

# FETAL ALCOHOL SPECTRUM DISORDERS: KNOWLEDGE AND SCREENING PRACTICES OF UNIVERSITY HOSPITAL MEDICAL STUDENTS AND RESIDENTS

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## ABSTRACT

### Background

Fetal alcohol spectrum disorder (FASD) is the leading cause of preventable intellectual disabilities in the United States and a significant public health issue.

### Objectives

The purpose of this study is to evaluate the knowledge and screening practices of pre-clinical medical students and clinical providers on FAS, FASD, and alcohol consumption.

### Methods

A short survey sent to medical students and residents on the campus of a large medical school and university hospital.

### Results

On the survey of clinical providers, 38% of respondents stated they always survey pregnant women about their alcohol consumption, 34% stated they always screen patients planning to get pregnant, and 9% screen women of childbearing age. There were a significant percentage of providers who never screen women. When questioned regarding safe amounts of alcohol consumption during pregnancy, 69% of pre-clinical medical students and 67% of clinical providers stated there is no safe amount of alcohol consumption. Clinical providers were much more likely to correctly select the facial features necessary for the diagnosis (p-value < 0.01).

### Conclusions

Significant differences exist in the knowledge and screening practices of these different healthcare providers and trainees. Future interventions should seek to improve knowledge on FAS, FASD, and alcohol consumption, in order for practitioners to be more consistent with national guidelines and the Surgeon General recommendations.

**Key Words:** *Fetal alcohol syndrome (FAS), fetal alcohol spectrum disorders (FASD), screening, brief alcohol interventions*

**F**etal Alcohol Spectrum Disorder (FASD) is an umbrella term describing the wide-range of effects that can result from in utero alcohol exposure.<sup>1</sup> FASD is the leading cause of preventable intellectual disabilities in the United States and a significant public health issue.<sup>2</sup> The overall prevalence of Fetal Alcohol Syndrome (FAS) is 1-2/1,000 live births in the United States,

and the prevalence of FASD is suspected to be much higher.<sup>1,2</sup> In addition, it is estimated that approximately 10% of pregnant women and almost half of women not using any form of birth control consume alcoholic beverages.<sup>3</sup> This is a population at risk of having a child with an FASD. Effective prevention of FASD requires screening women of childbearing age to identify individuals

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with at-risk drinking patterns before they become pregnant. It also requires counseling women of childbearing age before and during pregnancy about the risks of alcohol consumption.<sup>4</sup> Numerous prior studies have shown that brief interventions are effective at reducing alcohol consumption.<sup>5</sup>

The importance of screening and intervening makes the role of physicians critical in preventing FASD. However, in order for physicians to feel empowered to provide effective interventions and employ risk reduction strategies, it is important that they have the proper foundation of knowledge on FASD, the diagnosis of FAS, and methods of screening for alcohol consumption in women of childbearing age. In other words, if physicians are not aware of the problem posed by FASD, they

are unlikely to take the important steps to intervene and prevent it. Medical school curriculums vary widely in terms of knowledge and teaching on FASD. The purpose of this study is to survey medical students and university hospital residents of their knowledge of FASD and their screening practices related to alcohol and pregnancy. Identifying deficiencies in knowledge and practice can help target future interventions in medical school and residency curriculum.

### Survey Tool

A simple survey was created with questions related to knowledge and screening practices of health care providers including medical students and residents (Figure 1).

**FIG. 1** Survey tool used to assess knowledge and screening practices of practitioners at a university hospital. Correct answers (where applicable) are in bold.

<p><b>Question 1.</b> I screen pregnant patients for alcohol use:</p> <p>Always Most of the time Rarely Do not screen at all</p>
<p><b>Question 2.</b> I discuss alcohol consumption with my female pregnant patients who are planning a pregnancy:</p> <p>Always Most of the time Rarely Do not screen at all</p>
<p><b>Question 3.</b> I discuss alcohol consumption with all my female patients of childbearing age who may become pregnant:</p> <p>Always Most of the time Rarely Do not screen at all</p>
<p><b>Question 4.</b> When advising pregnant patients regarding alcohol consumption, I believe the following is permissible:</p> <p>Up to 1 glass per day (6 oz. per glass) Daily consumption of alcohol is not advisable, but occasionally it is fine Women should abstain from all alcohol consumption during pregnancy</p>
<p><b>Question 5.</b> Alcohol can cause the following effects when consumed during pregnancy:</p> <p>Abnormal facial features (smooth philtrum and small eyes) Microcephaly Low birth weight Neurologic abnormalities All of the above None of the above</p>
<p><b>Question 6.</b> All patients with Fetal Alcohol Spectrum Disorders have intellectual disabilities:</p> <p>True False</p>

