

Using AUDIT-C Alcohol Screening Data in VA Research: Interpretation, Strengths, Limitations, & Sources



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Audience Q#1. Which of the following best describes you?

1. VA clinician-researcher
2. VA researcher (not a clinician)
3. VA - Other
4. Non-VA researcher
5. Non-VA other

Audience Q#2

What is your primary interest in this presentation?

1. Want to use AUDIT-C data as an exposure, outcome or covariate
2. Want to know how to access AUDIT-C or other mental health screening data
3. Other

Outline

1. Introduction to the AUDIT-C alcohol screening questionnaire
2. Interpretation of AUDIT-C scores
 - Reliability and validity in research settings
 - Association with health outcomes
3. Sources of AUDIT-C data for research in VA
 - Survey and clinical screening
 - Applying for access
4. Strengths and limitations of each

Introduction

Introduction to AUDIT-C

- AUDIT consumption questionnaire (AUDIT-C): the first three questions of the WHO's 10-item alcohol screen called the Alcohol Use Disorders Identification Test (AUDIT) (*Bush 1998*)
- Performs as well as the 10-item AUDIT (*Kriston 2008*)
- Initially described as a screen for risky drinking or alcohol use disorders in male VA patients (*Bush 1998*)
- Validated in non-VA primary care settings and US general population (*Bradley 2007, Frank 2008, Dawson 2005a & b*)
- Used for alcohol screening in and outside US

AUDIT-C

- 1. Frequency:** How often did you have a drink containing alcohol in the past year? (0-4 points)
- 2. Quantity:** How many drinks did you have on a typical day when you were drinking in the past year? (0-4 points)
- 3. Heavy Drinking Episodes:** How often did you have 6 or more drinks on one occasion in the past year? (0-4 points)

Scoring: Total AUDIT-C score 0-12;

(Bush1998; Bradley 2003; Bradley 2007; Frank 2008)

Spectrum of Alcohol Misuse



Risky Drinking

Drinking more than...

- Men
 - 14 drinks a week
 - 4 drinks on an occasion
- Women
 - 7 drinks a week
 - 3 drinks on an occasion

