



Barriers to Follow Up Care in the South Asian Immigrant Population at High Risk of Acute Coronary Syndrome at Elmhurst Hospital Center

Sahityasri Thapi¹ · Saloni Agrawal¹ · Ashesh Trivedi¹ · Joseph R. Masci^{1,2}

Accepted: 5 March 2022

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2022

Abstract

We studied South Asian immigrant patients who did not return to Elmhurst Hospital Center (EHC) after emergent cardiac catheterization in order to propose interventions to improve follow up care. We identified 74 eligible patients, interviewed 30 about follow up practices, and analyzed findings. Most patients are Bangladeshi and 77% preferred a foreign language. Some were visiting the US during the admission without intent to follow up. Half were dissatisfied with EHC providers, complications, and inadequate care at follow up appointments. Some patients were unaware of scheduled appointments or the necessity of follow up. Most follow with private providers due to language accessibility, availability, and proximity. We found that language barriers contribute to loss to follow up and the true loss to follow up rate is lower than reported at EHC. This can inform practices at hospitals with immigrant populations, minimize resource waste, and improve quality of care.

Keywords Immigrant health · Cardiology · ACS · Follow up care · Access

Introduction

South Asians are at increased risk of premature atherosclerotic cardiovascular disease (ASCVD) and are amongst the most rapidly growing immigrant populations in the USA [1–4]. The average age of first acute myocardial infarction in South Asians, is 5–10 years younger than that of other ethnicities in the USA with genetic and lifestyle characteristics as contributing factors [5–8]. While studies show that lifestyle choices can increase the risk of ASCVD [9–12], immigrant patients are less aware of cardiovascular risk factors [13–17], and current public health efforts neglect social factors that impact racial minorities [18]. Adequate access to healthcare and knowledge is crucial for improving health outcomes in high risk patients who need long-term medical

care for chronic disease [19–21]. As patients often gain health literacy through their engagement with regular medical care, immigrant patients who are lost to follow up are at a further disadvantage. We aimed to study this population.

Our study was conducted at Elmhurst Hospital Center (EHC), a government hospital in the New York City Health and Hospitals Corporation, a safety net institution in which about 70% of hospitalized patients are either covered by Medicaid or uninsured. EHC is located in Queens, NY, a neighborhood that houses many immigrant populations, with 36% identifying as Asians and 50% with limited English proficiency. As South Asians comprise a large portion of patients, EHC is the optimal study site and our findings can inform practices at other hospitals with similar patient populations.

A cohort of South Asian immigrant patients who present with acute coronary syndrome (ACS) to the Emergency Department at EHC fail to return for follow up care. In this study, we aimed study this group and to analyze the factors that preclude them from returning to EHC for follow-up care. Our goal was to identify and propose actionable interventions to improve both follow up care for this population and hospital operations.

The findings of this study were accepted for presentation at the Unite for Site Global Health Conference 2020 at Yale University and were presented by Sahityasri Thapi virtually due to COVID-19.

✉ Sahityasri Thapi
sahityasri.thapi@icahn.mssm.edu

¹ Icahn School of Medicine at Mount Sinai, 1 Gustave L. Levy Place, New York, NY 10029, USA

² Department of Global Health, Elmhurst Hospital Center, Elmhurst, NY, USA

Methods

The Institutional Review Boards of the Icahn School of Medicine at Mount Sinai and EHC approved this study. Eligible patients were identified from the EHC electronic medical records. We included South Asian patients who had immigrated from India, Bangladesh, Pakistan, and Nepal, and were 40–90 years of age at the time of admission. Patients who presented between January 2017 and September 2019 to the EHC Emergency Department with ACS, underwent cardiac catheterization, and were lost to follow up were included. Patients were “lost to follow up” if they (1) missed an initial 2-week follow up and have not been seen at EHC Cardiology since (2) attended an initial 2-week follow up and have not followed at EHC Cardiology since and (3) followed initially and have not been to EHC Cardiology for care for at least 6 months.

Eligible patients were contacted via telephone. Those who did not respond to five calls or were no longer living in New York state were excluded. Interested patients were mailed consent forms and were consented with waiver of signed consent as per IRB guidelines. Consented patients were interviewed over the phone.