The first three questions of the survey assess provider's practice of screening both pregnant patients and women of childbearing age for alcohol consumption. The survey goes on to question the provider's knowledge about the "safe amount" of alcohol consumption during pregnancy. Finally, the survey asks providers to correctly identify key clinical features of FAS and FASD. These questions directly assess provider's knowledge of the Surgeon General's 2005 warning that urges women who are pregnant or may become pregnant to abstain from alcohol consumption because of the risk of fetal alcohol spectrum disorders.<sup>6</sup> Additionally, 2010 consensus guidelines from the Society of Obstetricians and Gynaecologists of Canada support alcohol abstinence during pregnancy, maternal alcohol screening, and periodic screening of women of childbearing age.<sup>8</sup>

The survey was approved by the Georgetown University Institutional Review Board and provided to fourth year medical students and resident physicians (clinical providers) on the campus of the university hospital. These providers have daily patient interactions. A similar survey was also provided to pre-clinical medical students (1<sup>st</sup> and 2<sup>nd</sup> year students) to assess their knowledge of the topic, but did not ask questions regarding screening practices given their lack of exposure to clinical medicine.

## RESULTS

The survey elicited 55 responses from clinical health care providers (which we define as fourth year medical students and residents). On the similar, but limited survey of pre-clinical providers (which we define as first and second year medical students) there were 140 respondents. Complete results of the survey are shown in Table 1.

On the survey of clinical providers, 38% of respondents stated they always survey pregnant women about their alcohol consumption, 34% stated they always screen patients planning to get pregnant, and 9% screen women of childbearing age. A large number of providers never screen women for alcohol consumption (7% never screen pregnant patients, 16% never screen women planning to get pregnant or women of childbearing age) (Figure 4, 5). However, 90% of pre-clinical medical students stated the appropriate time to screen women for alcohol consumption is during a routine health maintenance exam prior to becoming pregnant.

Survey data was separated to compare fourth year medical student responses to those of resident physicians. 50% of fourth year medical students reported screening pregnant patients for alcohol consumption compared to 26% of residents. When questioned regarding safe amounts of alcohol consumption during pregnancy, 65% of pre-clinical medical students and 67% of clinical providers stated there is no safe amount of alcohol consumption. 24% of pre-clinical medical students and 11% of clinical providers stated one drink per day was safe during pregnancy (Figure 2).

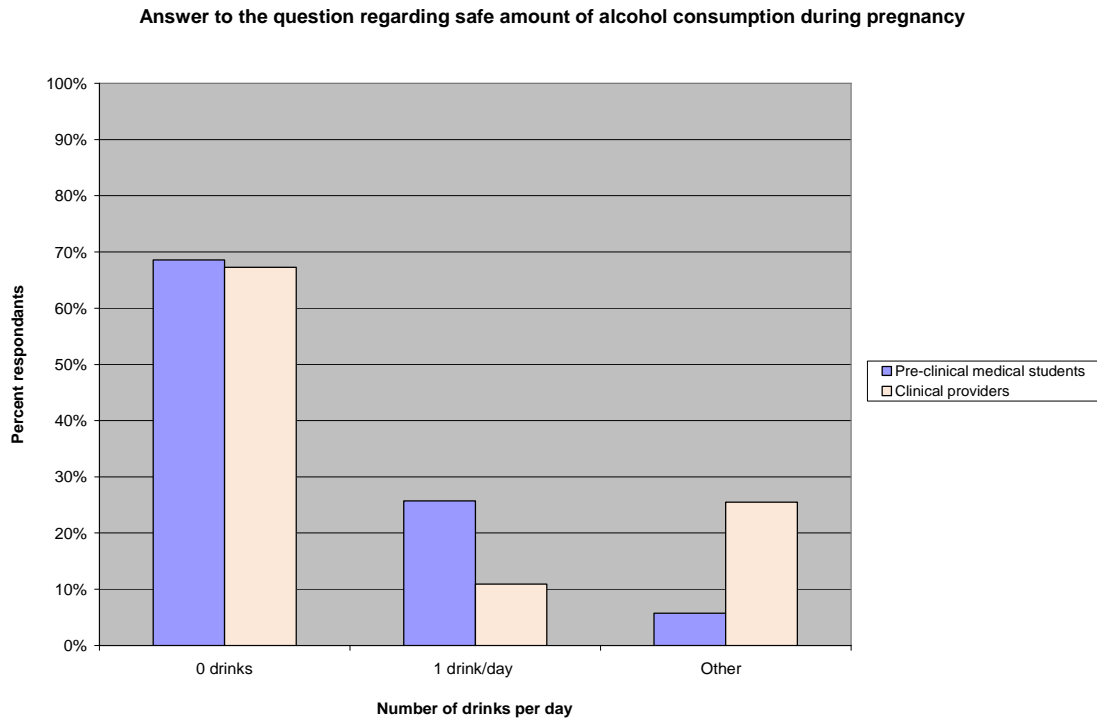
Clinical providers were much more likely to correctly select the facial features necessary for the diagnosis (66% of pre-clinical medical students vs. 96% of clinical providers) (Figure 3). The majority (75%) of all respondents correctly disagreed with the statement "All patients with fetal alcohol spectrum disorders have intellectual disabilities."

