Evaluation of the Youth Risk Behavior Surveillance System (YRBSS) for Monitoring Co-Occurrence of Drug Use and Depressive Feelings among Michigan Youth, 2003-2009

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Background

- Persons with mental disorders such as depression are at increased risk of developing drug use disorders[1].
- Risk for severe secondary substance disorder is highest when the mental disorder occurs at a young age[2], thus children and adolescents are a vulnerable population.
- Co-occurrence of substance abuse and mental illness places youth at increased risk for suicide, homelessness, school dropout as well as poor parental and friend relationships[3].
- Limited data regarding the co-occurrence of substance abuse and depressive feelings among Michigan youth.

Youth Risk Behavior Surveillance System (YRBSS)

- YRBSS created by CDC to monitor the prevalence of health-risk behaviors among high school youth that contribute to leading causes of morbidity and mortality[4].
- Youth Risk Behavior Survey (YRBS) administered at state as well as national and local level biennially to high school students in grades 9 – 12.
- YRBSS collects data on reported drug use and depressive feelings among high school students.
- Michigan Department of Education responsible for coordinating data collection.

Purpose of Evaluation

- Examine utility of YRBSS in monitoring co-occurrence of illicit drug use and depressive feelings among Michigan youth.
- Determine current prevalence of co-occurrence of depressive feelings and illicit drug usage among Michigan youth.
- Examine co-occurrence trends from 2003 to 2009 among Michigan youth.

Acknowledgements

Methods

- Evaluation conducted using 2001 CDC Updated Guidelines for Evaluating Public Health Surveillance Systems[5].
- Utilized Michigan YRBS (MiYRBS) data from 2003-2009.
- *Depressive feelings* defined as feeling so sad or hopeless almost every day for two weeks or more in a row that the student stopped doing some usual activities in the past year.
- *Illicit drug use* included marijuana, cocaine, heroin, barbiturates, inhalants, or club drugs (ex. ecstasy) in past 30 days (current usage) or during lifetime.
- Compared MiYRBS estimates to 2009 national YRBS estimates and data from 2006-2008 National Survey on Drug Use and Health (NSDUH).
- Chi-square analysis and 95% confidence intervals were used to compare co-occurrence prevalence estimates.

Results

Figure 1. Prevalence of past year depressive feelings and **lifetime** illicit drug use co-occurrence among Michigan youth, MiYRBS 2003-2009.
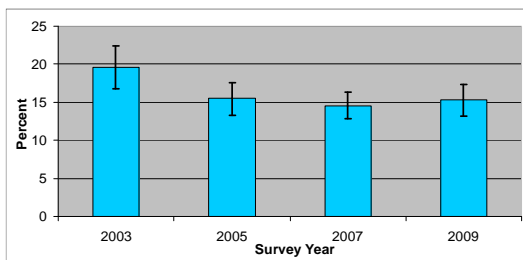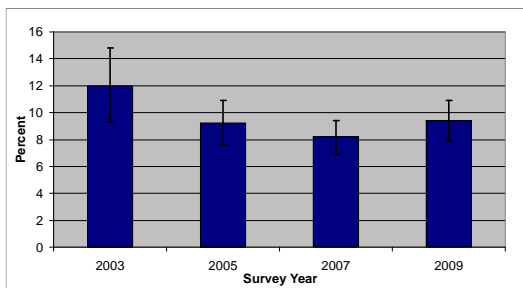

Figure 2. Prevalence of past year depressive feelings and **current** illicit drug use co-occurrence among Michigan youth, MiYRBS 2003-2009.

Surveillance System Attributes

Simplicity: *fair (=)*
- Complicated surveillance system for epidemiologists to analyze due to two-stage, cluster sample design.
- Results fairly easy for general users to access through reports and interactive CDC website that allows users to analyze data at the national, state or local level.

Flexibility: *good (+)*
- States granted the ability to add state-level questions to address local health concerns.
- Michigan has utilized six of these questions to address lifetime and current illicit drug use.
- Prescription drug misuse question added to 2009 national YRBS and could be added to MiYRBS.

Data quality: *fair (=)*
- Series of data editing procedures utilized to ensure data quality and consistency. If responses conflict logically, answers are set to missing.
- Some literature suggest these procedures bias the results toward the null[6].

Acceptability: *good (+)*
- High participation rate at the school and student level.
- Since 1997, overall response rate greater than 60% allowing data to become weighted, and thus representative of all Michigan youth.
- Item response rates for the drug and depressive symptom questions were all above 94% in 2009 MiYRBS.

Representativeness: *poor (-)*
- Absent students not allowed a second opportunity to take the MiYRBS.
- Students that frequently skip school are more likely to participate in risky behaviors such as alcohol and drug use[7], thus YRBSS systematically excludes these students, introducing selection bias.
- Results only representative of non-institutionalized youth that attend public schools in the state.

Timeliness: *fair (=)*
- Biennial collection prohibits the timely detection of new and emerging drug concerns.
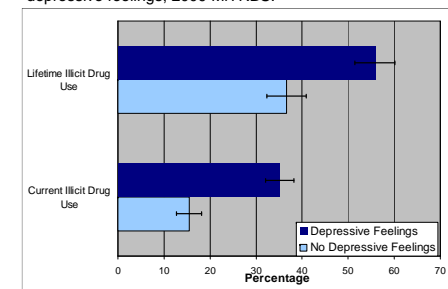- Since overall goal of YRBSS is to monitor leading health-risk behaviors, biennial collection is reasonable.

Stability: *good (+)*
- Stable flow of financial resources from CDC since 1991.
- Wording for drug and depressive feelings questions has remained consistent over time.
- YRBSS more efficient at releasing data in a timely manner.

Results

- Co-occurrence of past year depressive feelings and illicit drug use among Michigan youth remained relatively stable from 2003-2009 (Figures 1 & 2).
- Lifetime and current illicit drug use estimates were significantly higher among students with reported depressive symptoms (p < .0001, p < .05, respectively) (Figure 3).
- Co-occurrence estimate for 2009 national YRBS (14.2%, 95% CI: 13.1-15.3%) and 2009 MiYRBS (15.2%, 13.2-17.3%) for lifetime drug use and depressive feelings were similar.
- Michigan youth co-occurrence estimates were significantly higher in 2009 MiYRBS than 2006-2008 NSDUH. Estimate differences may be attributable to case definition variation for "depression."

Figure 3. Drug use among Michigan youth with and without depressive feelings, 2009 MiYRBS.

Recommendations

- Continue to utilize state-specific MiYRBS questions to address reported drug use and depressive feelings.
- Offer all students that are absent on survey day a second opportunity to take part in the survey.
- Increase awareness that drug use and depressive feelings co-occurrence among Michigan youth hasn't significantly declined since 2003.

References

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