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Implementation and Quality Improvement of a Screening and Counseling Program for Unhealthy Alcohol Use in an Academic General Internal Medicine Practice

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Abstract

Unhealthy alcohol use is the third leading cause of preventable death in the United States (U.S.). The U.S. Preventive Services Task Force recommends screening for unhealthy alcohol use but little is known about how best to do so. We used quality improvement techniques to implement a systematic approach to screening and counseling primary care patients for unhealthy alcohol use. Components included use of validated screening and assessment instruments; an evidence-based 2-visit counseling intervention using motivational interviewing techniques for those with risky drinking behaviors who did not have an alcohol use disorder (AUD); shared decision making about treatment options for those with an AUD; support materials for providers and patients; and training in motivational interviewing for faculty and residents. Over the course of one year, we screened 52% (N=5,352) of our clinic's patients and identified 294 with positive screens. Of those 294, appropriate screening-related assessments and interventions were documented for 168 and 72 patients, respectively. Although we successfully implemented a systematic screening program and structured processes of care, ongoing quality improvement efforts are needed to screen the rest of our patients and to improve the consistency with which we provide and document appropriate interventions.

Keywords

Unhealthy Alcohol Use; Binge Drinking/prevention & control; Counseling; Screening; Primary Health Care

INTRODUCTION

Unhealthy alcohol use is the third leading cause of preventable death in the United States (U.S.). (Centers for Disease Control and Prevention, 2013b; Saitz, 2005) Terminology related to unhealthy alcohol use is complex and overlapping; it includes risky drinking and

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alcohol use disorder (AUD). We provide definitions in Table 1. Unhealthy alcohol use is associated with numerous health and societal problems and is responsible for 10% of deaths among working-age adults in the U.S. (Bondy, Rehm, Ashley, Walsh, Single, & Room, 1999; Centers for Disease Control and Prevention, 2004; Cherpitel & Ye, 2008; Corrao, Bagnardi, Zambon, & La Vecchia, 2004; Jonas, Garbutt, Amick, Brown, Brownley, Council et al., 2012a; Rehm, Baliunas, Borges, Graham, Irving, Kehoe et al., 2010; Schuckit, 2009; Shalala & U.S. Department of Health and Human Services, 2000; Stahre, Roeber, Kanny, Brewer, & Zhang, 2014) Over 20% of primary care patients in the U.S. exceed maximum recommended limits (Vinson, Manning, Galliher, Dickinson, Pace, & Turner, 2010) (Table 1), and those in the uppermost decile for alcohol consume an average of 74 drinks per week. (Cook, 2007; Ingraham, September 25, 2014)

Systematic reviews have shown benefits of screening and counseling. (Jonas et al., 2012a; Jonas, Garbutt, Brown, Amick, Brownley, Council et al., 2012b) The U.S. Preventive Services Task Force (USPSTF) recommends screening adults for unhealthy alcohol use and providing persons engaged in risky drinking with brief behavioral counseling; (Moyer & Preventive Services Task Force, 2013) people found to have AUD should receive more intensive interventions. Yet, less than a third of those who visit general medical providers are asked about alcohol use, and less than 20% of U.S. adults report ever discussing alcohol use with a health professional. (D'Amico, Paddock, Burnam, & Kung, 2005; McKnight-Eily, Liu, Brewer, Kanny, Lu, Denny et al., 2014) Further, primary care residents have been shown to lack comfort and experience with alcohol screening and brief intervention. (Le, Johnson, Seale, Woodall, Clark, Parish et al., 2015) Barriers to screening and counseling include competing priorities, lack of provider training, misconceptions about patient comfort with discussing alcohol, and lack of appropriate infrastructure and protocols. To address these shortcomings, we sought to develop and implement, using quality improvement techniques, a systematic approach to screening and counseling primary care patients for unhealthy alcohol use.