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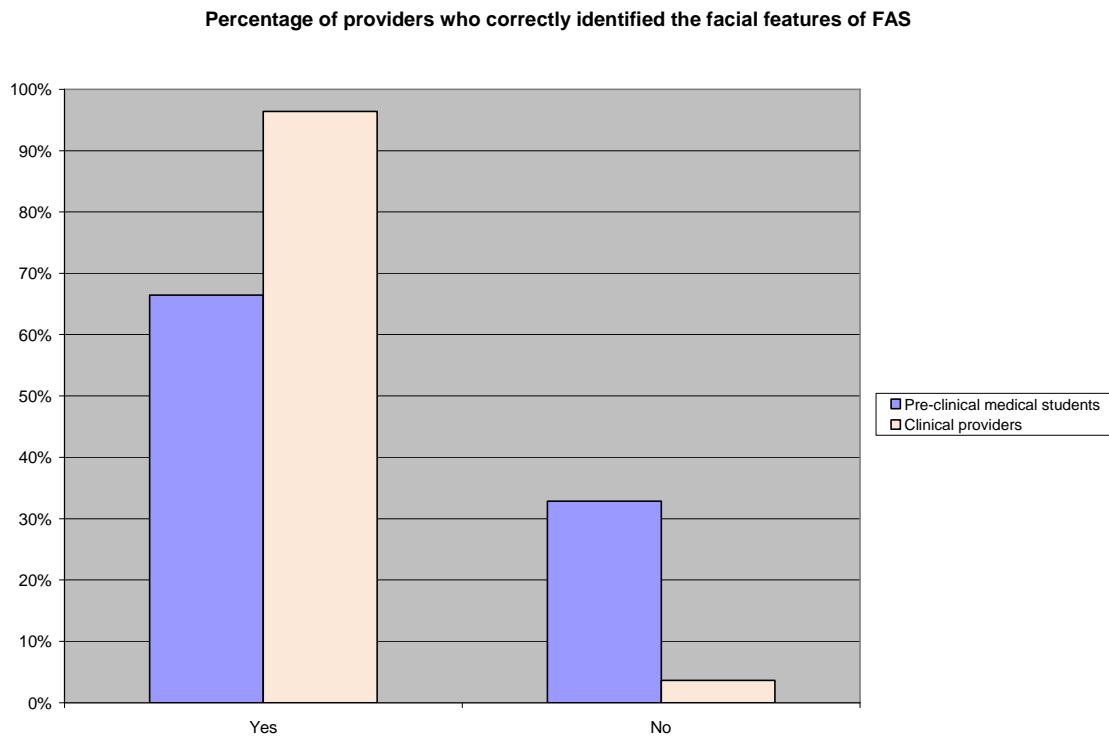
**TABLE 1** Results of Survey

