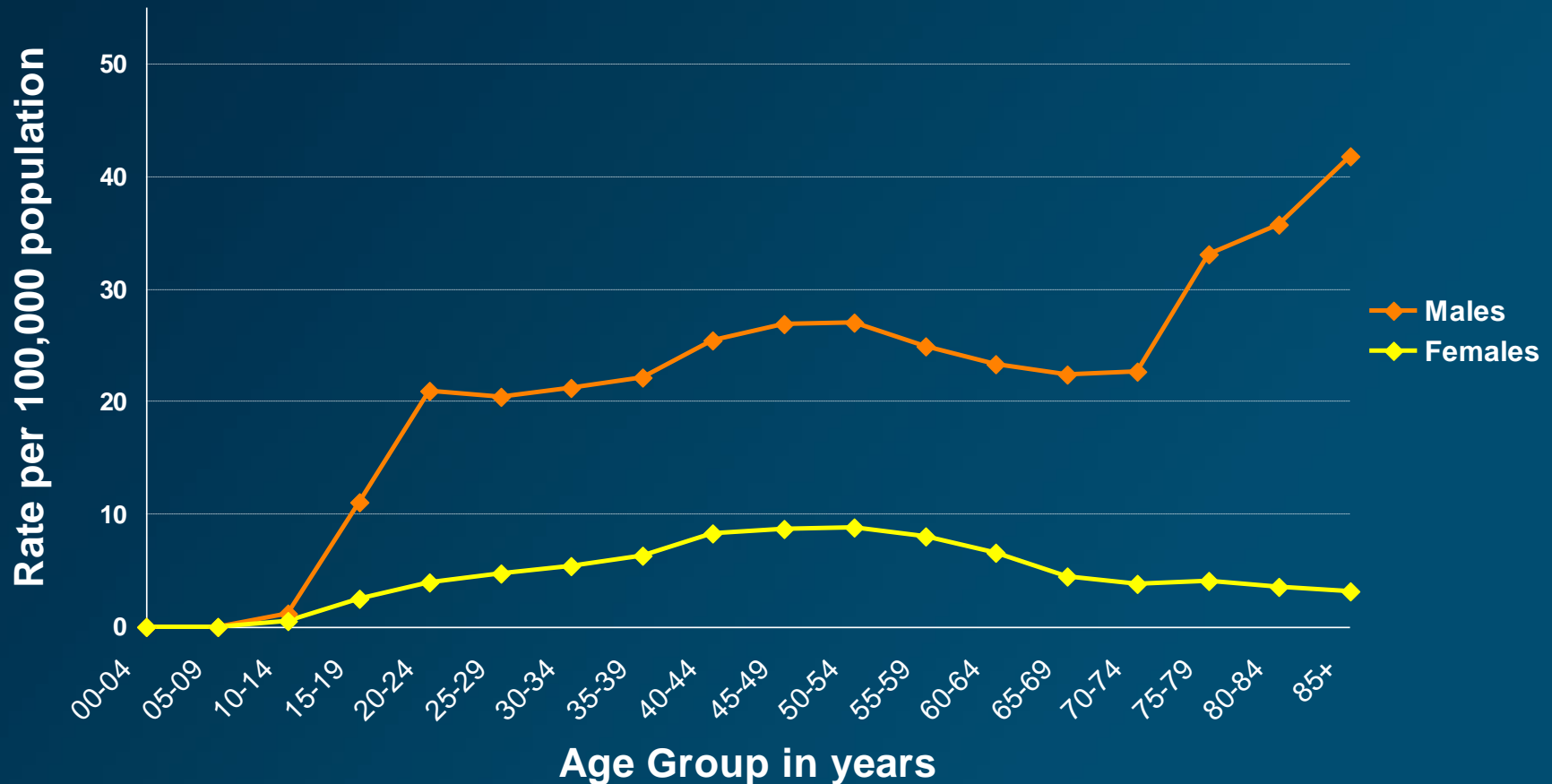
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Suicide rates among persons aged 15-19 years -- United States, 1956-2007



Source: CDC vital statistics

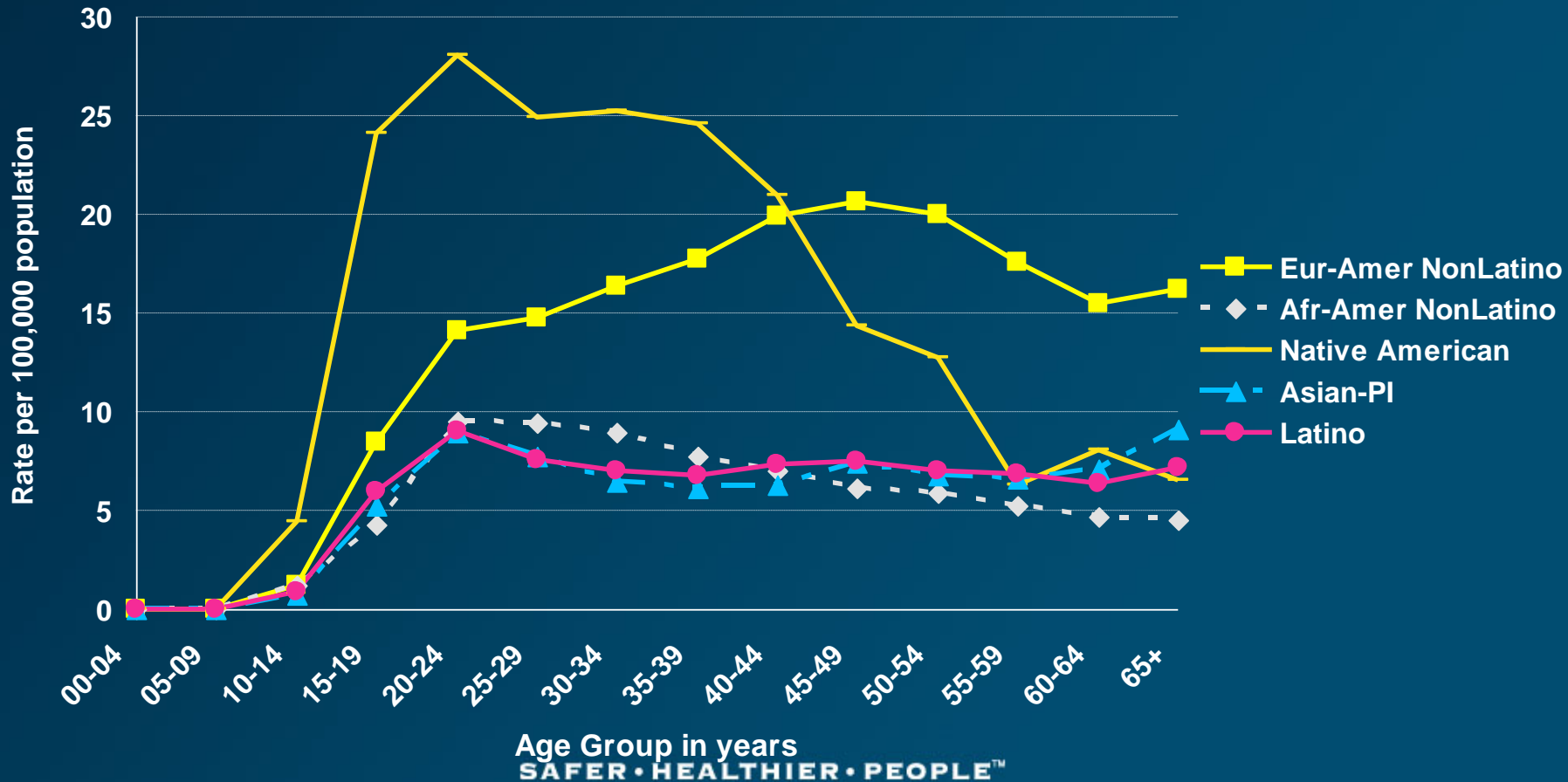
Suicide rates among all persons by age and sex--United States, 2007