Spectrum of Alcohol Misuse

DSM-IV
3 of 7 criteria
past 12 months

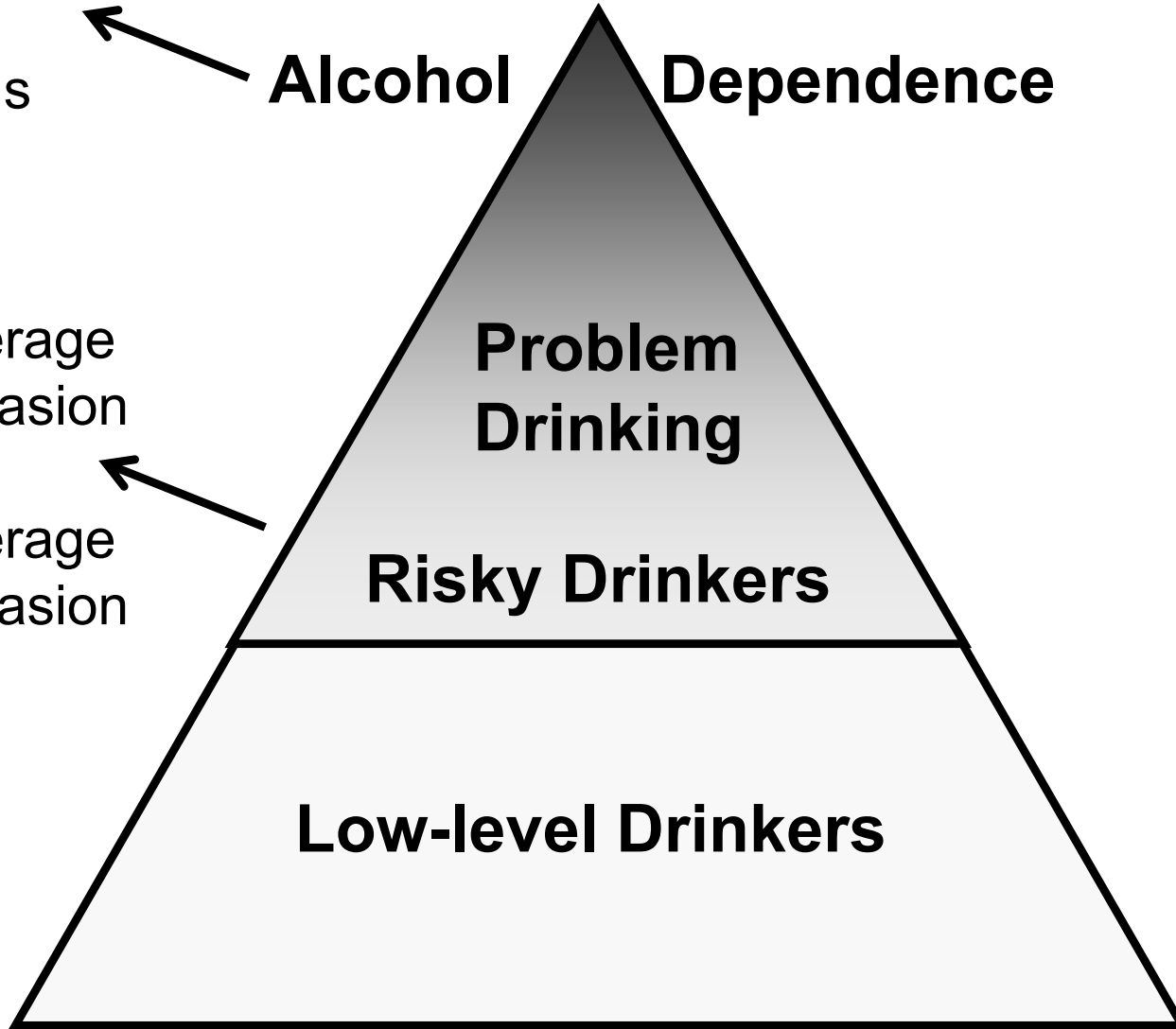
Alcohol Dependence

Men
> 2 dr/day average
> 4 drinks/occasion
Women
> 1 dr/day average
> 3 drinks/occasion

Problem Drinking

Risky Drinkers

Low-level Drinkers



DSM-IV Alcohol Dependence

- Activities given up due to drinking
- Tolerance to alcohol
- Large time spent drinking
- Use despite problems due to drinking
- Withdrawal
- Persistent desire, inability to cut down
- Drinking larger/longer than intended

(APA 1994)

Spectrum of Alcohol Misuse

DSM-IV

3 of 7 criteria
past 12 months

Alcohol Dependence

Men

> 2 drinks/day average
> 4 drinks/occasion

Women

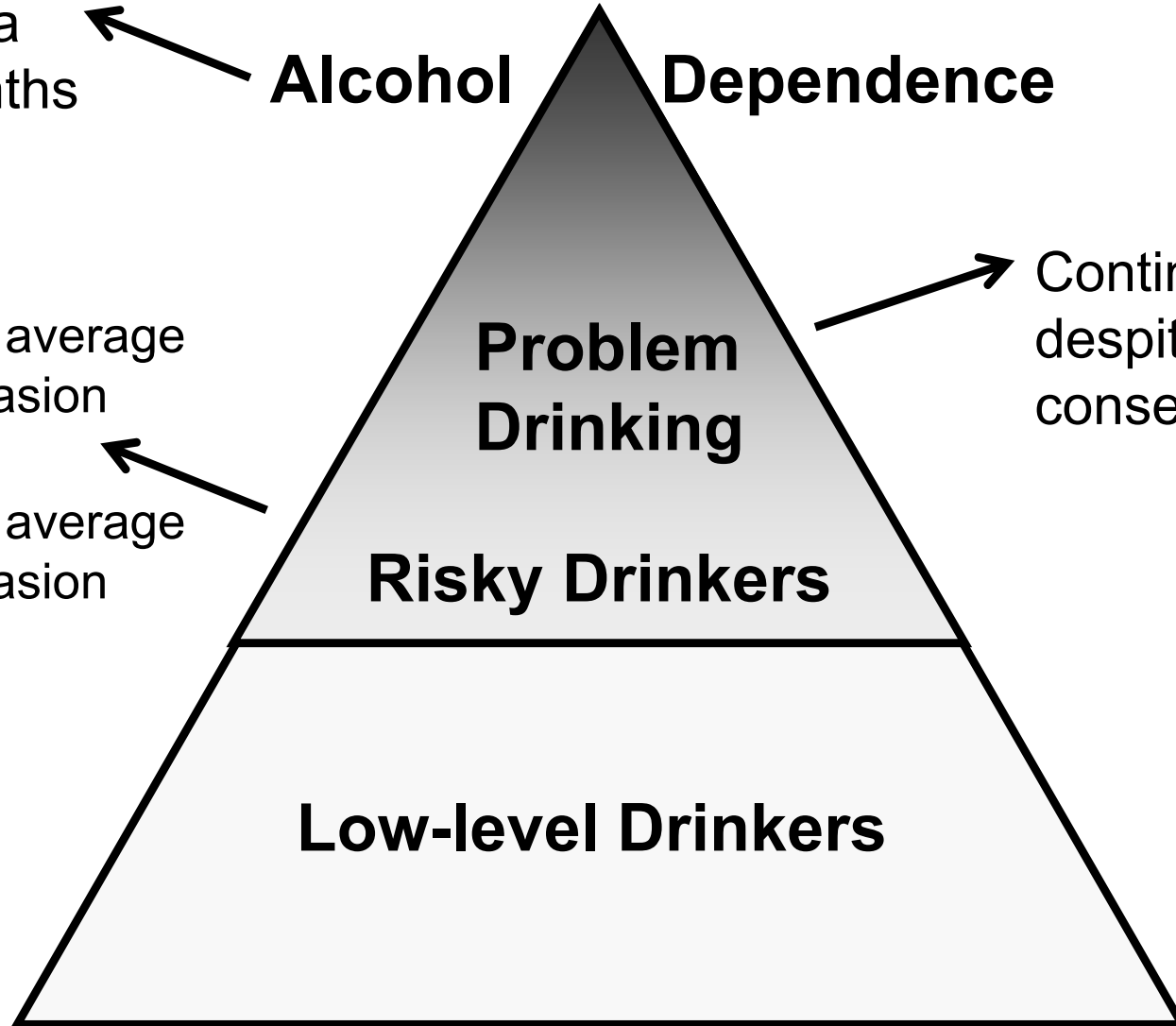
> 1 drinks/day average
> 3 drinks/occasion

