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Evaluating CMSRU student clinic diabetic patients' hemoglobin A1c values, adherence to laboratory services, and potential barriers to care (Poster)

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Introduction

Medical schools often have student-run clinics that give medical students the opportunity to have increased clinical exposure. Often, the clinics provide free or a reduced cost of care for patients and target underserved populations. Current research regarding medical student-run clinics is few and far between. The research that does exist usually targets investigating the effect of the clinics on medical student education, while fewer studies exist that target investigating the actual care that patients receive.

Type II diabetes is a common chronic medical condition that can be difficult for patients to manage and that the CMSRU clinic encounters almost daily in the patient population. According to the Association for Healthcare Research and Quality, hemoglobin A1c screening in patients diagnosed with diabetes is a way to evaluate an interventions' effects. Adequate control of hemoglobin A1c values is associated with improved outcomes in cardiovascular events, microvascular complications, and mortality. Barriers do exist that prevent patients from accessing screenings, however, including barriers in the financial, structural, and cognitive categories. Therefore, this study aimed to investigate potential social barriers to health that may hinder patients from diabetes screening, as well as to determine if the CMSRU medical students are adequately screening and managing an aspect of the patients' diabetes care.

Study objectives

The goals of this retrospective study were to evaluate:

- Medical students' referrals to laboratory services for hemoglobin A1c values
- Patients' adherence to these referrals
- Changes in hemoglobin A1c values
- Social barriers patients may have.