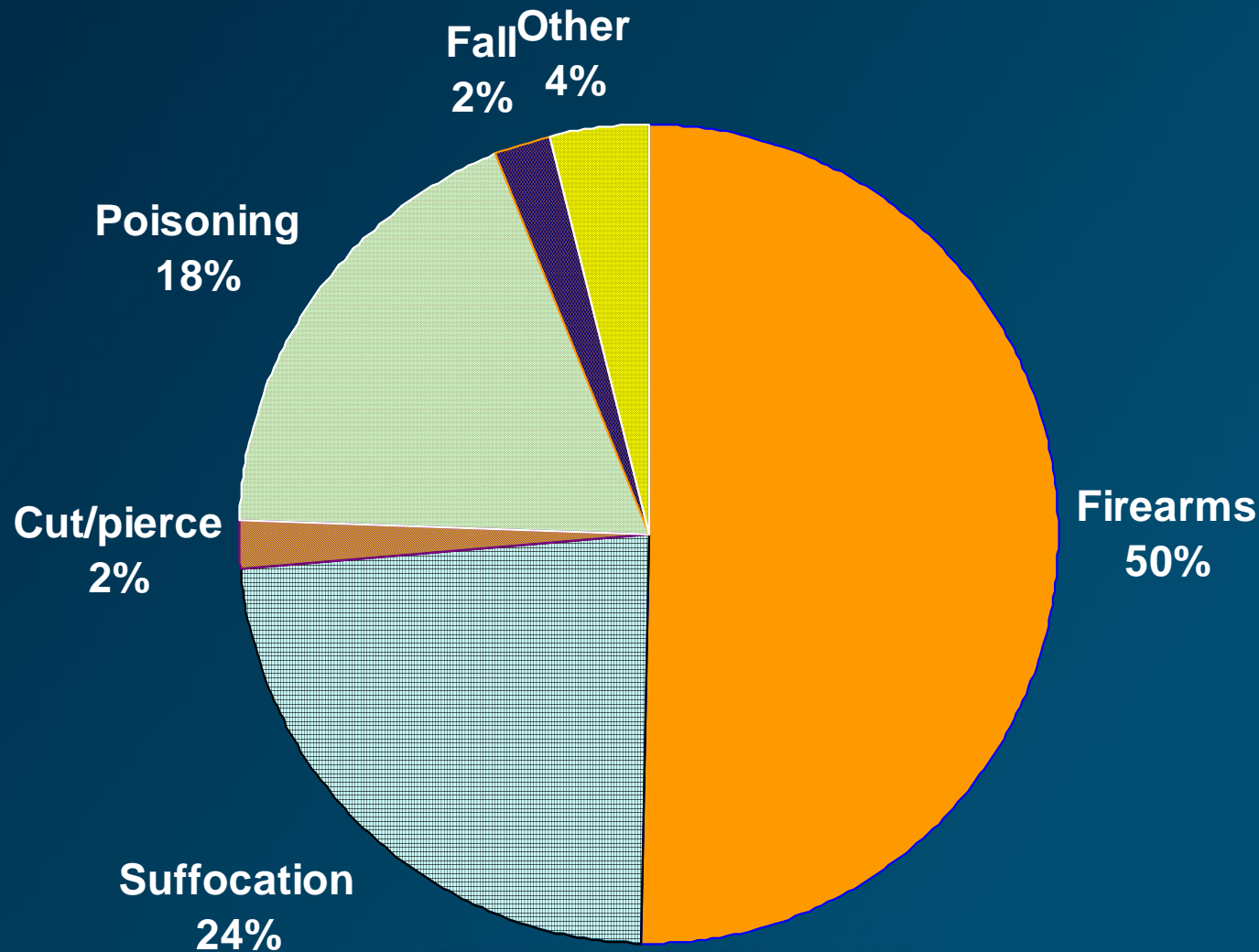
Source: CDC vital statistics

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Suicide rates by ethnicity and age group -- United States, 2003-2007