A semi-structured interview questionnaire regarding medical history, lifestyle, and follow up practices was designed and used by the research team to standardize the interviews. The research team consisted of medical students who were native Hindi, Nepali, Telugu, and Gujarati speakers. The patient’s preferred language, including Hindi, Urdu, Bengali, Malayalam, and English, was used with assistance from Pacific Interpreters. Patients who requested to return to Elmhurst Hospital were re-connected with the Department of Cardiology. Interviews were transcribed and de-identified on encrypted devices prior to analysis.

Baseline characteristics were analyzed using SAS Studio with two tailed *t* test, χ^2 analysis, and Fischer’s exact test to compare the interviewed group to the non-interviewed group. Themes were identified from interview transcripts and were checked by all members of the research team to ensure credibility.

Results

A total of 89 patients who were treated with emergent cardiac catheterization from January 2017 to September 2019 and lost to follow up as defined above were identified. All 74 eligible patients after exclusions, were contacted. Eleven numbers were out of service, three were wrong numbers, and two patients had no phone number

on record. Nine patients had returned to their country of origin and four had moved to a different country or state. Thirty four eligible patients were consented, thirty were interviewed, one declined, and three did not respond after consenting. (Fig. 1).

The baseline characteristics of the patients are shown in Table 1. The mean age of all eligible patients was 60.1 ± 9.4 years and 59.6 ± 8.7 years for those interviewed. Of those interviewed, 87% of patients were male and 13% were female. The majority originated from Bangladesh (60%), followed by India (23%) and Pakistan (17%). Most patients had a preferred language other than English (77%), mostly Bengali (43%). There was no statistically significant difference between the interviewed cohort and the eligible cohort when comparing mean age, sex, country of origin, and preferred language ($p = 0.787$, $p = 0.431$, $p = 0.671$, $p = 0.130$).

The majority of patients had health insurance with 50% covered by Medicaid, and 7% uninsured. Nearly half were US Citizens (47%), 27% were permanent residents, 10% were undocumented, and 10% declined to answer. Half of those interviewed were unemployed and about half of those who were employed are drivers (23%).

33% of interviewed patients never attended an initial 2-week follow up visit at EHC. 33% did not return to EHC

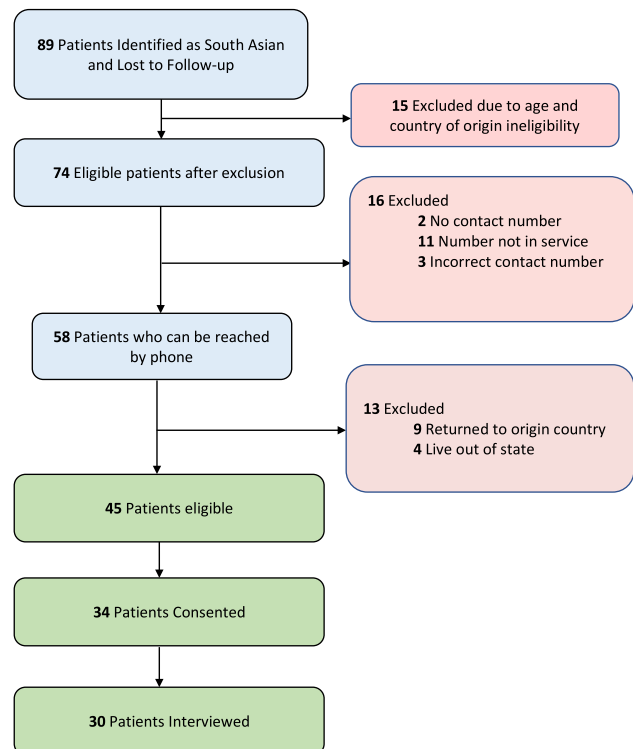


Fig. 1 Enrollment flowchart: flowchart demonstrating all eligible patients in blue, exclusions at each stage in red, and patients who were called or consented in green (Color figure online)

Table 1 Baseline demographics of patients treated for emergent ACS and lost to follow up at EHC from January 2017 to September 2019