Problem Drinking

Continued drinking
despite adverse
consequences

Risky Drinkers

Low-level Drinkers



Interpretation

Interpretation

- AUDIT-C scores range 0-12 points
- Nondrinkers: 0 points
- Drinkers, negative screen:
 - 1-3 points men
 - 1-2 points women
- Positive screen:
 - ≥ 4 points men
 - ≥ 3 points women

Interpretation – Individual Items

- **Test retest reliability at 3 months:** 0.85, 0.65, and 0.80, respectively for Q#1-3 among stable patients
- **Discriminative validity of items:** Questions #1-2 underestimate typical drinking when compared to detailed interviews about alcohol consumption:
 - Only 54% of male VA patients who drink over >14 drinks a week based on interviews reported doing so on AUDIT-C Q#1-2

(Bradley 1998)

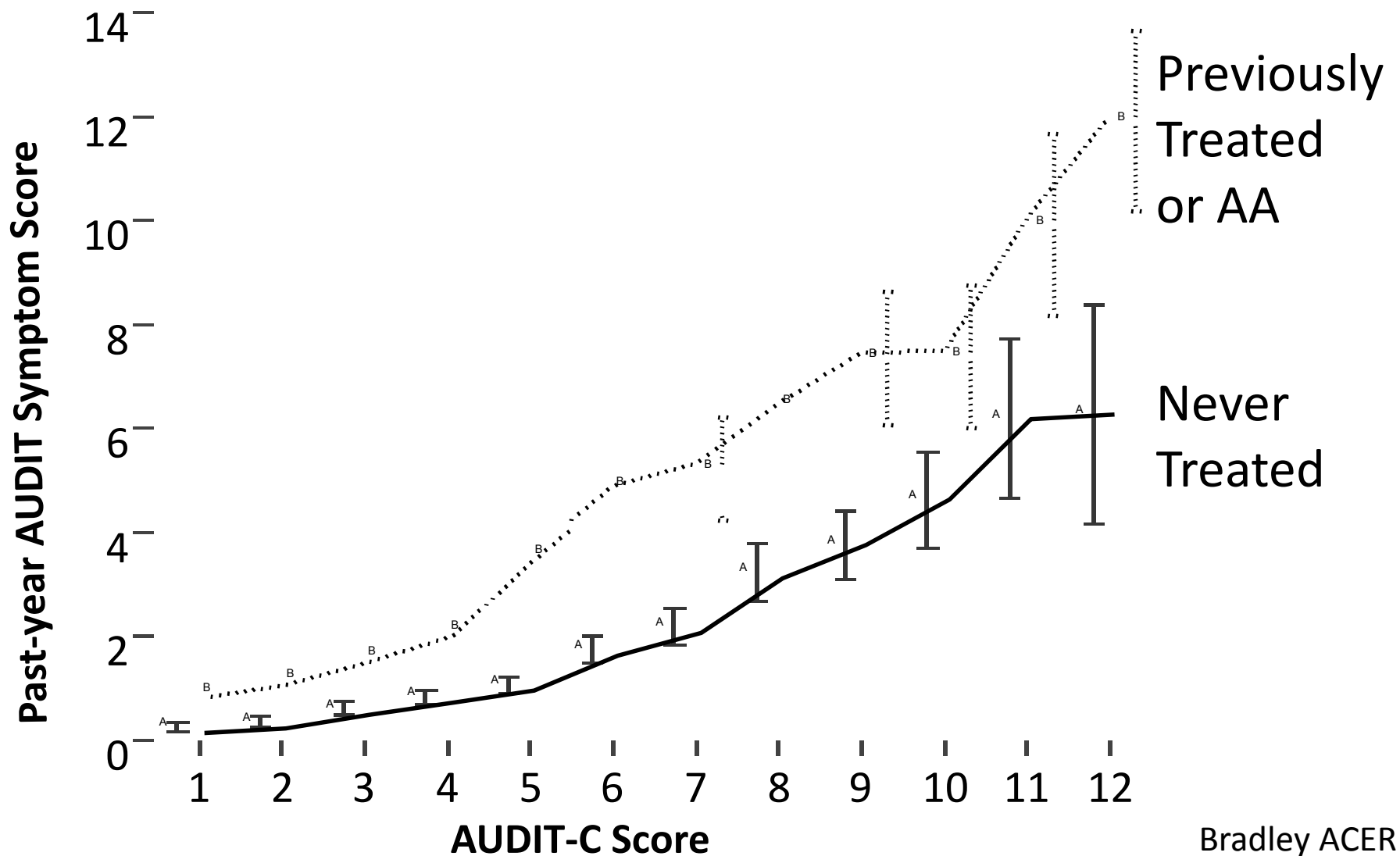
Discriminative Validity

Sensitivity/Specificity for Identifying Alcohol Misuse Based on Detailed Interviews

AUDIT-C Score	VA Outpatients		Non-VA Outpatients	
	Men	Women	Men	Women
≥2	---	0.84 / 0.85	0.98 / 0.63	0.89 / 0.78
≥3	0.95 / 0.60	0.66 / 0.94	0.92 / 0.79	0.73 / 0.91
≥4	0.86 / 0.72	0.48 / 0.99	0.86 / 0.89	0.57 / 0.96
≥5	0.68 / 0.90	---	0.72 / 0.96	0.36 / 0.98
≥6	0.53 / 0.94	---	0.52 / 0.97	0.23 / 0.99