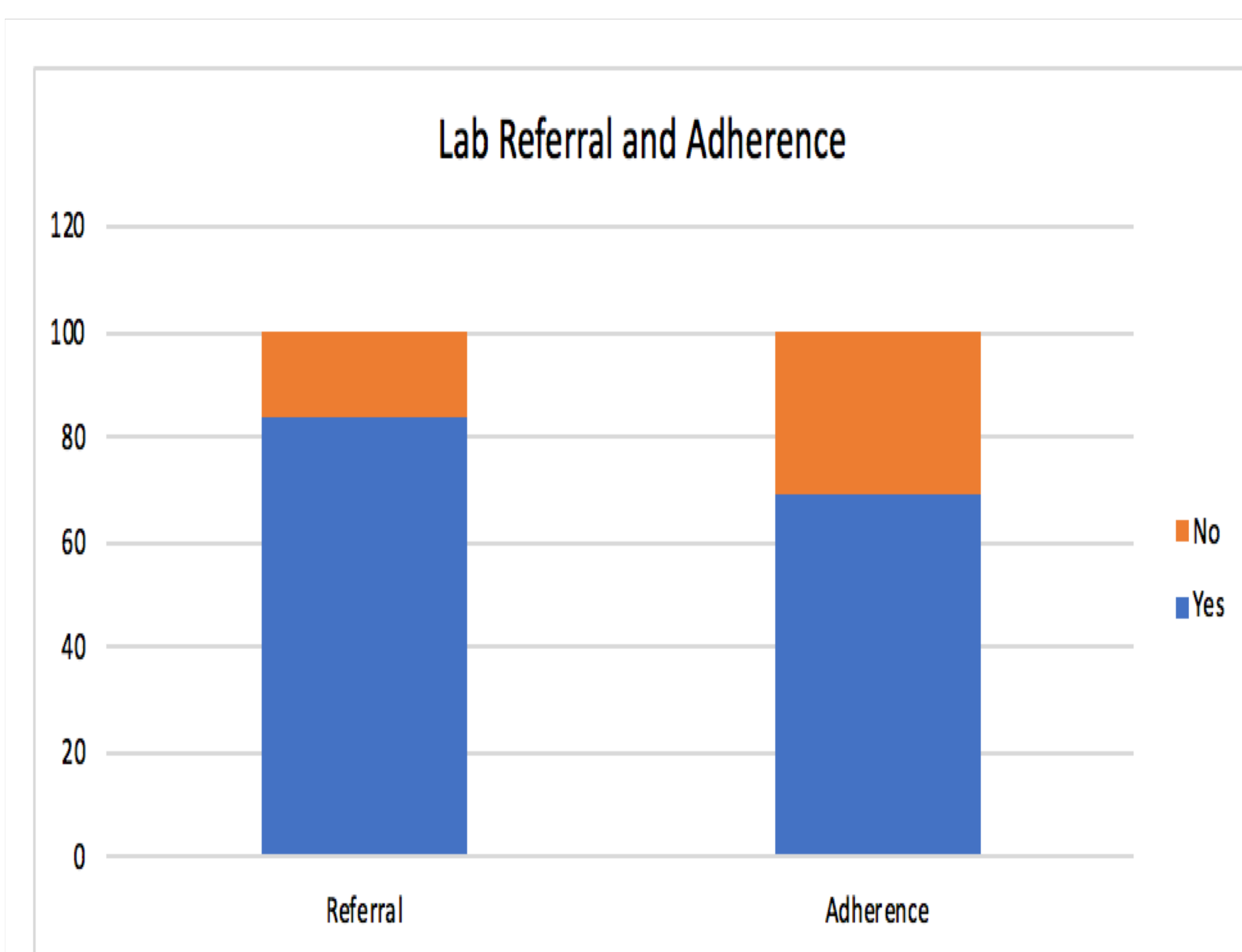


Figure 1: Percentage of patients referred to laboratory services (84%) and percentage of patients who adhered to going to laboratory services (69%).

Methods

An Institutional Review Board (IRB) proposal was submitted and approved in November 2018. The study design was a retrospective chart review that extended from August 1, 2015 to September 30, 2016, of 100 subjects with type II diabetes at the CMSRU student clinic. Patients were determined to have type II diabetes via the diagnosis section in the EMR system. The exclusion criteria were patients who are not CMSRU student clinic patients and who do not have type II diabetes. To analyze the results, percentages were calculated for each outcome. Out of 100 patients, percentages of lab referrals and patients' adherence to lab referrals were calculated. In addition, average hemoglobin A1c values were calculated, both from before and after lab referrals. Two consecutive hemoglobin A1c values were compared using a paired t-test, using Excel data analysis software, and with a significant p-value being <0.05. Social history analysis entailed the qualitative aspect of the study, which attempted to identify trends in patients' socioeconomic barriers. Risks were reduced for this chart review by keeping the data de-identified on a password-protected computer in the student-run clinic.

Results

- Lab referrals for hemoglobin A1c
 - For patients diagnosed with diabetes, 84% were referred to the lab for hemoglobin A1C levels (Figure 1).
- Adherence to lab referrals
 - 69% of patients diagnosed with diabetes adhered to the referral for laboratory services and were able to check their hemoglobin A1c level (Figure 1).
- Hemoglobin A1c values
 - Patients' initial hemoglobin A1C was an average of 7.9, well above the value required for a diagnosis of type II diabetes. The average hemoglobin A1C after referral to the lab was 7.13. Using paired t-test analysis to determine if there was a significant change between the average hemoglobin A1C values revealed that there was no significant difference between the two, with a p-value of 0.14.
- Out of the 100 patients in the group, 63% had no social history documented in the electronic medical record. From those that had documented social history, 16% were deemed lost to follow-up, 4% had documented economic issues, and 1% had documented transportation issues (Figure 2).