	Interviewed (<i>n</i> = 30)	<i>p</i> -Value
Age, mean (SD), years	59.6 (8.7)	0.787
Sex (No. %)		
M	26 (87)	0.185
F	4 (13)	
Country of origin (No. %)		
Bangladesh	18 (60)	0.382
Pakistan	5 (17)	
India	7 (23)	
Nepal	0 (0)	
Preferred language (No. %)		
Bengali	13 (43)	0.002
English	7 (23)	
Hindi	4 (13)	
Urdu	2 (7)	
Punjabi	3 (10)	
Malayalam	1 (3)	
Gujarati	0 (0)	
Unknown	0 (0)	
Insurance (No. %)		
Medicaid	15 (50)	
Medicare	6 (20)	
Private	3 (10)	
Uninsured	2 (7)	
Insured but unknown	4 (13)	
Legal status (No. %)		
Citizen	14 (47)	
Permanent resident	8 (27)	
Asylum	1 (3)	
Temporary resident	1 (3)	
Undocumented	3 (10)	
Declined to answer	3 (10)	
Employment status (No. %)		
Unemployed	15 (50)	
Driver	7 (23)	
Salesperson	2 (7)	
Waiter	2 (7)	
Learning specialist	1 (3)	
Cop	1 (3)	
Journalist	1 (3)	
Grocery store	1 (3)	

Bold value indicates the significant *p* value for difference in language between interviewed pts

after attending the initial 2-week appointment, and 33% were lost after having followed multiple times. 90% of patients were following with an outside primary care physician (PCP) and 37% were following with private cardiologists.

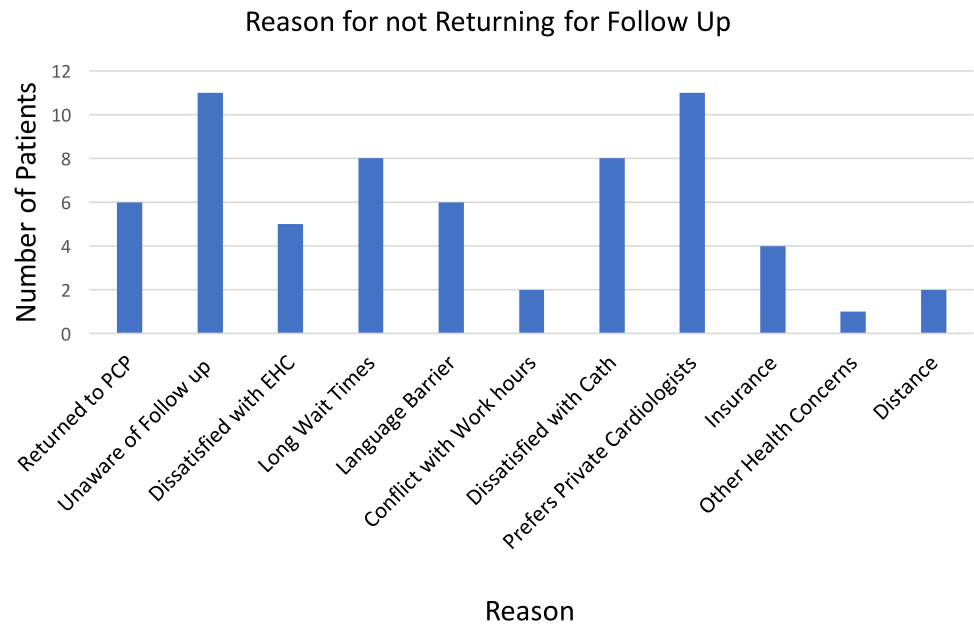
We identified many themes in the reasons for not returning to EHC amongst our patients (Fig. 2). While we identified 74 eligible patients, we were not able to interview all of them. Reasons for attrition from the study amongst eligible patients highlight that inaccuracies in medical records worsen the loss to follow up rate at EHC. For example, we found that 12% of eligible patients had returned to their country of origin following cardiac catheterization and were only temporary visitors in the US. These patients had local addresses and phone numbers of US resident family in their records but chart review revealed that most presented within a week of arriving in the US. A fifth (22%) of eligible patients were inaccessible due to out of service numbers, wrong numbers, and missing contact numbers in patient charts.