IMPLEMENTATION AND QUALITY IMPROVEMENT METHODS

Setting and Participants

The University of North Carolina Internal Medicine Clinic (UNC IMC) is a large academic practice serving 12,300 adults with approximately 42,000 visits per year. It is recognized as a Level 3 Patient-Centered Medical Home and has over a 15-year history of conducting formal quality improvement activities. (Cavanaugh, Jones, Embree, Tsai, Miller, Shilliday et al., 2014; DeWalt, Malone, Bryant, Kosnar, Corr, Rothman et al., 2006; Jonas, Bryant Shilliday, Laundon, & Pignone, 2010; Jonas, Evans, McLeod, Brode, Lange, Young et al., 2013; Kiser, Jonas, Warner, Scanlon, Shilliday, & DeWalt, 2012; Potisek, Malone, Shilliday, Ives, Chelminski, DeWalt et al., 2007; Rothman, DeWalt, Malone, Bryant, Shintani, Crigler et al., 2004; Rothman, Malone, Bryant, Shintani, Crigler, Dewalt et al., 2005; Rothman, So, Shin, Malone, Bryant, Dewalt et al., 2006) Prior to implementation of this screening program for unhealthy alcohol use, our practice did not routinely screen patients for unhealthy alcohol use. When we initially developed and implemented our program, UNC used a home-grown electronic health record. UNC IMC employed a visit-based, computer-

generated, paper-based, prioritized screening and prevention prompting system for a variety of general health issues. An algorithm generated distinct front desk, nursing, and physician prompts for up to 3 health issues that were relevant for each patient from a prioritized list of 16 possible items (Appendix 1).

Program Description

Work on the program began in 2012. The program was initiated in late April 2013 for faculty patients and expanded to include resident patients in November 2013. We aimed to implement a program to (1) screen all patients for unhealthy alcohol use, (2) identify patients with risky drinking who could benefit from primary care-based counseling, (3) use motivational interviewing techniques to counsel patients with risky drinking, and (4) provide appropriate referral resources for patients with AUD. The program included a systematic screening approach, a process for providing behavioral counseling, and training for providers. Figure 1 provides an overview of the program process.

Screening Program—We used the single-question screen recommended by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), followed by the full 10-question Alcohol Use Disorders Identification Test (AUDIT) (National Institute on Alcohol Abuse and Alcoholism, Updated 2005 Edition) for those with positive screens. (Jonas et al., 2012b) Single-question screens require less than 1 minute to administer and have sensitivities of 0.82 to 0.87 and specificities of 0.61 to 0.79 for detecting unhealthy alcohol use in adults in primary care. (Jonas et al., 2012b)

To screen patients, nurses were prompted to ask whether the person drinks alcohol at all, and then, if yes, to ask how many times over the past year they've had 4 (for women and those 65) or 5 (for men under 65) drinks in a day (Figure 1, Appendix 2). For patients with a positive screen (answering 1 times), nurses asked patients to complete the AUDIT (Appendix 3), which was printed on pink paper. When they saw the AUDIT form, providers were visually prompted to review it and calculate the score, which they used to help distinguish patients with an AUD from those with risky drinking (Figure 1). Table 2 summarizes the AUDIT scores used to indicate whether an AUD was likely.

Counseling Program—When providers determined that a patient had risky drinking behaviors, but not an AUD, they initiated a 2-visit counseling intervention. The intervention was designed based on the systematic review conducted for the USPSTF, which found that counseling interventions require more than simple advice to improve drinking outcomes; the best evidence was for brief (10–15 min) multi-contact (2 visits) interventions. (Fleming et al., 1997; Jonas et al., 2012a) Behavioral counseling interventions aim to moderate a patient's alcohol consumption to sensible levels and to reduce or eliminate risky drinking. Effective programs have included motivational interviewing, feedback, written health education or self-help materials, advice-giving, drinking diaries, and problem-solving exercises to complete at home. (Jonas et al., 2012a)

We incorporated techniques from motivational interviewing, an evidence-based behavioral counseling approach originally developed to address substance use (particularly problem drinking) that uses a patient-centered, guiding (rather than directing) style to elicit behavior

change by helping patients to explore and resolve ambivalence, and by eliciting patients' own motivations for change. (Miller & Rollnick, 1991; Rollnick, Butler, Kinneresley, Gregory, & Mash, 2010) This approach has been shown to elicit change in a wide range of behaviors and healthcare settings. (Lundahl, Moleni, Burke, Butters, Tollefson, Butler et al., 2013; Rollnick et al., 2010; Rubak, Sandbaek, Lauritzen, & Christensen, 2005)

A *Provider Guide* was developed to support clinicians conducting motivational interviews (Appendix 4). It was organized using a 5 A's approach: Assess, Advise, Assist, Agree, and Arrange follow up, and included motivational interviewing techniques corresponding to each step. We also developed a pamphlet for patients titled *Rethinking Drinking* that provided information about health risks, recommended drinking limits, definitions of standard drinks, a menu of options/goals for reducing risky drinking, and a diary to record alcohol consumption (Appendix 5). Both the *Provider Guide* and *Rethinking Drinking* pamphlet included portions of publicly available materials developed by the NIAAA.