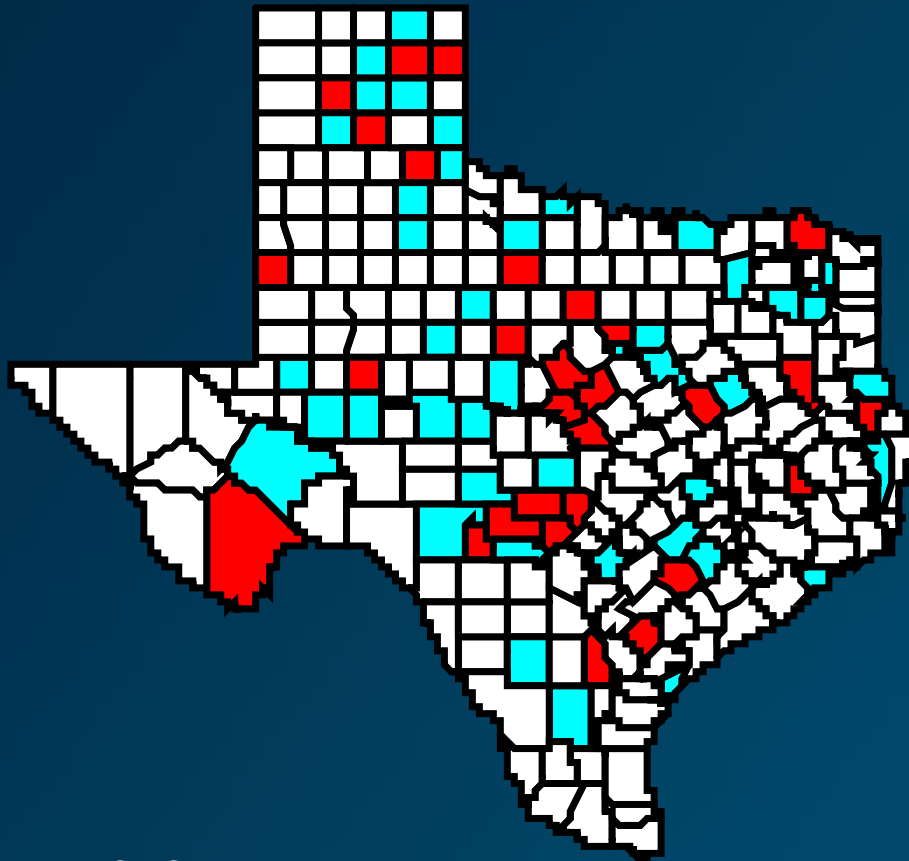
Suicide by method – United States, 2007



Source: CDC vital statistics

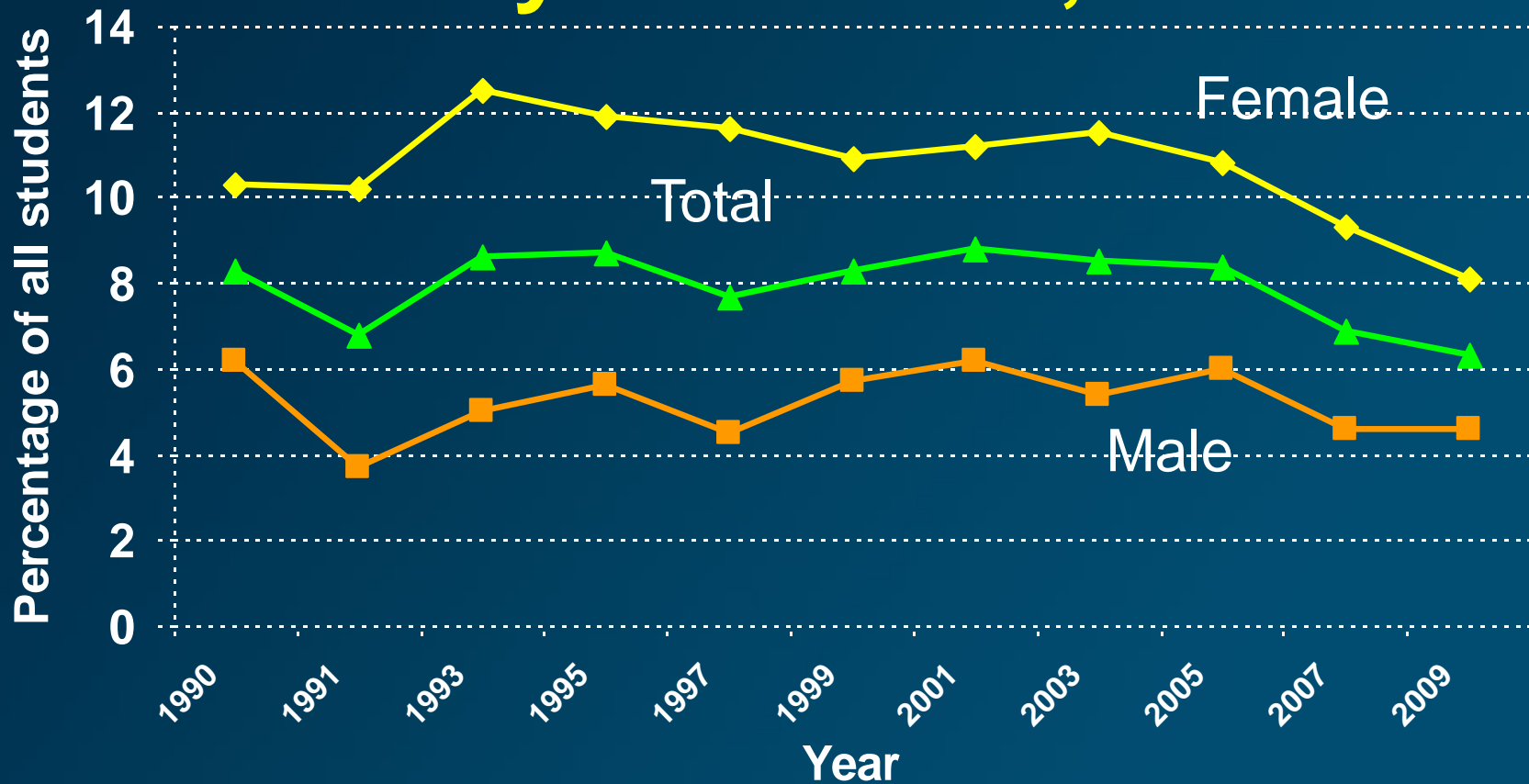
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Suicide rates by county – Texas, 2003-2007



U.S average 11.0 (03-07)
Texas average 10.7 (03-07)

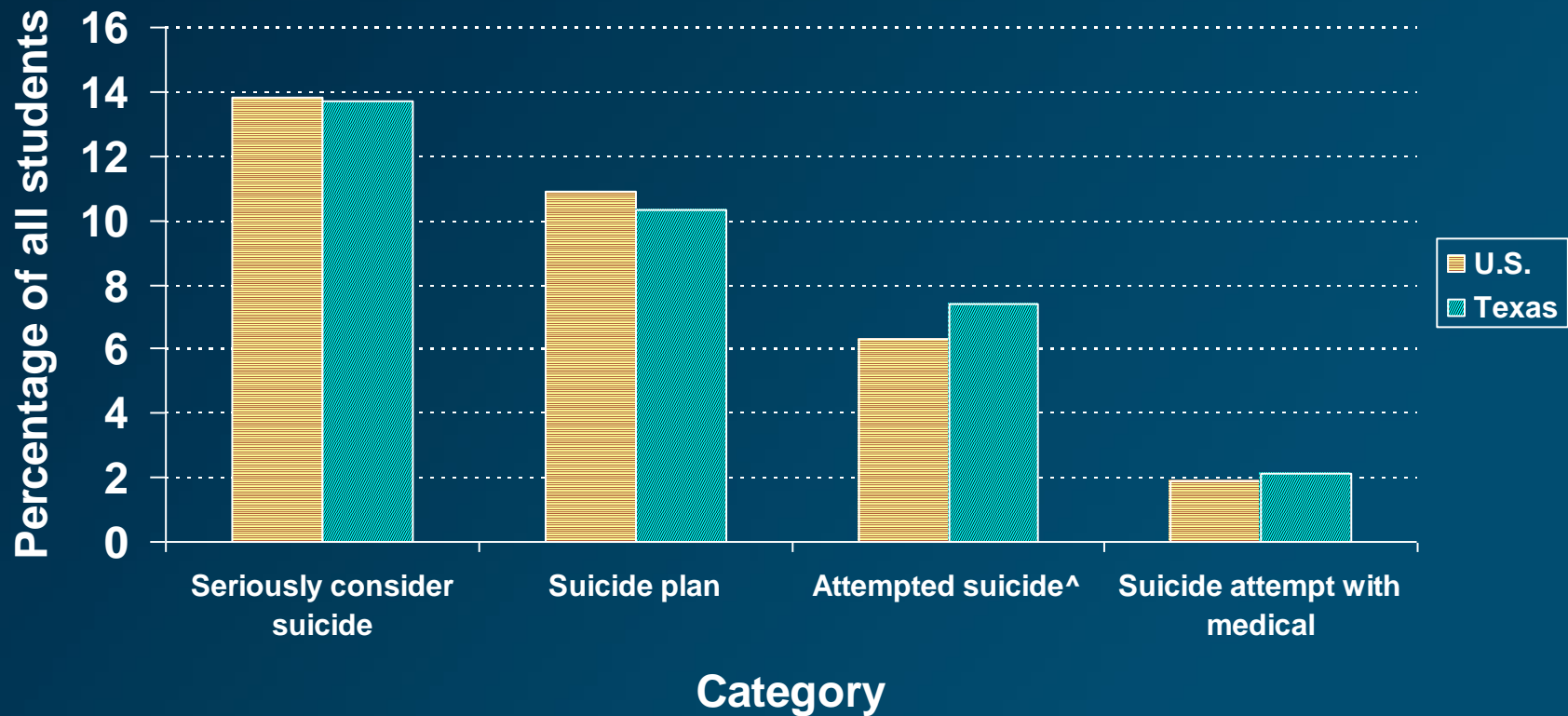
Percentage of high school students who report suicidal behavior* by sex – U.S., 1990-2009