A fifth of interviewed patients returned to their outside PCP for follow up care. All of these patients noted feeling more comfortable with their PCP compared to new doctors at EHC due to lack of language barriers, ease of scheduling and re-scheduling appointments with flexible hours and proximity to their homes.

As per hospital policy, all cardiac catheterization patients are given a 2 week-follow up appointment at the time of discharge. However, 37% of patients reported that they were unaware of scheduled appointments. Nine patients reported that they were not informed of an appointment with one patient “waiting for a letter for the appointment”. Another patient suggested, “maybe they did tell me, but we are newcomers here and maybe we did not understand; they gave us papers in English and did not translate”. Two patients reported that they did not seek follow-up care as they were unsure why it was necessary. Notably, nine patients requested to be reconnected with EHC Cardiology Clinic, but we lack data to comment on if these patients attended their appointments. At the time of interview, these nine patients expressed desire to follow up, and a lack of awareness of the initial appointments was a major barrier to their care.

Half of the patients did not return to EHC as they were dissatisfied with the care provided. Six patients felt “disrespected” during procedures and two patients reported distrust of providers due to post-procedure complications and extended hospital stays. Five patients were displeased during follow up visits. One of these patients felt that the care was inadequate and speculated, “Maybe the doctors don’t have enough time. I don’t know, they just did not check me properly.” Two patients prefer seeing physicians rather than nurse practitioners. Lengthy wait times for brief visits disappointed eight patients. One patient reported that “the wait time is too long, so my PCP recommended [a private cardiologist]”. Finally, 37% of interviewed patients prefer following with private cardiologists for the abovementioned reasons.

Fig. 2 Reasons for not returning for follow up: bar graph of common reasons that patients had for not returning to Elmhurst Hospital Center for their follow up care



Language barriers were a major reason for not returning to EHC for a fifth of interviewed patients. While all patients recalled being offered translation services during their hospital admission, three patients reported not having similar services during follow up appointments. One patient had difficulty setting up appointments without translation over the phone and said “I used the little English that I know but I could not get the appointment”. Additionally, one patient would have preferred discharge papers in Bengali to facilitate his understanding. Five patients prefer going to private doctors who speak their language.

Lack of insurance was the primary barrier for 4 patients (13%). Two patients reported that clinic hours conflict with work hours. Notably, 50% of interviewed patients were unemployed but unable to attend appointments because they rely on working family members for transport and translation. Distance from home was a barrier for two patients. Finally, one patient had other “more pressing” medical conditions that were prioritized over cardiac follow up visits.

Discussion

In this study, we identified factors that preclude South Asian immigrants from following at EHC after emergent cardiac catheterization; a question that has not been previously investigated. Our findings contribute to existing literature by highlighting inefficiencies in existing health systems and providing insight for interventions to improve outcomes for not only South Asians at EHC but also other immigrant groups and health systems.

Our findings reveal that the true loss to follow up rate at EHC is much lower than currently reported. Over a third

(34%) of eligible patients could not be interviewed as over a fifth of our patients had incorrect contact information, and another 13% do not live in the country or state. Studies have shown that migrant patients often provide incorrect contact information [22, 23]. The loss to follow up rate at EHC is much lower than perceived, given that over a third of the patients who did not return are either unreachable or are no longer live in New York. Although these patients never returned to EHC, they may be following with private providers similar to most of those interviewed.

Our findings imply that reforming scheduling practices may improve the clinic “no show” rate at EHC. Some of the visiting patients reportedly had return tickets to their home country at the time of presentation. These patients were still scheduled for follow up appointments and further worsened the “no show” rate. Scheduling follow up appointments for visiting patients not only overestimates the loss to follow up rate but also backs up booking for others, prompting them to seek care elsewhere. We note that visiting patients may be hesitant to disclose their travel plans due to concerns about access to care, but when a visiting status is noted during a hospitalization, scheduling discharge follow up appointments is unnecessary. Eliminating such scheduling may help EHC and other similar hospital systems in improving both “no show” rates and appointment availability.

