Measuring the Burden of Excessive Alcohol Consumption among Michigan Residents: Alcohol-Attributable Hospitalizations, 2001-2010

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Background

- Excessive alcohol consumption is associated with multiple adverse health and social consequences, including liver cirrhosis, certain cancers, unintentional injuries, violence, and fetal alcohol spectrum disorder.
- In 2006, 4.4 million U.S. outpatient visits were attributable to excessive drinking and alcohol-attributable hospitalizations cost $5.1 million dollars.
- This is the first comprehensive analysis and summary of hospitalizations for a wide variety of conditions attributable to alcohol among Michigan residents.

Methods

Data were obtained from the Michigan Inpatient Database.

A case was defined as:
- Michigan resident
- Admitted to one of Michigan’s 142 acute care hospitals
- Discharged between 1/1/2001-12/31/2010
- Primary diagnosis = alcohol-attributable condition

(Please refer to Table 1 for corresponding ICD-9-CM codes.)

- Prevalence of alcohol-attributable hospitalizations by patient demographics, source of admission, discharge disposition, insurance type and total hospital charges were generated.

Table 1. Alcohol-attributable conditions and corresponding ICD-9-CM codes

<table>
<thead>
<tr>
<th>Alcohol-Attributable Condition</th>
<th>ICD-9-CM Code</th>
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<tbody>
<tr>
<td>Alcohol psychoses</td>
<td>291.0-291.5, 291.81, 291.89, 291.9</td>
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<tr>
<td>Acute alcohol intoxication</td>
<td>303.00-303.03, 303.90-303.93</td>
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<tr>
<td>Alcohol abuse</td>
<td>305.00-305.03</td>
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<tr>
<td>Alcoholic polyneuropathy</td>
<td>357.5</td>
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<td>Alcoholic cardiomyopathy</td>
<td>425.5</td>
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<tr>
<td>Alcoholic gastritis</td>
<td>535.30, 535.31</td>
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<tr>
<td>Alcoholic liver diseases</td>
<td>571.0-571.3</td>
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<tr>
<td>Fetal alcohol syndrome</td>
<td>760.71</td>
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<tr>
<td>Excessive blood level of alcohol</td>
<td>790.3</td>
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<tr>
<td>Toxic effect of ethyl alcohol</td>
<td>980</td>
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<tr>
<td>Accidental poisoning by alcoholic beverages</td>
<td>E860.0, E860.1</td>
</tr>
</tbody>
</table>

- Characteristics of alcohol-attributable hospitalizations were compared to all other hospitalizations using Pearson’s chi-square tests. Differences were statistically significant when p<0.05.

- Among alcohol-attributable hospitalizations:
  - Men and middle aged adults had the highest rates, compared to non alcohol-attributable hospitalizations which were highest among older adults (Figure 1)
  - Annual hospital charges equaled $115 million
    - Half were paid by public insurance ($59 million)
    - $13 million were among those who self-paid (Figure 4)

- Compared to those hospitalized for other reasons, individuals hospitalized with an alcohol-attributable condition were more likely to:
  - Be seen in the emergency department prior to hospitalization (Figure 2)
  - Discontinue their care or leave against medical advice, regardless of payer source (Figure 3)

Conclusions

- For alcohol-attributable hospitalizations:
  - The high proportion of admission via emergency department may be an indication that these patients lack primary and/or managed care. Previous research has concluded that these conditions are often more progressed and more expensive to treat.
  - Individuals are more likely to leave without a discharge plan, suggesting limited follow-up opportunities and resources for medical interventions and treatment.
  - Self-payment implies a lack of health insurance coverage and these individuals represent an at-risk population that is less likely to have access to and afford healthcare resources and more likely to delay seeking treatment.

- The true burden of alcohol on Michigan’s health care system is not captured because alcohol-attributable emergency department data are currently not available; this analysis was limited to primary diagnoses and treatment data were excluded.

- These data may underestimate the incidence of alcohol-attributable hospitalizations due to the perceived stigma related to these diagnoses and incomplete identification of these conditions.

Recommendations

- Extend screening and behavioral counseling interventions beyond primary care settings to all hospitalized individuals.
- Implement Community Guide recommendations which may reduce excessive alcohol consumption and related harms including hospitalizations.

References

2. Centers for Disease Control and Prevention.  CDC’s Digital Library:  Alcohol-Related Disease and Injury Surveillance System.