Source: Youth Risk Behavior Surveillance System

*At least one attempt during the 12 months preceding the survey

Suicidal ideation and behavior among high school students by category and sex* -- Texas and United States, 2009



Source: CDC Youth Risk Behavior Survey

* During the 12 months preceding the survey

^One or more times

Suicide Prevention

- Historically, suicide addressed as a mental health issue
- Mental health is only one of many suicide risk factors
- Majority of those with mental illness do not engage in suicidal behaviors
- Need for primary and/or population-based strategies to prevent suicide

CDC's role in suicidal behavior prevention

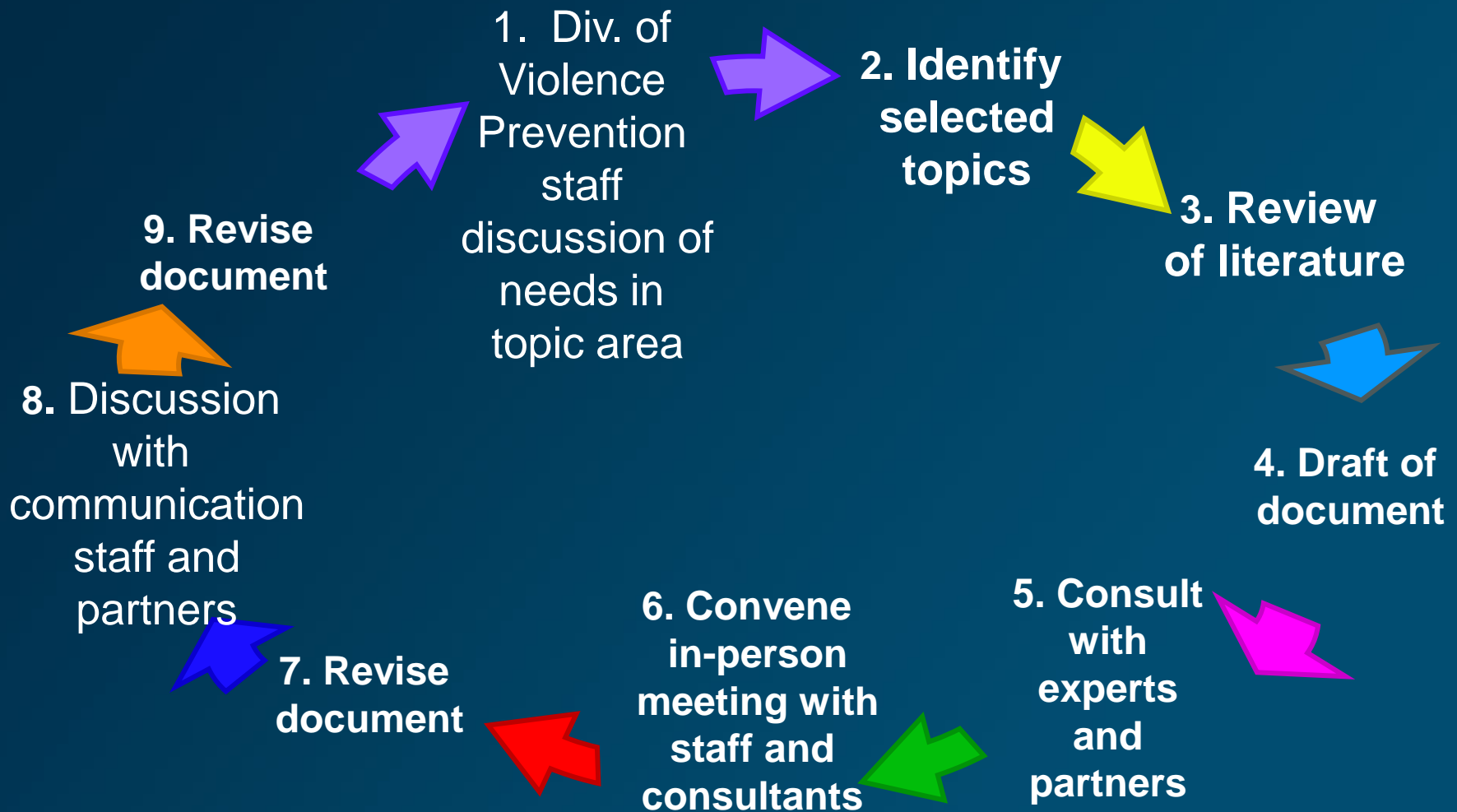
- Emphasis on primary prevention
- Development of a rigorous science base
- Multi-disciplinary and multi-sectoral perspective
- A population approach
- Improve information



Strategic direction for suicidal behavior

Prevent suicide by building and strengthening connectedness within and among individuals, families, and communities.

Development of strategic direction for suicidal behavior



Connectedness Between Individuals



- Connectedness is defined by
 - Number and quality of social ties
 - Access to and use of social support, especially in times of stress
- Benefits of close and supportive relationships
 - Increase ability to cope with stress
 - Discourage maladaptive coping behaviors

Connectedness of Individuals and their Families to Community Organizations

- Examples of community organizations
 - Schools and universities
 - Places of employment
 - Community centers
 - Faith-based organizations
 - Medical and mental health centers
- Benefits of positive attachments to community groups
 - Increased sense of belonging
 - Access to formal helping resources
 - Group responsibility for individuals' well-being

Connectedness among community organizations and social institutions



- Examples of community organizations and social institutions
 - Educational institutions
 - Health care organizations
 - Social service agencies
 - Criminal justice systems
- Benefits of formal relationships between community organizations and institutions
 - Ensure high quality and accessible services
 - Promote unified vision for prevention
 - Maximize social and political will

The Relative Influence of Different Domains of Social Connectedness on Self-Directed Violence in Adolescence

Source: Kaminski, J. W., Puddy, R. W. Hall, D. M., Cashman, S. Y., Crosby, A. E., & Ortega, L. A. G. (2010). The relative influence of different domains of social connectedness on self-directed violence in adolescence. *Journal of Youth and Adolescence*, 39, 460-473.