Prior to our study, the alarmingly high loss to follow up rate at EHC amongst this South Asian immigrant population implied that most of these patients were not receiving crucial medical care. However, we have reassuringly identified that although our patients were did not return to EHC, they are not lost to follow up. We found that 90% of interviewed patients were following with PCPs and 37% were following

with private cardiologists. Patients are more comfortable at their private clinics due to shorter wait times [24], flexible hours, and proximity to home.

Our findings emphasize the importance of addressing language barriers in improving care for immigrant patients. Previous studies have shown that language barriers [25, 26] and not having premade appointments [27] may contribute to loss to follow up. A large portion of patients were unaware of follow up appointments. Although language concordant care is mandated by federal law, the discharge process is often rushed and may not adequately involve interpreters. Trained interpreter use is correlated with improved patient understanding of disease severity [28, 29] and a lack of such knowledge is associated with follow up non-compliance [30–32]. Therefore, use of trained interpreters in the discharge process may improve immigrant follow up rates. Additionally, most discharge documents are written in English regardless of the patient's preferred language. Printed discharge instructions are known to improve follow up rates [33] and satisfaction [34] amongst English speaking patients. We propose that translation of printed discharge forms [35] may have similar positive effects amongst immigrant patients. Use of translation services would both improve the quality of care for immigrant patients and optimize hospital scheduling practices.

Interventions addressing language barriers may also address dissatisfaction in care at EHC. It has been shown that provider–patient communication is crucial to treatment adherence [36–38] and that patient dissatisfaction is associated with non-compliance [27, 39]. Two patients reported distrust due to post-procedure complications and extended hospital stays and five reported disappointment in the short length of follow up visits. Interpreter use during communication about the common complications as well as expectations [40] for follow up visits may help clarify these concerns and mitigate misunderstandings in the patient–provider relationship [41, 42]. The efficacy of interpreter use and discharge translation has been shown in Hispanic populations [35, 43, 44], implying its likely efficacy in the South Asian population.

We now discuss some limitations of our study. In the recruitment of patients, we relied on EMR demographic data to identify patients of South Asian origin. We note that EMR inaccuracies may have led to exclusion of unmarked South Asian patients. While Hindi interviews were conducted with native speakers, Bengali, Urdu, and Malayalam interviews were conducted with assistance from Pacific Interpreters for translation, potentially adding a bias. The majority (87%) of our patients were male, likely skewing the data. However, South Asian males have higher incidence of heart disease compared to females potentially leading to a higher rate of presentation to the Emergency Department [45]. Our findings are most generalizable to health systems that are safety

net institutions similar to EHC rather than private institutions. Finally, we note that although 9 patients were reconnected with the EHC Cardiology Clinic, we lack data on if these patients actually returned for care. As a result, we are unable comment on these patient's desire to follow at EHC.

Conclusions

The findings of this study propose actionable interventions to improve not only care for the South Asian immigrant population but also operations for hospital systems. Our findings identify areas to improve follow up rates at EHC and minimize wasted resources. We also found that while many patients do not return to EHC, 90% are following privately. Language barriers are a major contributor to patient attrition. Translation of discharge paperwork and after visit summaries may clarify communication. Such interventions may optimize hospital operations and improve the quality of care provided to high risk immigrant populations.

Funding ST and SA were supported by the Icahn School of Medicine Summer Global Health Fellowship. The funder had no role in study design, collection, analysis, interpretation, writing of the manuscript, or decision to submit for publication. Funding was provided by Arnhold Institute for Global Health (US) (Grant No. SCHOLAR).

Declarations

Conflict of interest There were no conflicts of interest.

Informed Consent Informed consent was obtained from all human research participants. The authors affirm that the human research participants have provided informed consent for publication of this data.