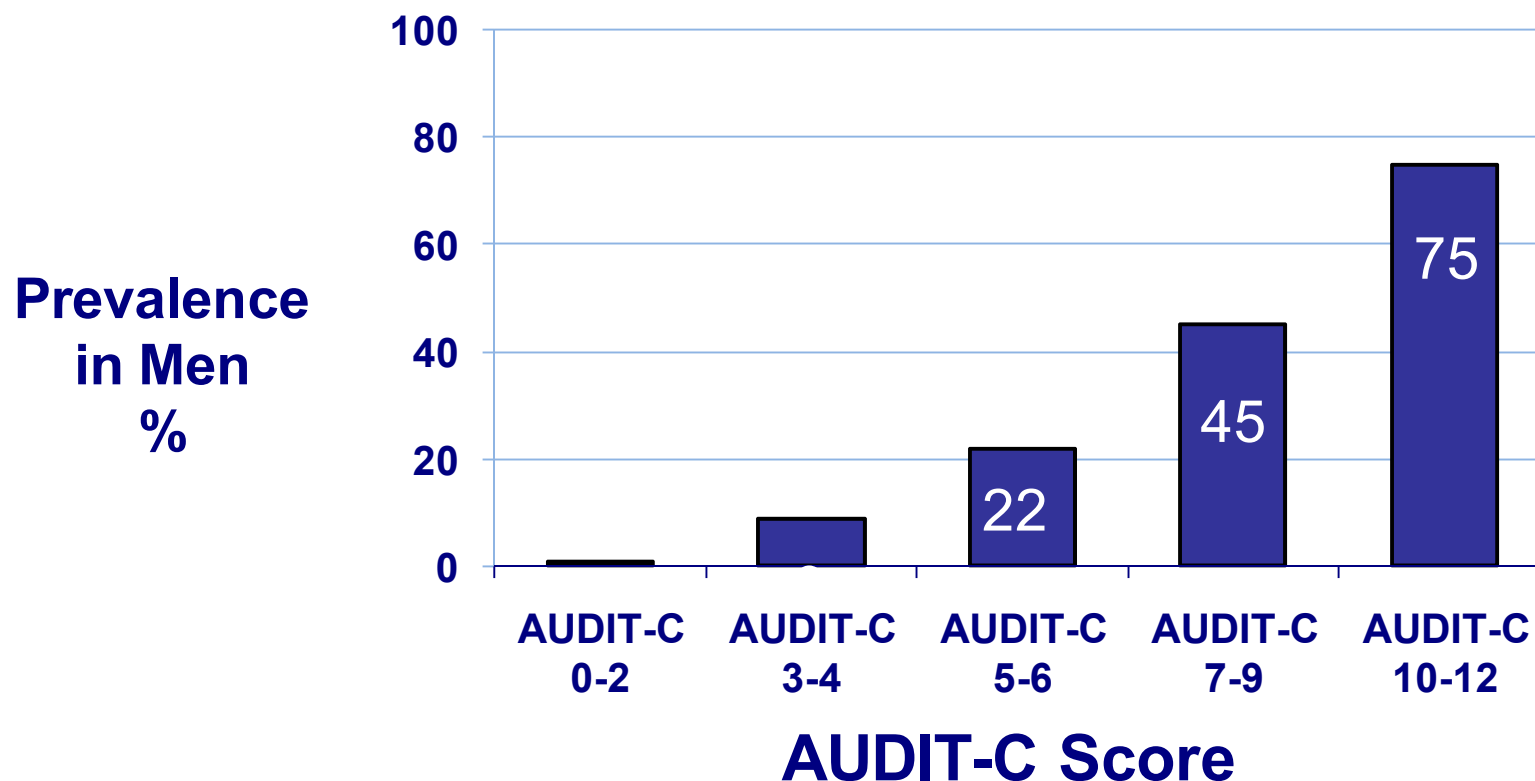


AUDIT-C and Alcohol-related Symptoms

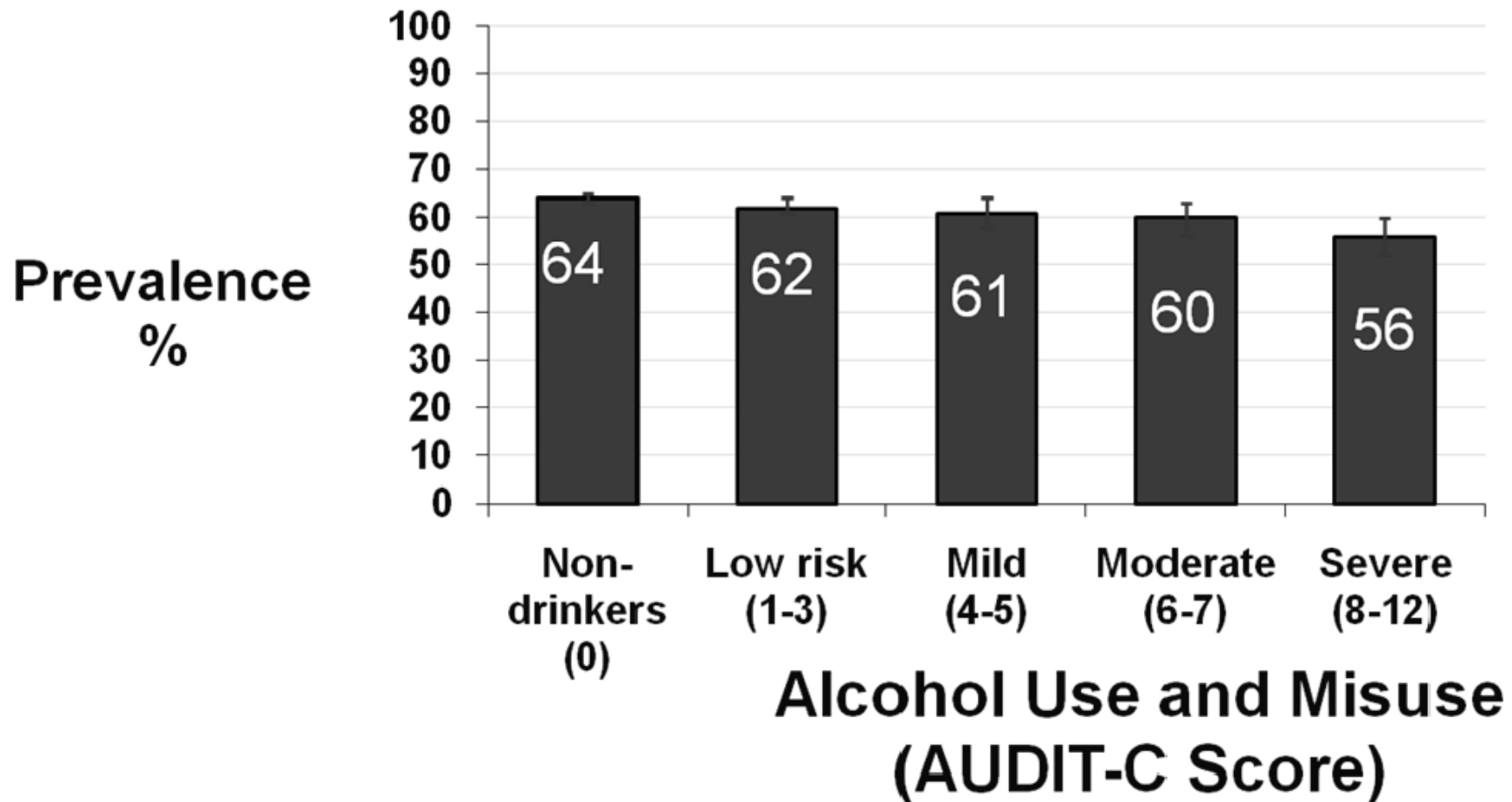


AUDIT-C Scores and Dependence

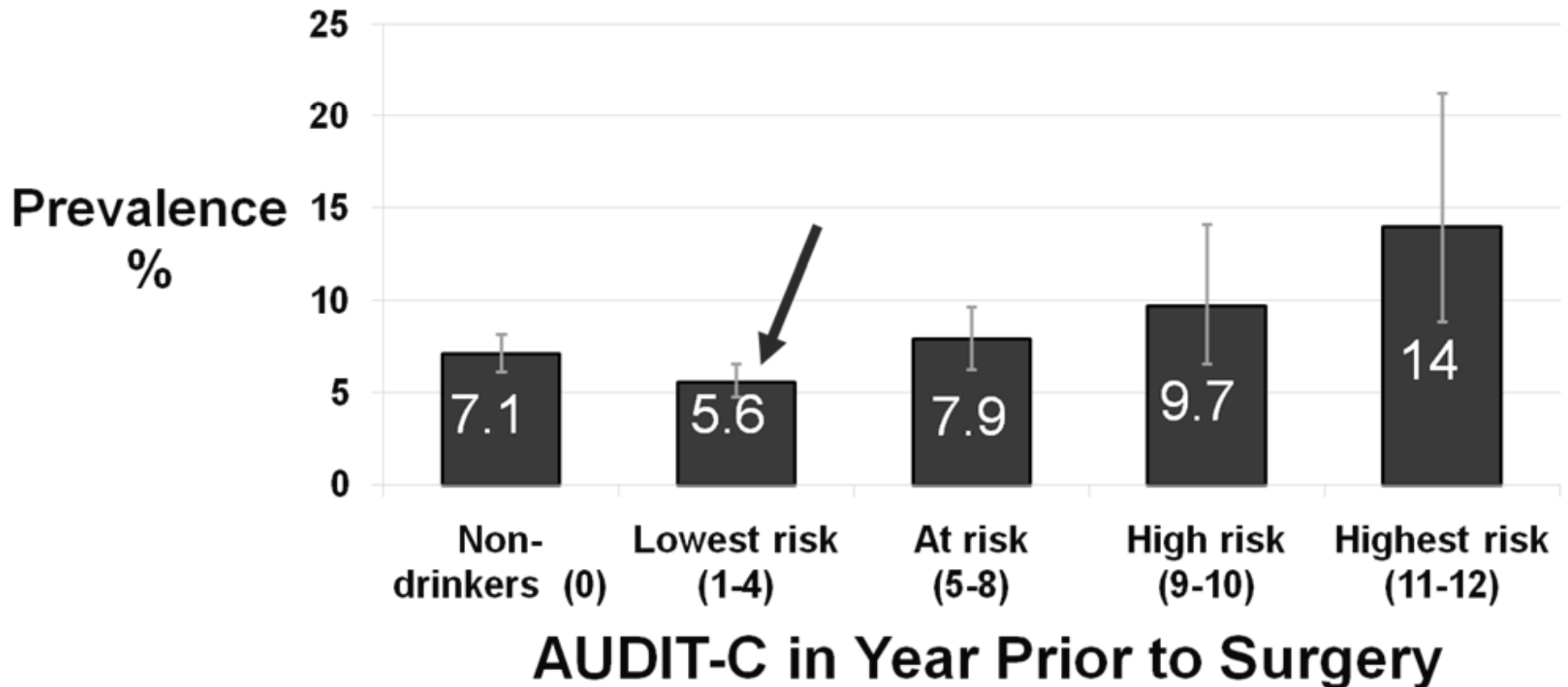
DSM-IV Alcohol Dependence, Past Year



Anti-hypertensive Medication Adherence in Male VA Patients

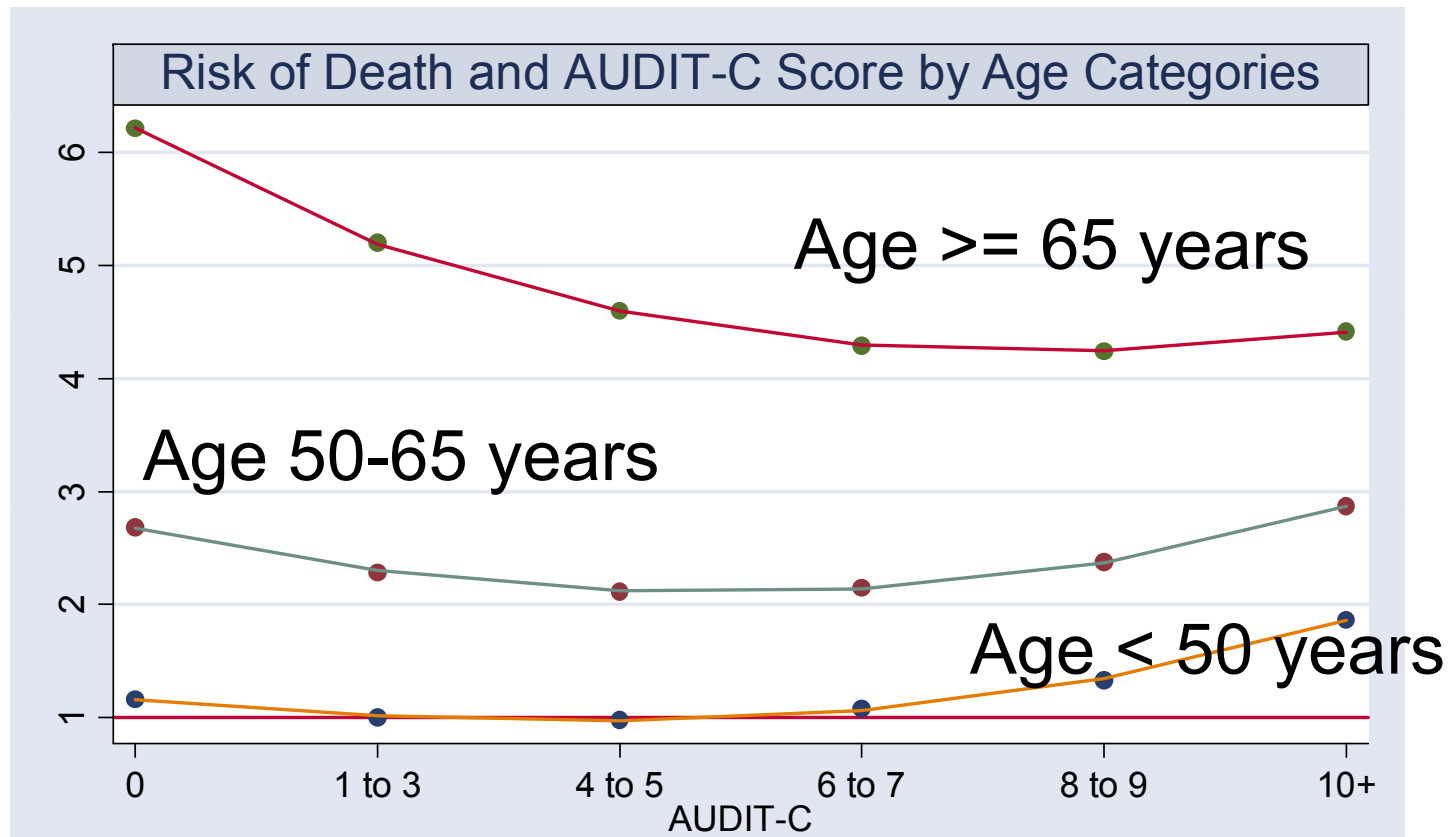


AUDIT-C and Post-operative Complications*



*Adjusted for age, smoking, & time from screen to surgery

AUDIT-C and Mortality



(Kinder 2008)

AUDIT-C's Association with Health

AUDIT-C Scores:	Health Outcomes:
0	Nondrinkers have poorer health outcomes in many analyses
≥ 4	Decreased medication adherence
≥ 6	Increased hospitalizations: GI conditions Increased risk of fractures
≥ 8	Poorer self-management Htn and DM Increased hospitalizations with Ambulatory Care Sensitive Conditions (ACSC)
≥ 10	Increased mortality

*(Bryson, 2008; Au 2007; Harris 2009;
Chew, 2011; Kinder 2008)*

Summary

- Depending on your use of the AUDIT-C, dichotomizing is not always a good idea
 - Nondrinkers often sicker
 - Low level drinkers often healthiest
 - And severity increases as AUDIT-C scores increase

Questions about Part 1-2?