We used a 2-visit approach for behavioral counseling. During the first visit, physicians initiated counseling, provided information about recommended drinking limits and health problems that can occur as a result of risky drinking, explored patient's willingness to change behavior, and gave patients the *Rethinking Drinking* pamphlet. Depending on competing demands, the patient and provider may or may not have reached agreement regarding goal setting at the initial visit. In cases where they could not achieve agreement, providers asked patients if they would keep a diary of alcohol use and review the list of potential goals before the next visit. At the second visit (four weeks later), providers continued the counseling intervention, reviewed the diary with the patient, and aimed to help the patient set goals to reduce unhealthy drinking.

If providers identified an AUD, they conducted brief motivational interviewing to determine whether the patient was willing to set a goal of abstinence or not, and then engaged in shared decision making regarding options for more intensive treatment. A list of available resources was developed to aid providers, organized both by type of service (e.g., detoxification, intensive outpatient programs, residential programs, individual therapy) and by county. (UNC School of Medicine, 2014)

Faculty and Resident Training

To increase provider confidence, we implemented a two-phase training in motivational interviewing. In phase one, teaching faculty were trained in motivational interviewing techniques and the intervention protocol. This was achieved during a half-day retreat that included overview of the foundation and principles of motivational interviewing; didactic material on specific techniques including reflective listening, open questions, elicit-provide-elicitation, asking permission, and an importance and confidence exercise; demonstration of techniques via videos and live role-play by counselors trained in motivational interviewing; and opportunities for faculty to practice. During the retreat, faculty pilot-tested a draft of the *Provider Guide* by taking turns role-playing. The materials were then revised based on feedback prior to implementing their use. In phase two, a curriculum to train residents was created and delivered during pre-clinic educational conferences.

Process Refinement

Beginning Spring 2012, we utilized the Model for Improvement (from the Institute for Healthcare Improvement) and small tests of change to refine the processes and content. (Langley, 2009) For example, we first evaluated the effects of adding the single-question screener on usual workflows; upon agreeing on an effective, nondisruptive approach, we then tested various options for administering the AUDIT to those with a positive screen (e.g., by nurse, by provider) and for saving the AUDIT results. After testing the screening processes with several nurses, providers, and patients, the team gathered staff and provider feedback. Refinements were made before assessing the next iteration on another group of patients. Three Internal Medicine residents (ES, JK, MD) were involved in the improvement processes as part of quality improvement-focused outpatient training months.

Program Evaluation

Our primary outcome measures were the number and proportion of patients screened, the proportion with positive single-question screens who completed the AUDIT, and the proportion of eligible patients who were appropriately offered counseling for risky drinking. Secondary outcome measures were faculty and resident comfort with counseling. Secondary outcome measures were assessed by an anonymous survey that was emailed to residents and faculty.

We evaluated the program periodically (by assessing screening and intervention rates) and reported results to physicians and nurses. Evaluations continued through early April, 2014, when our healthcare system changed to a new electronic health record (and our visit-based prompting system was discontinued).

RESULTS

Figure 2 shows the cumulative number and percentage of patients screened over this period. Figure 3 shows our primary outcomes. We screened 52% of our patients (N=5,352). Of those, about half (51%) reported that they never drink alcohol, consistent with what we expected based on data for North Carolina from the Centers for Disease Control and Prevention. (Centers for Disease Control and Prevention, 2013a, 2015) We identified 294 patients with positive screens for unhealthy alcohol use (5.5% of all those screened; 11% of those who sometimes drink alcohol). For those 294, 168 (57%) had documentation of a completed AUDIT and 72 had documentation of an appropriate intervention.

After the implementation, the vast majority of faculty and resident respondents to an anonymous survey indicated that they were comfortable with providing counseling for risky drinking (9 /11 faculty [82%] and 28/32 residents [88%]).