References

1. Volgman AS, Palaniappan LS, Aggarwal NT, et al. Atherosclerotic cardiovascular disease in South Asians in the United States: epidemiology, risk factors, and treatments: a scientific statement from the American Heart Association. *Circulation*. 2018;138(1):e1–34. <https://doi.org/10.1161/CIR.0000000000000580>.
2. Bilen O, Kamal A, Virani SS. Lipoprotein abnormalities in South Asians and its association with cardiovascular disease: current state and future directions. *World J Cardiol*. 2016;8(3):247–57. <https://doi.org/10.4330/wjc.v8.i3.247>.
3. Talegawkar SA, Jin Y, Kandula NR, Kanaya AM. Cardiovascular health metrics among South Asian adults in the United States: prevalence and associations with subclinical atherosclerosis. *Prev Med*. 2017;96:79–84. <https://doi.org/10.1016/j.ypmed.2016.12.017>.
4. Hajra A, Li Y, Siu S, et al. Risk of coronary disease in the South Asian American Population. *J Am Coll Cardiol*. 2013;62(7):644–5. <https://doi.org/10.1016/j.jacc.2013.05.048>.
5. Joshi P, Islam S, Pais P, et al. Risk factors for early myocardial infarction in South Asians compared with individuals in other

- countries. *JAMA*. 2007;297(3):286–94. <https://doi.org/10.1001/jama.297.3.286>.
6. Benjamin EJ, Muntner P, Alonso A, et al. Heart disease and stroke statistics-2019 update: a report from the American Heart Association. *Circulation*. 2019;139(10):e56–528. <https://doi.org/10.1161/CIR.0000000000000659>.
 7. Yusuf S, Hawken S, Ounpuu S, et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. *Lancet*. 2004;364(9438):937–52. [https://doi.org/10.1016/S0140-6736\(04\)17018-9](https://doi.org/10.1016/S0140-6736(04)17018-9).
 8. Kanaya AM, Vittinghoff E, Lin F, et al. Incidence and progression of coronary artery calcium in South Asians compared with 4 race/ethnic groups. *J Am Heart Assoc*. 2019;8(2):e011053. <https://doi.org/10.1161/JAHA.118.011053>.
 9. Kanaya AM, Kandula NR, Ewing SK, et al. Comparing coronary artery calcium among US South Asians with four racial/ethnic groups: the MASALA and MESA studies. *Atherosclerosis*. 2014;234(1):102–7. <https://doi.org/10.1016/j.atherosclerosis.2014.02.017>.
 10. Rosenberg K. Healthy lifestyle most important for prevention of ASCVD. *Am J Nurs*. 2019;119(6):68. <https://doi.org/10.1097/01.NAJ.0000559810.44553.e9>.
 11. Tada H, Kawashiri MA, Yasuda K, Yamagishi M. Associations between questionnaires on lifestyle and atherosclerotic cardiovascular disease in a Japanese general population: a cross-sectional study. *PLoS ONE*. 2018;13(11): e0208135. <https://doi.org/10.1371/journal.pone.0208135>.
 12. Levenson AE, Ferranti SD, et al. Familial hypercholesterolemia. In: Feingold KR, Anawalt B, Boyce A, et al., editors. *Endotext*. South Dartmouth: Mdtex.com, Inc.; 2000.
 13. Kreuter MW, McClure SM. The role of culture in health communication. *Annu Rev Public Health*. 2004;25:439–55. <https://doi.org/10.1146/annurev.publhealth.25.101802.123000>.
 14. Kandula NR, Patel Y, Dave S, et al. The South Asian Heart Lifestyle Intervention (SAHELI) study to improve cardiovascular risk factors in a community setting: design and methods. *Contemp Clin Trials*. 2013;36(2):479–87. <https://doi.org/10.1016/j.cct.2013.09.007>.
 15. Langellier BA, Garza JR, Glik D, et al. Immigration disparities in cardiovascular disease risk factor awareness. *J Immigr Minor Health*. 2012;14(6):918–25. <https://doi.org/10.1007/s10903-011-9566-2>.
 16. Mensah GA. Eliminating disparities in cardiovascular health: six strategic imperatives and a framework for action. *Circulation*. 2005;111(10):1332–6. <https://doi.org/10.1161/01.CIR.0000158134.24860.91>.
 17. Hill-Briggs F, Smith AS. Evaluation of diabetes and cardiovascular disease print patient education materials for use with low-health literate populations. *Diabetes Care*. 2008;31(4):667–71. <https://doi.org/10.2337/dc07-1365>.
 18. Fatahi N, Krupic F. Factors beyond the language barrier in providing health care to immigrant patients. *Med Arch*. 2016;70(1):61–5. <https://doi.org/10.5455/medarh.2016.70.61-65>.
 19. Khera R, Valero-Elizondo J, Okunrintemi V, et al. Association of Out-of-Pocket Annual Health expenditures with financial hardship in low-income adults with atherosclerotic cardiovascular disease in the United States. *JAMA Cardiol*. 2018;3(8):729–38. <https://doi.org/10.1001/jamacardio.2018.1813>.