Background for this Study

- 1 in 7 adolescents has seriously considered suicide
- 1 in 14 have engaged in non-fatal suicidal behavior
- Previous research suggests connectedness may reduce risk for youth suicide
- Do some types of connectedness matter more than others?

Connectedness and Adolescent Suicidal thought and behavior

- **Connectedness to peers**
 - Bearman & Moody, 2004; Donald et al., 2006; Rubenstein et al., 1989;
- **Connectedness to parents/family**
 - Bearman & Moody, 2004; Borowsky et al., 1999; Borowsky et al., 2001; Eisenberg & Resnick, 2006; Eisenberg et al. 2007; Guiao & Esparza, 1995; McKeown et al., 1998; Resnick et al., 1997; Rubenstein et al., 1989
- **Connectedness to teachers/schools**
 - Bearman & Moody, 2004; Borowsky et al., 1999; Borowsky et al., 2001; Eisenberg & Resnick, 2006; Eisenberg et al. 2007; McNeely & Falci, 2004; Resnick et al., 1997

Connectedness and Youth Suicide

- Study objective:
 - to understand the roles of four different types of connectedness in predicting adolescent suicide
 - Connectedness to family
 - Connectedness to peers
 - Connectedness to school
 - Connectedness to adults at school
- Methods:
 - CDC's Student Health and Safety Survey
 - 4,131 students in grades 7 to 12
 - Environmentally high-risk community

Outcome Variables

- **Non-suicidal self-harm**
 - Deliberately harmed or injured self
- **Suicidal ideation**
 - Seriously considered suicide
- **Suicide plan**
 - Made a plan
- **Non-fatal suicidal behavior**
 - Attempted suicide
- **Injuries from non-fatal suicidal behavior**
 - Attempt resulting in injury, poison, or overdose that had to be treated by a doctor or nurse

Results Summary

- **Connectedness to family, school and adults at school were all associated with lower risk of non-suicidal self-harm, suicidal ideation, suicide plans, and non-fatal suicidal behavior**
- **In some analyses, peer connectedness was associated with higher risk**
- **Family connectedness was the most strongly and consistently associated with lower risk**
- **Nothing significantly distinguished suicidal behaviors resulting in injury/poisoning/overdose**

Limitations

- **Cross-sectional data**
- **Operationalization of connectedness variables**
 - 3-4 items each
 - Peers might not be connecting positively
- **Generalizability**
 - Youth attending school
 - Environmentally high-risk community

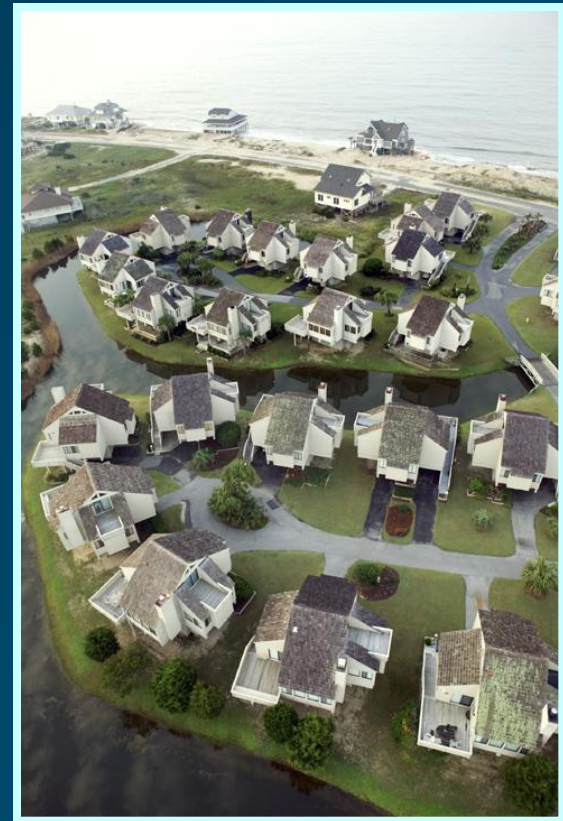
Implications for Prevention

- **Most robust predictor (family connectedness) is often ignored by prevention efforts**
- **Many popular programs focus on factors not confirmed in this study**
- **School climate/safety programs are supported by these results, but might be strengthened by combining with other efforts (e.g., promotion of family connectedness)**

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CDC's Strategy

- Measuring scope
- Creating and evaluating new approaches to prevention
- Applying and adapting what works
- Building community capacity



Suicide Prevention Cooperative Agreements

- **Two cooperative agreements funded under FOA#10-006, *Prevention of Suicidal Behavior through the Enhancement of Connectedness***
 - University of Michigan – “Let’s Connect”
 - University of Rochester – “The Senior Connection”
- **Project period 2010–2015**
- **Purpose: To rigorously evaluate the effectiveness of a primary prevention strategy**
 - Targeting one or more modifiable risk factors for suicidal behavior
 - Designed to enhance social connectedness
- **Approaches for universal or selected populations accepted**

University of Michigan: “Let’s Connect”

- **Let’s Connect (LC)—Flint, MI**
 - Intervention teams adolescents at elevated risk of suicidal behavior, due to low connectedness and/or a history of peer victimization, with both a *natural* (e.g., parent) and *community* mentor (recruited through help of community partners, e.g., Boys & Girls Clubs)
 - Mentors work with youth to support community participation over 16 months
- **Specific Aims (LC vs. Control Group)**
 - To increase interpersonal and community connectedness
 - To improve adaptive functioning
 - To decrease risk of suicidal behavior
- **Research Objective**
 - To rigorously evaluate the effectiveness of LC vs. control group using an RCT study design

University of Rochester: “The Senior Connection”

- **The Senior Connection (TSC)—Rochester, NY**
 - Intervention pairs primary care patients aged 60+ reporting feelings of loneliness and/or burdensomeness with a peer companion who maintains contact over 2-year period
 - In partnership with aging services network
- **Specific Aims (TSC vs. Care as Usual)**
 - To compare the impact of TSC on social connectedness
 - To reduce proximal risk factors of suicide in TSC group
 - To determine if social connectedness mediates the relationship between intervention and suicide risk
 - To examine if effects of intervention vary by gender
- **Research Objective**
 - To evaluate effectiveness of TSC vs. CAU on suicide risk using and RCT study design