DISCUSSION

We successfully implemented a screening program to identify patients with unhealthy alcohol use that included provider training and development of structured processes of care to guide counseling interventions. We effectively screened over half of all patients who attended our practice and counseled many patients found to have risky drinking. We learned

that about half of our patients never drink alcohol; these patients can be excluded from future screening. Although we reached a large number of patients, we have not yet achieved the goal of screening all patients, nor our goal of assessing and providing appropriate interventions for all of those identified with unhealthy alcohol use. This was not surprising for several reasons: (1) our priority-based screening and prevention processes limited nurse prompts to the top 3 health issues for each patient, and screening for unhealthy alcohol use often ranked below other priorities, (2) many visits in our clinic are for urgent care visits or with clinical pharmacists for anticoagulation services, and we have not yet attempted to screen during those visits (but they were included in the denominator of visits because we intended to expand screening to those visits after refining the process, and we want the data to show both our progress and the volume of patients that we still needed to reach in order to screen our complete clinic population), and (3) the evaluation period only covers one year; over time more patients would be reached, as they have continued contact with our practice.

One key challenge that we encountered was training a large number of faculty and residents. Another key challenge was the competing time demands providers faced. Many providers commented on the challenge of handling a positive screen when patients are typically being seen for other reasons. The addition of a 10 to 15-minute counseling intervention to a busy visit agenda is sometimes infeasible; even when feasible, it can require providers to trade-off addressing other issues, interfere with clinic flow and time for other patients, and create stress for providers. In anticipation of the challenges, we structured the program so that providers could start the counseling intervention at the initial visit and then schedule a 1-month follow up to continue it. However, this did not always reduce the barrier to counseling implementation. Of those with a positive screen, we found documentation of a completed AUDIT for 57%; and 43% of those had documentation of an intervention delivered (Figure 3). Possible reasons that uptake was not greater include competing time demands, not all providers had received the training, poor documentation (i.e., the AUDIT or intervention had actually been completed but was not documented and was lost), and the fact that this was a newly implemented process that still needed further evaluation and improvement.

To further improve our program, we aim to first re-implement it and screen the remainder of our population, with modifications that take advantage of our new electronic health record (EPIC). We are still in the process of re-implementing some of our screening and prevention programs. Other next steps are to assess barriers to counseling and referral, and to improve the consistency with which we counsel, refer patients with AUDs, and document our interventions. In addition, although the current evaluation did not include assessment of intervention outcomes (e.g., reduction in risky drinking), we aim to develop a registry and disease management program for our patients with unhealthy alcohol use so that they may be tracked (e.g., assessing reduction in risky drinking or treatment for AUD) and additional interventions tested. For example, we plan to test the feasibility and benefits of incorporating online interventions within our program.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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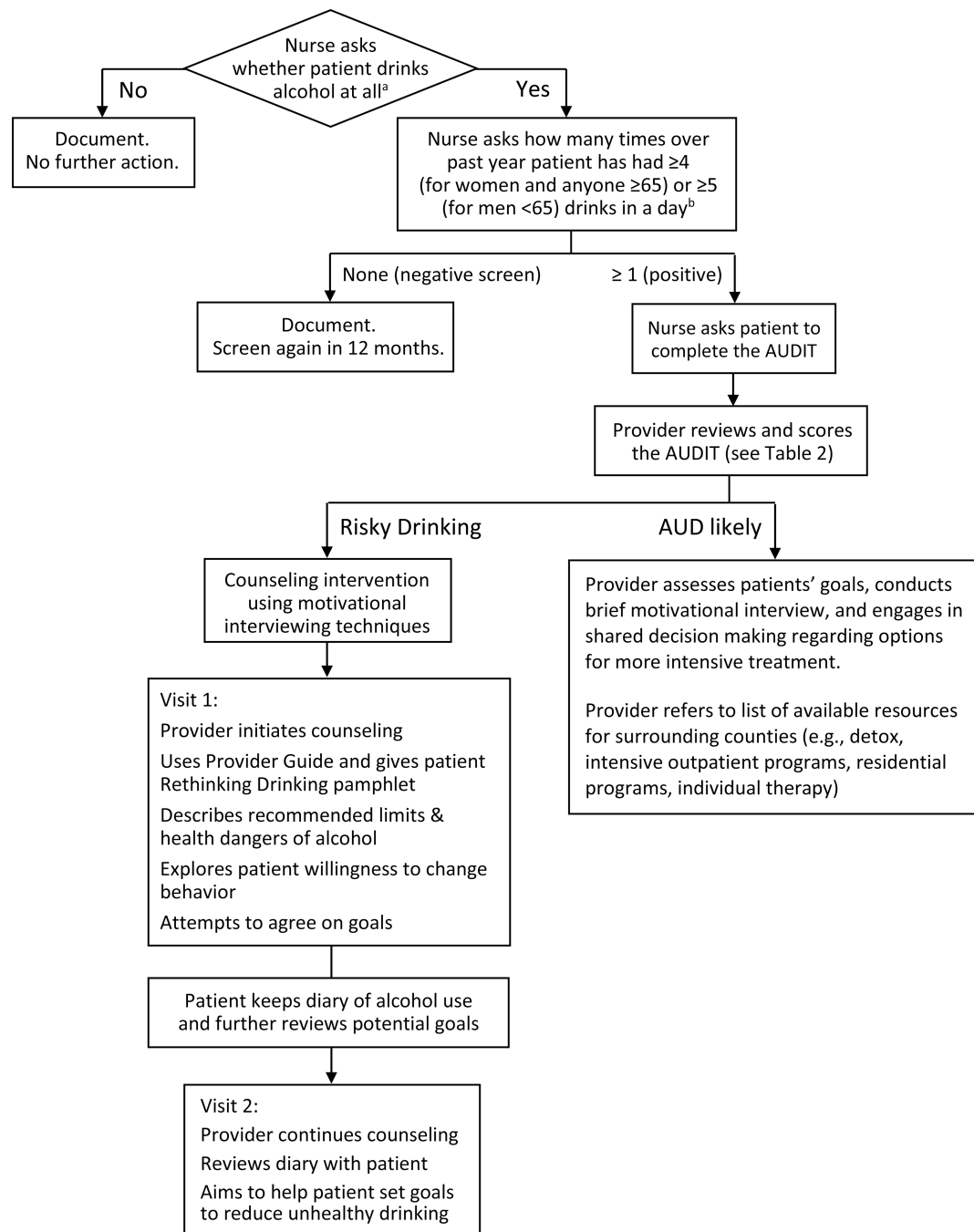