 20. Smith SC Jr, Benjamin EJ, Bonow RO, et al. AHA/ACCF secondary prevention and risk reduction therapy for patients with coronary and other atherosclerotic vascular disease: 2011 update: a guideline from the American Heart Association and American College of Cardiology Foundation. *Circulation*. 2011;124(22):2458–73. <https://doi.org/10.1161/CIR.0b013e318235eb4d>.
 21. Salami JA, Valero-Elizondo J, Ogunmoroti O, et al. Association between modifiable risk factors and pharmaceutical expenditures among adults with atherosclerotic cardiovascular disease in the United States: 2012–2013 Medical Expenditures Panel Survey. *J Am Heart Assoc*. 2017. <https://doi.org/10.1161/JAHA.116.004996>.
 22. Dutta E, Kar A. A case-control study identifying the characteristics of patients providing incorrect contact information at registration for DOTS in Pune, India. *Indian J Tuberc*. 2016;63(1):51–4. <https://doi.org/10.1016/j.ijtb.2016.02.006>.
 23. Krebs DW, Chi BH, Mulenga Y, et al. Community-based follow-up for late patients enrolled in a district-wide programme for antiretroviral therapy in Lusaka, Zambia. *AIDS Care*. 2008;20(3):311–7. <https://doi.org/10.1080/09540120701594776>.
 24. Shrestha MP, Hu C, Taleban S. Appointment wait time, primary care provider status, and patient demographics are associated with nonattendance at outpatient gastroenterology clinic. *J Clin Gastroenterol*. 2017;51(5):433–8. <https://doi.org/10.1097/MCG.0000000000000706>.
 25. Sarver J, Baker DW. Effect of language barriers on follow-up appointments after an emergency department visit. *J Gen Intern Med*. 2000;15(4):256–64. <https://doi.org/10.1111/j.1525-1497.2000.06469.x>.
 26. van Rosse F, de Bruijne M, Suurmond J, Essink-Bot ML, Wagner C. Language barriers and patient safety risks in hospital care: a mixed methods study. *Int J Nurs Stud*. 2016;54:45–53. <https://doi.org/10.1016/j.ijnurstu.2015.03.012>.
 27. Thomas EJ, Burstin HR, O'Neil AC, Orav EJ, Brennan TA. Patient noncompliance with medical advice after the emergency department visit. *Ann Emerg Med*. 1996;27(1):49–55. [https://doi.org/10.1016/s0196-0644\(96\)70296-2](https://doi.org/10.1016/s0196-0644(96)70296-2).
 28. Baker DW, Parker RM, Williams MV, Coates WC, Pitkin K. Use and effectiveness of interpreters in an emergency department. *JAMA*. 1996;275(10):783–8.
 29. Kasten MJ, Berman AC, Ebricht AB, Mitchell JD, Quirindongo-Cedeno O. Interpreters in health care: a concise review for clinicians. *Am J Med*. 2020;133(4):424–428 e2. <https://doi.org/10.1016/j.amjmed.2019.12.008>.
 30. Messina FC, McDaniel MA, Trammel AC, Ervin DR, Kozak MA, Weaver CS. Improving specialty care follow-up after an ED visit using a unique referral system. *Am J Emerg Med*. 2013;31(10):1495–500. <https://doi.org/10.1016/j.ajem.2013.08.007>.
 31. Straus JH, Orr ST, Charney E. Referrals from an emergency room to primary care practices at an urban hospital. *Am J Public Health*. 1983;73(1):57–61. <https://doi.org/10.2105/ajph.73.1.57>.
 32. Silverman GK, Silverman HM. Efficacy of the follow-up system in the community hospital emergency department. *Am J Emerg Med*. 1984;2(2):119–22. [https://doi.org/10.1016/S0735-6757\(84\)80002-9](https://doi.org/10.1016/S0735-6757(84)80002-9).
 33. Vukmir RB, Kremen R, Ellis GL, DeHart DA, Plewa MC, Menegazzi J. Compliance with emergency department referral: the effect of computerized discharge instructions. *Ann Emerg Med*. 1993;22(5):819–23. [https://doi.org/10.1016/s0196-0644\(05\)80798-x](https://doi.org/10.1016/s0196-0644(05)80798-x).
 34. Jang M, Plocienniczak MJ, Mehrazarin K, Bala W, Wong K, Levi JR. Evaluating the impact of translated written discharge instructions for patients with limited English language proficiency. *Int J Pediatr Otorhinolaryngol*. 2018;111:75–9. <https://doi.org/10.1016/j.ijporl.2018.05.031>.
 35. Davis SH, Rosenberg J, Nguyen J, et al. Translating discharge instructions for limited English-proficient families: strategies and barriers. *Hosp Pediatr*. 2019;9(10):779–87. <https://doi.org/10.1542/hpeds.2019-0055>.