		Pre-clinical respondents	Pre-clinical percents	Clinical respondents	Clinical percents
<b>Total students</b>		140		55	
Safe amount of alcohol?					
	0 drinks	96	68.6%	37	67.3%
	1 drink/day	36	25.7%	6	10.9%
	2-3 drinks/day	7	5.0%		
	> 4 drinks/day	1	0.7%		
	Other	8	5.7%	14	25.5%
Correctly identified FAS?	Yes	93	66.4%	53	96.4%
	No	46	32.9%	2	3.6%
All FASD has intellectual disabilities?	Yes	39	27.9%	9	16.4%
	No	101	72.1%	46	83.6%
When should you screen?	Routine check-up	127	90.7%		
	1st tri	12	8.6%		
	2nd tri	0	0.0%		
	3rd tri	0	0.0%		
	post-partum	1	0.7%		
Counsel childbearing age patients about alcohol?	Always			5	9.1%
	Mostly			9	16.4%
	Sometimes			19	34.5%
	Rarely			14	25.5%
	Do not discuss at all			9	16.4%
Planning to get pregnant about alcohol?	Always			19	34.5%
	Mostly			14	25.5%
	Sometimes			9	16.4%
	Rarely			4	7.3%
	Do not discuss at all			9	16.4%
Screen pregnant patients?	Always			21	38.2%
	Mostly			10	18.2%
	Sometimes			13	23.6%
	Rarely			7	12.7%
	Do not discuss at all			4	7.3%