Figure 1.
Screening and counseling program process

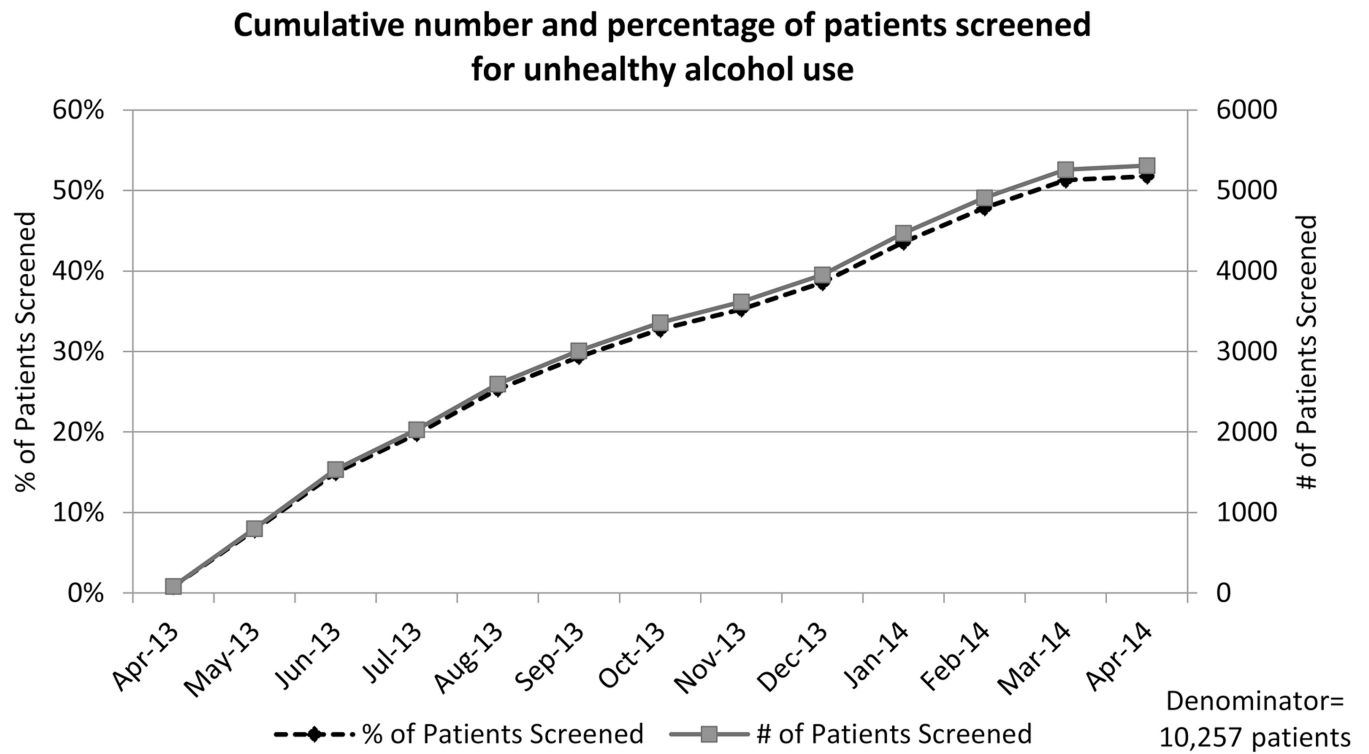


Figure 2.
Cumulative number and percentage of patients screened for unhealthy alcohol use