36. Brinton EA. Understanding patient adherence and concerns with statins and medication discussions with physicians (ACTION): a survey on the patient perspective of dialogue with healthcare providers regarding statin therapy. *Clin Cardiol*. 2018;41(6):710–20. <https://doi.org/10.1002/clc.22975>.
37. Schoenthaler A, Knafl GJ, Fiscella K, Ogedegbe G. Addressing the social needs of hypertensive patients: the role of patient-provider communication as a predictor of medication adherence. *Circ Cardiovasc Qual Outcomes*. 2017. <https://doi.org/10.1161/CIRCOUTCAMES.117.003659>.
38. Martin SS, Sperling LS, Blaha MJ, et al. Clinician-patient risk discussion for atherosclerotic cardiovascular disease prevention: importance to implementation of the 2013 ACC/AHA guidelines. *J Am Coll Cardiol*. 2015;65(13):1361–8. <https://doi.org/10.1016/j.jacc.2015.01.043>.
39. Vermeir P, Vandijck D, Degroote S, et al. Communication in healthcare: a narrative review of the literature and practical recommendations. *Int J Clin Pract*. 2015;69(11):1257–67. <https://doi.org/10.1111/ijcp.12686>.
40. Bowling A, Rowe G, Lambert N, et al. The measurement of patients' expectations for health care: a review and psychometric testing of a measure of patients' expectations. *Health Technol Assess*. 2012;16(30):1–509. <https://doi.org/10.3310/hta16300>.
41. Juckett G, Unger K. Appropriate use of medical interpreters. *Am Fam Physician*. 2014;90(7):476–80.
42. Perron NJ, Secretan F, Vannotti M, Pecoud A, Favrat B. Patient expectations at a multicultural out-patient clinic in Switzerland. *Fam Pract*. 2003;20(4):428–33. <https://doi.org/10.1093/fampra/cmg417>.
43. Dunlap JL, Jaramillo JD, Koppolu R, Wright R, Mendoza F, Bruzoni M. The effects of language concordant care on patient satisfaction and clinical understanding for Hispanic Pediatric surgery patients. *J Pediatr Surg*. 2015;50(9):1586–9. <https://doi.org/10.1016/j.jpedsurg.2014.12.020>.
44. Moreno G, Morales LS. Hablamos Juntos (together we speak): interpreters, provider communication, and satisfaction with care. *J Gen Intern Med*. 2010;25(12):1282–8. <https://doi.org/10.1007/s11606-010-1467-x>.
45. Gupta M, Singh N, Verma S. South Asians and cardiovascular risk: what clinicians should know. *Circulation*. 2006;113(25):e924–9. <https://doi.org/10.1161/CIRCULATIONAHA.105.583815>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.