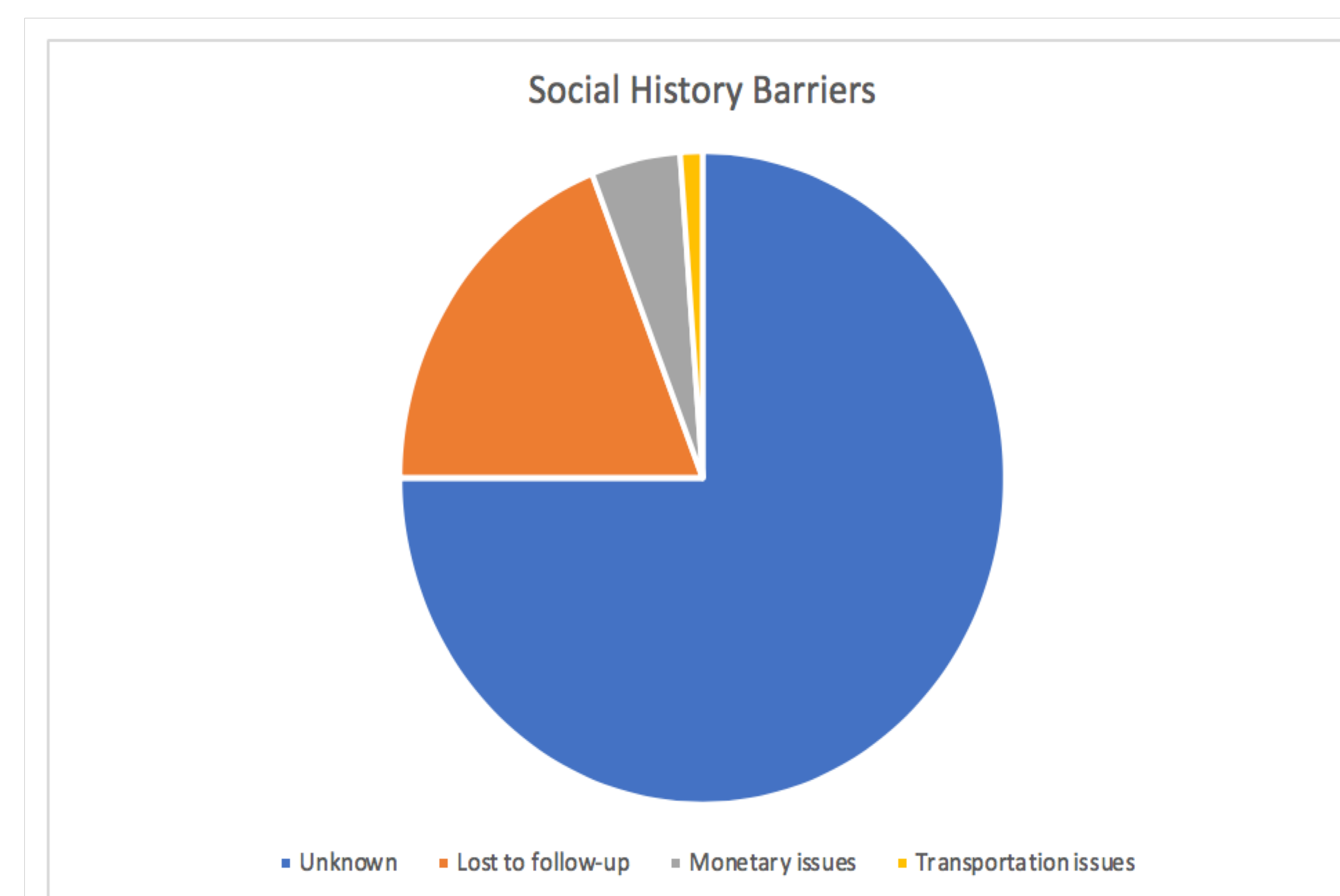


Figure 2: Most common social history barriers documented in patients' EMR chart.

Conclusion

The results of this retrospective chart review suggest that the majority of patients (84%) with type II diabetes at the CMSRU clinic who need to have their hemoglobin A1c values checked are sufficiently referred to the laboratory services. In addition, the majority of those patients (69%) are able to successfully get their hemoglobin A1c values checked at the lab. There was no significant improvement in consecutive hemoglobin A1c values and the second-look values were still above 7.0. Qualitatively, most of patients had no social history documented in the EMR. Of those that did, 16% were lost to follow-up and never returned to clinic. Those with economic issues often had notes that stated patients could not afford medication. Another common social issue was a lack of transportation.

Generally, medical students at the clinic are adequately recommending that patients with type II diabetes need to have laboratory follow-up and check their hemoglobin A1c levels. This leads to patients, more often than not, successfully going to the lab and checking these levels. However, the hemoglobin A1c values are still not adequately controlled, on average. Though it is difficult to determine why this may be the case, the social history could sometimes suggest some reasons.

Limitations:

- Patient population size
- Adequacy of EMR data
- Other core measures for diabetes exist
- Time period of study
- Lack of data on social history

It can be concluded that the clinical evaluation of patients with type II diabetes is sufficient and follows guidelines, however there need to be changes to other details of managing diabetes. This includes further evaluation and EMR documentation of socioeconomic barriers as well as patients' knowledge about their chronic medical condition.

Acknowledgments

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