Challenges and opportunities for the future

- Making measures collectable and usable
- Transforming measures into practical program components
- Testing and putting them to use
- Identify effective prevention approaches
 - Especially culturally appropriate strategies
- Provide assistance and guidance to state agencies

Conclusion

CDC's strategic direction

- Identified an area where public health can make a valuable contribution
- Prevention requires a broad range of partners and a broad perspective
- Opportunities to improve information, determine what works, and build capacity
- We are poised to make a difference as a result of collaborative planning

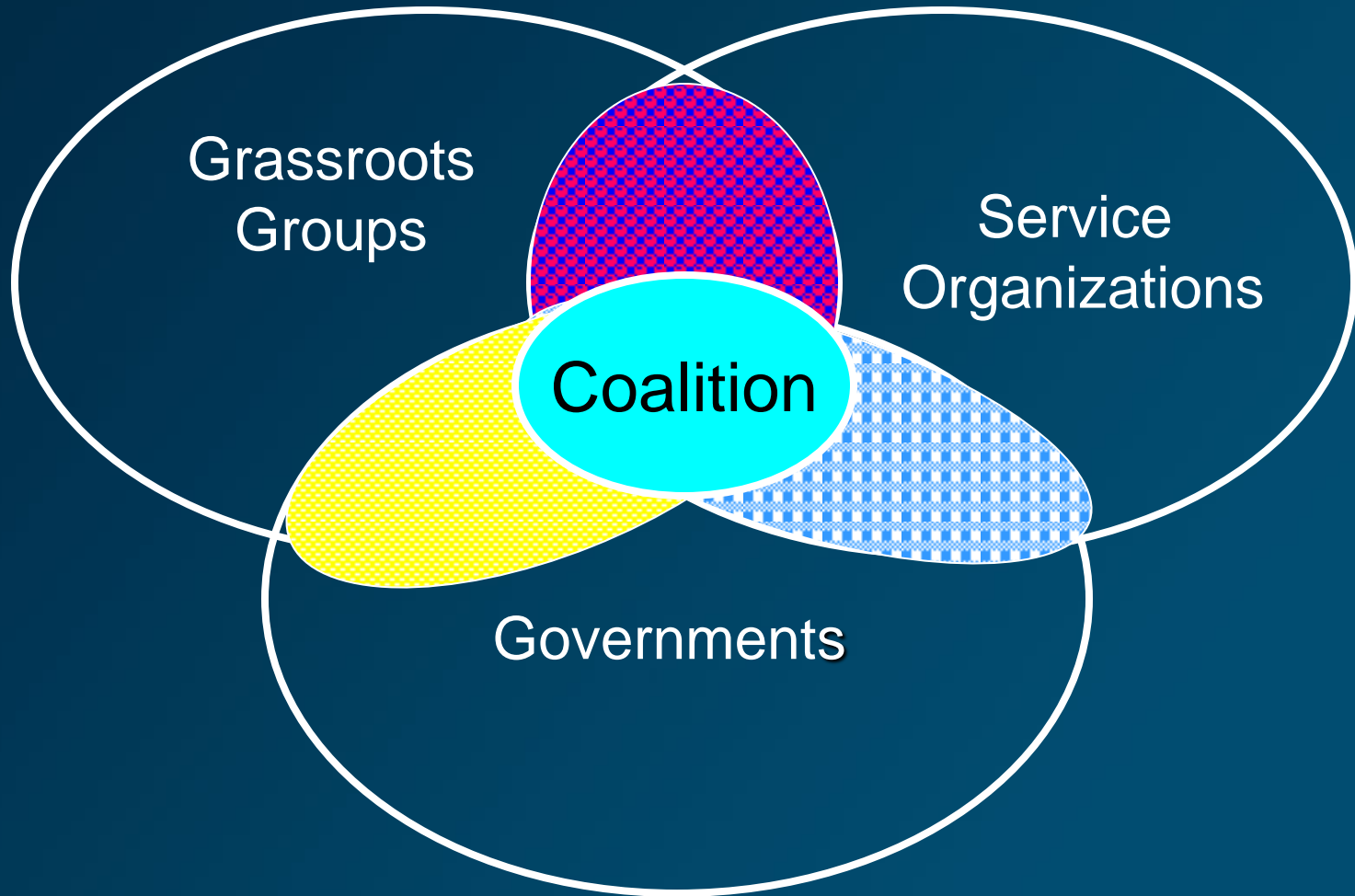


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Connectedness among community organizations and social institutions

- Examples of community organizations and social institutions
 - Educational institutions
 - Mental health organizations
 - Social service agencies
 - Criminal justice systems
- Benefits of formal relationships between community organizations and institutions
 - Ensure high quality intervention services are accessible and delivered by linking helping systems
 - Promote consistent and unified vision for prevention
 - Leverage social and political will

Levels of Collaborations



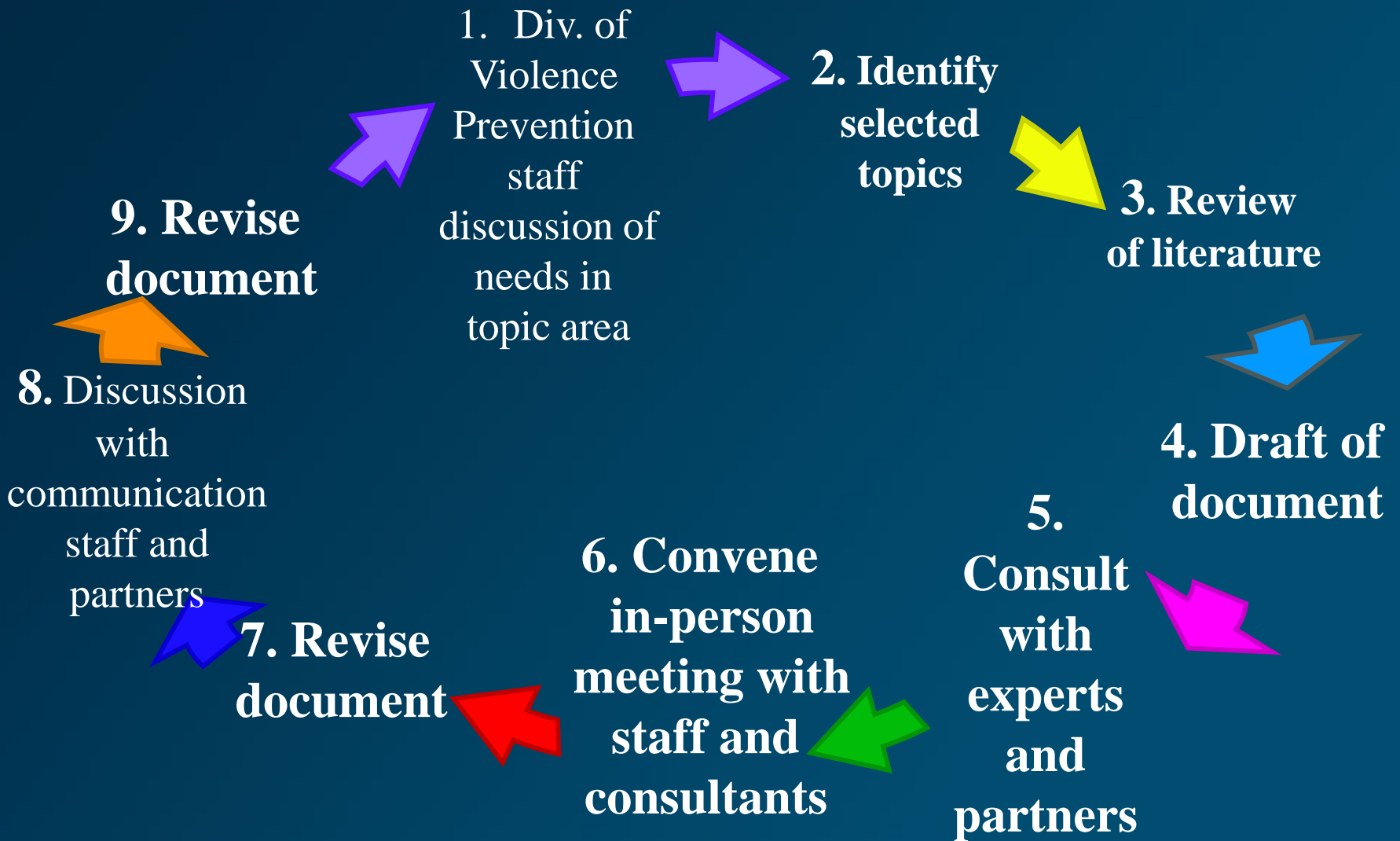
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Suicide Prevention