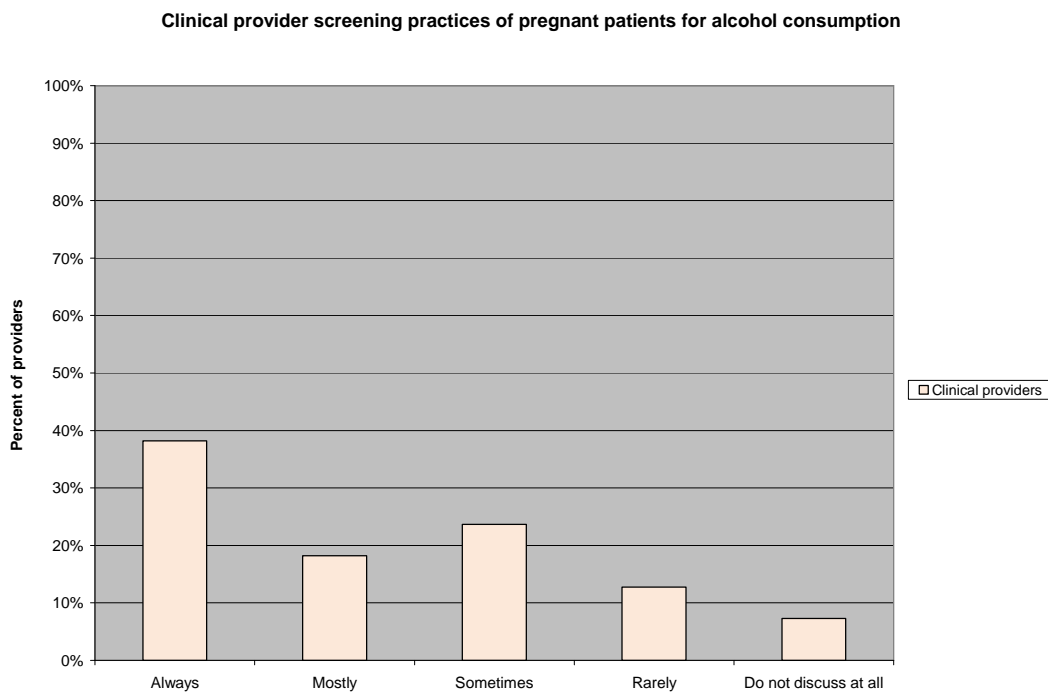
**FIG. 2**



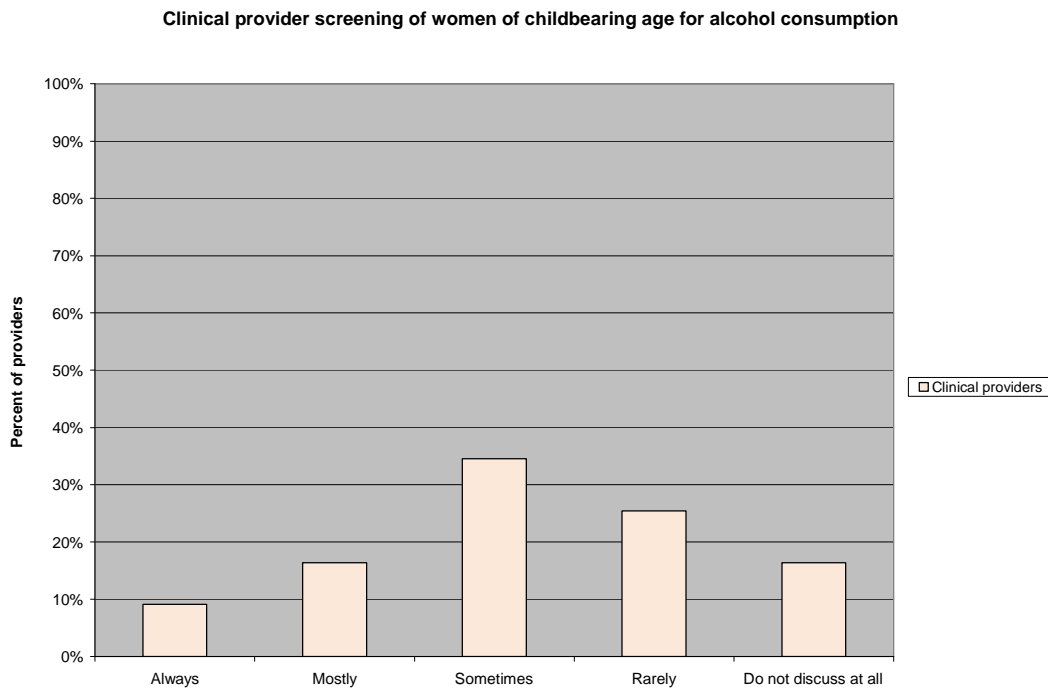
**FIG. 3**



**FIG. 4**



**FIG. 5**



## DISCUSSION

The results of this survey highlighted deficiencies in practitioner knowledge and screening practices and differences in knowledge between pre-clinical medical students and clinical providers. There were also differences noted when comparing fourth year medical students to resident physicians. The results raised more questions in terms of knowledge, which should be explored in a follow-up survey.

A number of concerns are raised by these survey results. The first is the variability of screening practices among clinical providers. While fourth year medical students were more likely to screen women than resident physicians, there were still a significant number of providers who rarely or never target these patients. This clearly does not fit with the recommendations of national organizations. Screening patients of childbearing age is important because many of the adverse neurological and developmental effects of alcohol occur during embryogenesis in the first trimester, a time when a woman may not yet know that she is pregnant. There are several tools clinicians can use to screen patients for alcohol use. The most widely studied tools include the CAGE, Alcohol Use Disorders Identification Test (AUDIT), and T-ACE.<sup>7</sup> The tools are brief and can easily be incorporated in to nursing triage assessments or clinicians social history or review of systems.

Nearly all respondents could correctly identify the facial features necessary for the diagnosis of fetal alcohol syndrome. Respondents also correctly responded that not all people with FASD have intellectual disabilities.

Although respondents could correctly identify key features of this disease spectrum, there was wide variability in the response to questions regarding safe amounts of alcohol during pregnancy. The US Surgeon General has repeatedly emphasized the dangers of any alcohol consumption during pregnancy and given the lack of data on low-levels of alcohol consumption during pregnancy, recommends complete abstinence. Recent guidelines from the Society of Obstetricians and Gynaecologists of Canada concur with the US Surgeon General warnings and state there is insufficient evidence regarding

fetal safety of low alcohol consumption during pregnancy.<sup>8,9</sup>

This survey was only distributed to students and residents at a single university medical center and the sample responses may not be indicative of other academic centers and thus not generalizable. Regardless, the surveys uncovered a significant number of deficiencies from individuals across the spectrum of medical education. Because of the significant impact of this public health issue, physicians and students should be empowered to screen patients for alcohol consumption and then be able to counsel at risk individuals with the goal of ultimately reducing the rate of FAS and FASD.

There are a number of unique solutions that could be implemented to improve the overall knowledge and screening practices. One potential solution is to develop a standardized, brief, packaged FAS curriculum for students and residents. This curriculum could include the latest guidelines, recommendations, and research. Additionally, residency programs could emphasize the importance of screening in everyday clinical practice, particularly with the importance being placed on preventive medicine in the wake of US healthcare reform. This study represents a small stepping-stone to understanding how our medical community perceives the importance of screening for alcohol use in women, knowledge of FAS and FASD, and elucidates areas for improvement.

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