Sources of AUDIT-C data in VA

Sources of AUDIT-C Data

Overview

1. Mailed surveys

- Survey of Healthcare Experiences of Patients (SHEP)

2. Clinical screening

- Electronic VistA data
 - Extracted from Local VistA, VISN Data Warehouse, and Corporate Data Warehouses (CDW)
- Medical record reviews conducted for quality improvement

Mailed Surveys - SHEP

Survey of Healthcare Experiences of Patients (SHEP)

- VA Office of Quality and Performance (OQP's) satisfaction survey
- Outpatient SHEP included AUDIT-C since FY04
- ~233,000 AUDIT-Cs per year FY04-08
- Included on ~ 10% of mailed surveys since the last 2 quarters of FY09 ("long form" of SHEP)
- Expect ~19,000 per year starting FY10
- Apply to Office of Quality and Performance for Data Use Agreement (DUA):<http://vaww.oqp.med.va.gov/programs/dua/datause.aspx>

Clinical AUDIT-C Data

Clinical AUDIT-C Data

- Electronic data obtained from
 - VistA
 - CDW
- Medical record review data

Clinical AUDIT-C Data

- Generated using VA's Electronic Medical Record: CPRS
- CPRS Decision Support Tool: Clinical Reminders
- Clinical Reminders Data for AUDIT-C
 - Health Factors – not standardized
 - Mental Health Assistant – is standardized

Clinical Data:

Mental Health Assistant (MHA)

- The AUDIT-C in CPRS that is most commonly used is from the Mental Health Assistant (MHA)
- MHA
 - Includes ~ 30 mental health screens
 - Calculates the score for the clinician
 - Imports information to CPRS progress notes
- MHA data cannot be edited or changed by the site (nationally standardized)

Electronic (Clinical) Data History

- In January 2004, AUDIT-C screening adopted by VA
- Clinical Reminder (CR) AUDIT-C disseminated
 - Implementation of CR optional, but most sites used
- The CR prompted clinicians to assess whether a patient had used alcohol in the past year
- AUDIT-C 2004-2008: Only Drinkers Screened (MHA data)
- A “health factor” (data tag) indicated past-year non-drinkers
 - Health factors can be edited so there are variations in “nondrinker health factors” across sites

Example of Alcohol Use Screen Clinical Reminder 2004-2008

Reminder Resolution: Alcohol Use Screen

The AUDIT-C is a standardized screen that can identify those patients who may be at risk of problems due to drinking. The risk of alcohol-related problems and/or dependence increases as AUDIT-C scores increase.

Positive scores: 4 or more for MEN -OR- 3 or more for WOMEN

IN THE PAST 12 MOS, HAS PT HAD ANY DRINKS CONTAINING ALCOHOL?

Yes, pt has consumed alcohol in past year

Patient denied alcohol consumption in past 12 months. Audit C score = 0

Pt declined alcohol use screen at this encounter

■ Health Factor generated

Clear Clinical Maint Visit Info < Back Next > Finish Cancel

Alcohol Use Screen:
Pt has consumed alcohol in past year

Health Factors: ETOH - ALCOHOL YES

Example of Alcohol Use Screen Clinical Reminder 2004-2008

Reminder Resolution: Alcohol Use Screen

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Positive scores = 4 or more for MEN -OR- 3 or more for WOMEN

IN THE PAST 12 MOS HAS PT HAD ANY DRINKS CONTAINING ALCOHOL?

Yes, pt has consumed alcohol in past year: Perform AUDC *

Patient denies alcohol consumption in past 12 months - Audit C score = 0

Pt declined alcohol use screen at this encounter

Clear Clinical Maint Visit Info < Back Next > Finish Cancel

Alcohol Use Screen:
Pt has consumed alcohol in past year

Health Factors ETOH - ALCOHOL YES

History: Electronic (Clinical) Data

2004-2008 continued

- If patients indicated they drank alcohol in the past year, clinicians were prompted to administer AUDIT-C
- The AUDIT-C from the Mental Health Assistant (MHA) was used in the clinical reminder
- MHA scored the AUDIT-C and stored responses as a single string: “4,0,0” if 4 points Q#1 and 0 points Qs#2-3.

History of AUDIT-C Use in VA

2008-present

- In 2008 the MHA AUDIT-C changed
- All patients had to be asked Q#1 of the AUDIT-C
- MHA AUDIT-C included a skip out if patients answered “never” Q#1 about the frequency of drinking in the past year
- MHA data structure became more complex
 - AUDIT-C data in VistA are harder to identify
 - MHA data are not familiar to many researchers
 - Experienced programmers cannot find MHA data

AUDIT-C Reminder after 2008

The image shows two overlapping windows from a medical software application. The background window, titled "Reminder Resolution: Alcohol Use Screen", contains a text-based reminder about the AUDIT-C tool. It includes a "Perform AUDC" button and a list of reasons for being "Unable to Screen". The foreground window, titled "AUDC: ASKEVOLD,KJELL", displays a questionnaire with three questions about alcohol consumption. The first question is selected, and the "1. Never" option is chosen. The interface includes navigation buttons like "Clear", "Clinical Maint", "Visit Info", and "Back", as well as a "Quit" button and a "Use speed tab" checkbox.