- **11th leading cause of death overall**
- **3rd or 4th leading cause of death for ages 10-49**
- **Historically, suicide addressed as a mental health issue**
 - But, mental health is only one of many suicide risk factors
 - And, the majority of those with mental illness do not engage in suicidal behaviors
- **Secondary prevention will not stop new individuals from becoming at-risk**
- **Need for primary and/or population-based strategies to prevent suicide**

Strategic Direction Process



Strategic Direction for Suicide Prevention

**Prevent suicide by
building and strengthening connectedness
within and among individuals, families, and
communities.**

Connectedness

- **...between individuals**
 - Number and quality of social ties
 - Access to and use of social support
- **...of individuals and families to community organizations**
 - Schools
 - Employers
 - Community- and faith-based organizations
 - Medical and mental health centers
- **...among community organizations and social institutions**
 - Education
 - Health care
 - Justice
 - Social services

Background for this Study

- 1 in 7 adolescents has seriously considered suicide
- 1 in 14 have engaged in non-fatal suicidal behavior
- Previous research suggests connectedness may reduce risk for youth suicide
- Do some types of connectedness matter more than others?

Connectedness and Adolescent Suicidal thought and behavior

- **Connectedness to peers**
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Predictor Variables

- **Vaux Social Support Record (Vaux, 1988)**
 - Connectedness to family
 - Connectedness to peers
 - Connectedness to adults at school
- **Scale from AddHealth study**
 - Connectedness to school
- **Control variables**
 - Age
 - Gender
 - Race/ethnicity (4-category)
 - Family structure
 - Academic grades
 - Depressive symptoms

Outcome Variables

- **Non-suicidal self-harm**
 - Deliberately harmed or injured self
- **Suicidal ideation**
 - Seriously considered suicide
- **Suicide plan**
 - Made a plan
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Analytic Strategy

- **Predictors entered singly into logistic regressions**
 - Separate for each suicide outcome
 - Indicates significant individual predictors
- **Predictors entered simultaneously into logistic regressions**
 - Separate for each suicide outcome
 - Indicates unique contributions
- **Predictors entered simultaneously into logistic regressions**
 - Separate for each suicide outcome
 - Controlled for age, gender, race/ethnicity, family structure, academic grades and depressive symptoms
 - Indicates unique, robust contributions

Separate Logistic Regressions

| | CONNECTEDNESS TO: | | | |
|-------------------|---------------------|--------------------|---------------------|---------------------|
| | Family | Peers | Adults at School | School |
| Self-harm | .64*** (.57-.72) | 1.06 (.93-1.12) | .80** (.70-.91) | .72*** (.66-.79) |
| Ideation | .54*** (.48-.61) | 1.04 (.91-1.19) | .74*** (.65-.85) | .65*** (.59-.71) |
| Plan | .50*** (.43-.58) | .88 (.76-1.03) | .71*** (.60-.83) | .65*** (.58-.72) |
| Suicidal Behavior | .52*** (.45-.61) | .98 (.93-1.17) | .85 (.71-1.01) | .66*** (.59-.74) |
| Injury | .78 (.56-1.08) | .95 (.67-1.34) | 1.01 (.71-1.42) | .87 (.70-1.09) |

Values in table are Odds Ratios (and 95% Confidence Intervals).
 p<.01; *p<.001

Simultaneous Logistic Regressions

| | CONNECTEDNESS TO: | | | |
|-------------------|---------------------|------------------------|--------------------|---------------------|
| | Family | Peers | Adults at School | School |
| Self-harm | .56*** (.48-.65) | 1.55*** (1.33-1.80) | .96 (.82-1.12) | .75*** (.68-.82) |
| Ideation | .46*** (.40-.51) | 1.74*** (1.48-2.04) | .98 (.83-1.15) | .67*** (.59-.73) |
| Plan | .45*** (.38-.54) | 1.45*** (1.21-1.75) | .99 (.81-1.20) | .68*** (.61-.77) |
| Suicidal Behavior | .44*** (.36-.54) | 1.55*** (1.26-1.90) | 1.18 (.95-1.46) | .67*** (.59-.76) |
| Injury | .73 (.50-1.08) | 1.05 (.71-1.55) | 1.24 (.81-1.88) | .85 (.66-1.10) |

Values in table are Adjusted Odds Ratios (and 95% Confidence Intervals), with all four predictors in each model.

*p<.05; **p<.01; ***p<.001

Simultaneous Logistic Regressions with Covariates

| | CONNECTEDNESS TO: | | | |
|-------------------|---------------------|--------------------|--------------------|---------------------|
| | Family | Peers | Adults at School | School |
| Self-harm | .71*** (.60-.85) | 1.18 (.98-1.42) | 1.05 (.87-1.29) | .92 (.82-1.04) |
| Ideation | .60*** (.49-.73) | 1.12 (.91-1.32) | 1.08 (.88-1.32) | .87*** (.77-.99) |
| Plan | .58*** (.47-.73) | .99 (.79-1.25) | 1.15 (.91-1.45) | .89 (.77-1.02) |
| Suicidal Behavior | .55*** (.44-.70) | 1.14 (.89-1.46) | 1.28 (.99-1.65) | .88 (.75-1.03) |
| Injury | .90 (.56-1.45) | 1.06 (.65-1.71) | 1.14 (.69-1.88) | .83 (.60-1.15) |

Values in table are Adjusted Odds Ratios (and 95% Confidence Intervals), with all four predictors in each model.