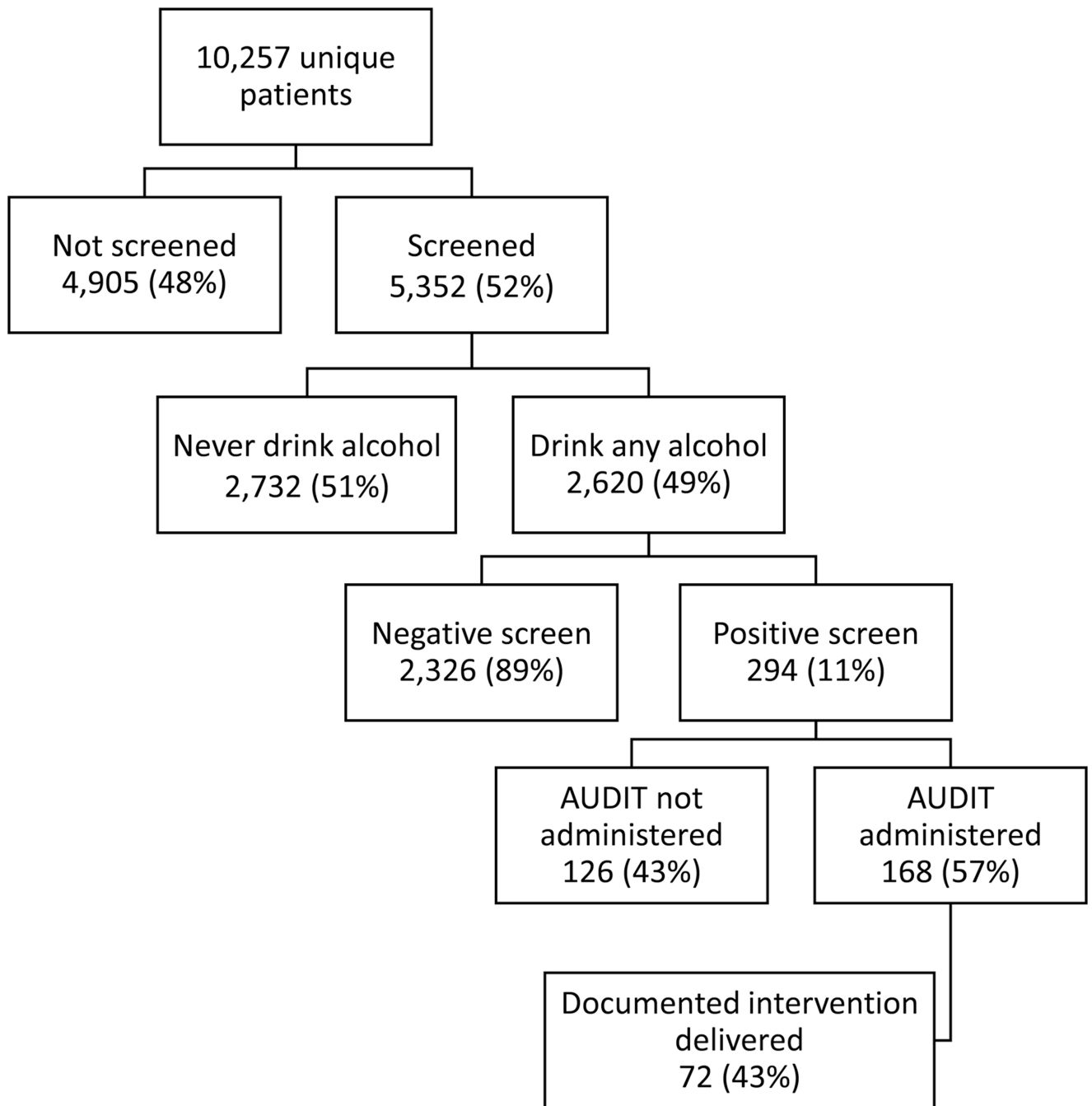


Figure 3.
Proportion of patients screened, screening results, and interventions delivered

Table 1

Definitions of unhealthy alcohol use (i.e., alcohol misuse), risky use, and alcohol use disorder

Term	Definition
Unhealthy alcohol use(Jonas et al., May 2014; Jonas et al., 2012) (i.e., alcohol misuse)	Overarching term that includes risky drinking and alcohol use disorder.
Risky use(Jonas et al., May 2014; Jonas et al., 2012) (i.e., hazardous use)	<p>Consumption levels that increase the risk for health consequences. Consumption of alcohol above recommended daily, weekly, or per-occasion amounts. Maximum recommended thresholds for daily or weekly amounts:(Updated 2005 Edition)</p> <p>(a) For women and anyone 65 years and older</p> <ul style="list-style-type: none"> • 3 or fewer standard drinks [*] in a day • 7 or fewer standard drinks per week <p>(b) For men under 65</p> <ul style="list-style-type: none"> • 4 or fewer standard drinks in a day • 14 or fewer standard drinks per week
Alcohol use disorder [†] (DSM-5, 2013(American Psychiatric Association, 2013)); levels of severity—mild: 2-3 criteria; moderate: 4-5 criteria; severe: 6 criteria	<ol style="list-style-type: none"> 1. Alcohol is taken in larger amounts or over a longer period than intended. 2. Persistent desire or unsuccessful efforts to cut down or control alcohol use. 3. A great deal of time is spent in activities necessary to obtain alcohol, use alcohol, or recover from its effects. 4. Craving, or a strong desire or urge to use alcohol. 5. Recurrent alcohol use resulting in a failure to fulfill major role obligations at work, school, or home. 6. Continued alcohol use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of alcohol. 7. Important social, occupational, or recreational activities are given up or reduced because of alcohol use. 8. Recurrent alcohol use in situations in which it is physically hazardous. 