Reminder Resolution: Alcohol Use Screen

A standardized tool to screen for hazardous or problem drinking should be administered to all patients. The AUDIT-C is a sensitive tool for identifying those patients who may be at risk of problems due to drinking. The risk of being alcohol dependent and experiencing problems due to drinking increases as AUDIT-C scores increase.

AUDIT-C screening questions should be asked verbatim, in a nonjudgmental manner.

AUD-C

Perform AUDC

Unable to Screen

- Due to Acute Illness
- Due to Chronic, Severe Cognitive Impairment
- Refused alcohol screening

AUDIT-C Questionnaire

Clear Clinical Maint Visit Info < Back

Alcohol Use Screen:
* Indicates a Required Field

AUDC: ASKEVOLD,KJELL

Please read each item carefully and select the correct answer for you.

1. How often did you have a drink containing alcohol in the past year?

- 1. Never
- 2. Monthly or less
- 3. Two to four times a month
- 4. Two to three times per week
- 5. Four or more times a week

2. How many drinks containing alcohol did you have on a typical day when you were drinking in the past year?

- 1. 0 drinks
- 2. 1 or 2
- 3. 3 or 4
- 4. 5 or 6
- 5. 7 to 9
- 6. 10 or more

3. How often did you have six or more drinks on one occasion in the past year?

- 1. Never
- 2. Less than monthly
- 3. Monthly
- 4. Weekly
- 5. Daily or almost daily

Quit Use speed tab Hint: Use the number key of the item to speed data entry. Done

Electronic AUDIT-C Data – Summary

From about 1/2004 to 1/2008

- Local health factor(s) identify nondrinkers (varies across sites)
- AUDIT-C 3-item response string (100), date
- MHA AUDIT-C data typically represented only patients who drank alcohol

After 1/2008

- Most sites used new MHA AUDIT-C that skipped Q#2-3 if patients responded “never” to Q#1
- AUDIT-C questions – questions/responses/score stored in complex relational data files

Electronic AUDIT-C Data

How AUDIT-C MHA Data Can be Obtained

1. Local VistA system
 - Fileman query:
 - File 601.2 (before 2008)
 - Multiple files in the 601 series after 2008
 - New MHA “XML” extract tool
2. VISN Data Warehouses
 - Obtain approval from local authorities

Electronic AUDIT-C Data

How AUDIT-C MHA Data Can be Obtained

3. Corporate Data Warehouse (CDW) and Regional Data Warehouses
 - National MHA data available in the next 1-2 years
 - Obtain approvals from National Data Systems
<http://vaww4.va.gov/NDS/DataAccess/DataAccessRES.asp>

Medical Record Reviews (EPRP)

- Many sites began using AUDIT-C in 2004
- Since 2006 AUDIT-C was the required screen
- EPRP has used medical record reviews to monitor screening since 2004 and follow-up since 2006
- Sample of VA patients who have outpatient visit
 - ~31,000 AUDIT-C screens per quarter
 - ~15,000 from “NEXUS” cohort
- Apply to Office of Quality and Performance for Data Use Agreement (DUA): <http://vaww.oqp.med.va.gov/programs/dua/datause.aspx>

Strengths and Limitations of AUDIT-C Data from Different Sources

Strengths and Limitations

- SHEP
- Concerns about quality for clinical AUDIT-C data in general
- Specific types of clinical AUDIT-C data
 - Electronic – VistA
 - Electronic CDW
 - EPRP

Strengths and Limitations: SHEP

- AUDIT-C administered in a standard fashion
 - Improves quality of screening
- Response bias – lower response rates in:
 - Younger patients
 - Women

(Wright 2006)

Concerns about Quality of Clinical AUDIT-Cs

- Clinical and survey screening compared
- > 6000 patients completed the AUDIT-C on SHEP surveys within 90 days EPRP reviews
- Discordance was common, especially among patients with positive screens on SHEP
- 61% of patients who screened positive on SHEP surveys screened negative clinically
- Variation across race and VISN
- Both electronic (MHA) and EPRP data affected

Strengths and Limitations: CDW

Electronic AUDIT-C Data

- Change in data structure in 2008
 - Before 2008
 - Health factors to identify non-drinkers
 - A single string of the three AUDIT-C item responses
 - After 2008: data complex

Strengths and Limitations: VistA

Electronic AUDIT-C Data

- VistA
 - Can be extracted locally (Fileman or XML)
 - Complex query however requires multiple file jumps
- CDW
 - No national data currently available
 - Data before 2008: only Region 1 currently
 - Experienced data analysts to pull from CDW
 - Substance use disorders QUERI will disseminate data dictionary

Strengths and Limitations: EPRP

EPRP Medical Record Reviews

- Limitations
 - Small numbers positive screens per facility/network (Bradley 2006)
 - Reliability of abstraction
- Strength
 - Represents data available to clinicians
 - Includes medical record review data on follow-up as well: advice, feedback, discussion of referral, referral, and completion of referral

Conclusion

- AUDIT-C is a clinical alcohol screen that can be used as a dichotomous or categorical measure
- Widely validated in research settings
- Increasing scores reflect increasing severity
- Two types of AUDIT-C data available:
 - Survey data: more standardized and administered as validated, but limited by response bias for studying some populations (e.g. younger patients)
 - From clinical screening—electronic data or from medical record reviews—have variable quality

Thank You!

Questions?

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