Covariates are age, gender, race/ethnicity, family structure, academic grades and depressive symptoms.

*p<.05; **p<.01; ***p<.001

Results Summary

- Connectedness to family, school and adults at school were all associated with lower risk of non-suicidal self-harm, suicidal ideation, suicide plans, and non-fatal suicidal behavior
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The epidemiology of self-directed violence

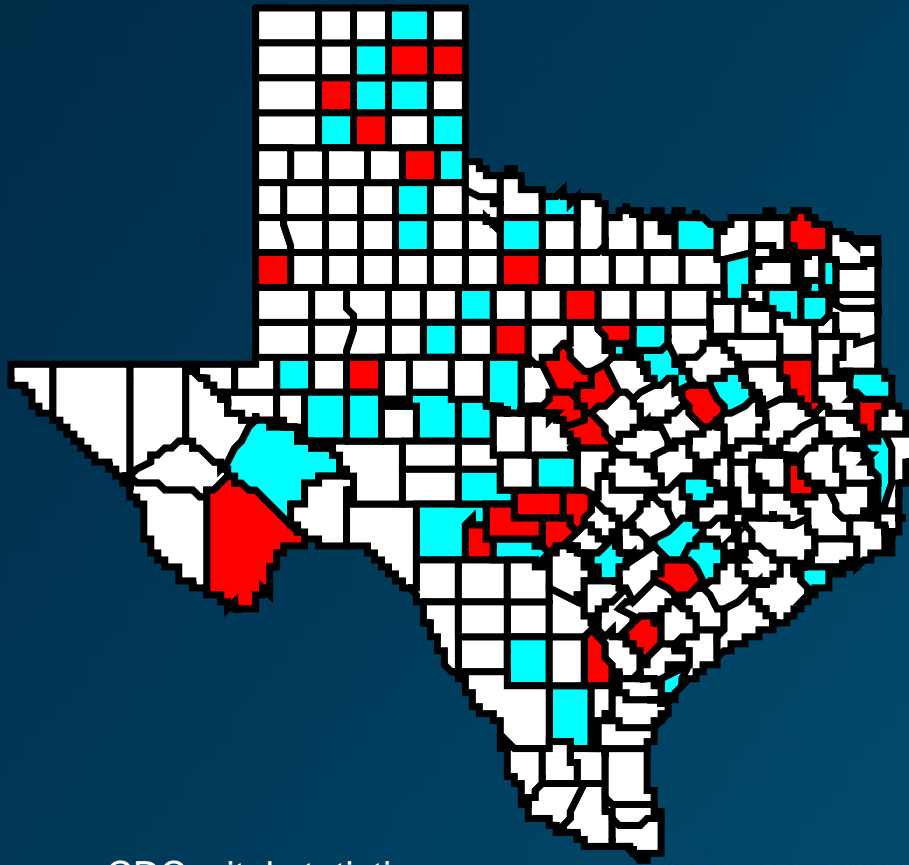
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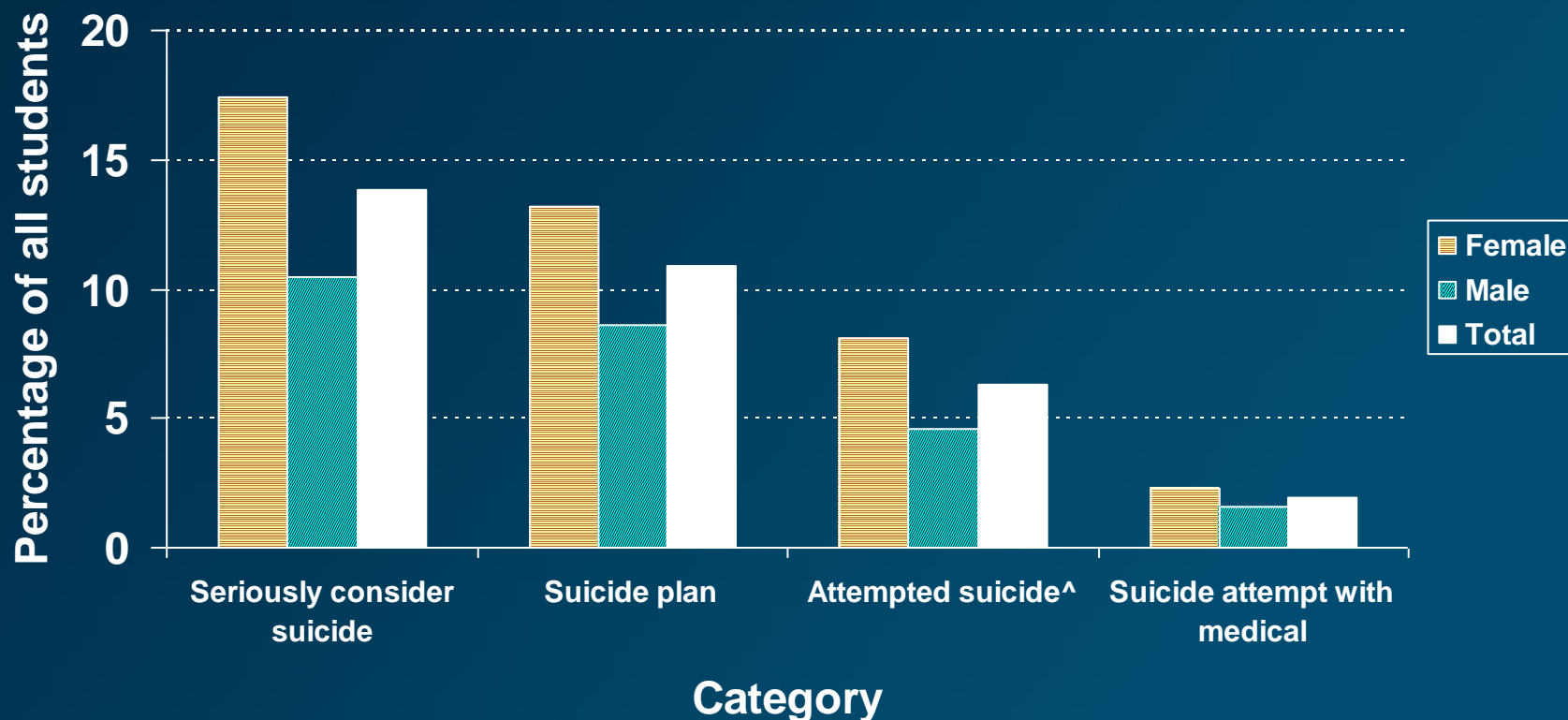
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