9. Alcohol use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by alcohol. 10. Tolerance, as defined by either of the following: <ol style="list-style-type: none"> (a) A need for markedly increased amounts of alcohol to achieve intoxication or desired effect. (b) A markedly diminished effect with continued use of the same amount of alcohol. 11. Withdrawal, as manifested by either of the following: <ol style="list-style-type: none"> (a) The characteristic withdrawal syndrome for alcohol. (b) Alcohol (or a closely related substance, such as a benzodiazepine) is taken to relieve or avoid withdrawal symptoms.

^{*} A standard drink is 12 ounces (1 can) of beer containing 5% alcohol, 5 ounces of wine containing 12% alcohol, or 1.5 ounces of hard liquor containing 40% alcohol (80 proof). Many microbrews have a higher alcohol content; 12 ounces is often 1.5 drinks. (National Institute on Alcohol Abuse and Alcoholism, Updated 2005 Edition)

[†]Unlike DSM-III and DSM-IV, DSM-5 (2013) describes a single alcohol use disorder category measured on a continuum from mild to severe, and no longer has separate categories for alcohol abuse and dependence. Diagnosis of alcohol use disorder requires at least 2 of the 11 criteria listed.

Table 2

Using the AUDIT to help with screening-related assessment. Does the person have an alcohol use disorder?

AUDIT score		Likelihood of alcohol use disorder
Men	Women	
<6	<4	Alcohol use disorder is unlikely Proceed with motivational interviewing for risky drinking
6-14	4-12	Review questions 4-6: <ul style="list-style-type: none"> If score < 2, an alcohol use disorder is unlikely, proceed with motivational interviewing for risky drinking If score ≥ 2, an alcohol use disorder is likely. Consider referral.
15	13	Alcohol use disorder is very likely. Consider referral.