



Desirable Characteristics of Consulting Cardiologists for Sustained Referrals by Primary Care Physicians

Phillip Ribeiro¹, Swetal Patel¹, Krystal Carlos², Sumit Sehgal¹, Ramdas G Pai³, Paulo A Ribeiro⁴,

1. Department of Internal Medicine, University of Nevada SOM, Las Vegas, NV
2. Department of Emergency Medicine, University of Toledo, Toledo, Ohio
3. Department of Cardiology, Loma Linda University Medical Center, Loma Linda, CA
4. Department of Cardiology, Arkansas Heart Hospital, Little Rock, AR

Address for correspondence:

Paulo A. Ribeiro, MD, PhD, FACC
Department of Cardiology
Arkansas Heart Hospital
Tel: (949) 698-3130
Email: Paulo.Ribeiro@arheart.com

Abstract

Background

Accountable care organization and high quality affordable patient care requires impeccable team work between primary and specialist care physicians. Limited data exists on evaluation of factors that lead to termination of referrals between primary care physicians and cardiologists.

Methods

Using an 11 point questionnaire of potential factors for cause of termination of referrals to cardiologists, 103 primary care providers were interviewed. Each response was graded by the interviewee on a scale of 1 (least important) to 10 (most important). Mean scores were computed for each of the responses and validated using ANOVA and Tukey's multiple comparison method.

Results

Out of 103 primary care providers interviewed in Little Rock, Arkansas and Chicago, Illinois, 84 providers were practicing in the city limits and 19 in the rural areas. The average years in practice for the primary care physicians were 20.9 years. The most important factors for termination of referrals in the order of decreasing importance were cardiologist's bedside manners as perceived by the patient (7.9 ± 2.1), poor feedback to the primary care provider from the cardiologist (7.8 ± 2.3), and patients not getting their questions fully answered by the cardiologist during the visit (7.8 ± 1.9). Less important factors were the staff's inability to promptly respond to calls (7.2 ± 2.0), the ease of getting an appointment (7.0 ± 2.3), patient being displeased with the clinical plan (6.6 ± 2.3), staff friendliness (6.6 ± 2.5), physician promptness (5.6 ± 2.6), tests not being done the same day/results not being given promptly (5.6 ± 2.4), cardiologist keeping the patient even if there was only a minor cardiac problem (5.4 ± 3.0), and cardiologist being too aggressive with the tests (4.9 ± 2.6).

Conclusions

The most important factors that result in termination of referrals between primary care physicians and cardiologists include cardiologist's bedside manners as perceived by the patient, poor feedback to the primary care provider from the cardiologist, and the patients not getting their questions fully answered by the cardiologist during the visit.

Keywords: termination, referrals, consultants, bedside manner, patient encounter, physician feedback

Citation: Phillip Ribeiro, Swetal Patel, Sumit Sehgal et al. Desirable Characteristics of Consulting Cardiologists for Sustained Referrals by Primary Care Physicians. International Cardiovascular Forum Journal. 2016;6:36-40. <http://dx.doi.org/10.17987/icfj.v6i0.187>

Introduction

Approximately 81 million adult Americans (1 in 3) suffer from cardiovascular disease with about 600,000 deaths each year leading to an accumulated cost burden of 108 billion dollars per year.^{1,2} Cardiovascular disease is an umbrella term comprising

cardiac and vascular pathologies. Cardiac pathologies include coronary artery disease, acute myocardial infarction, angina pectoris, heart failure, atrial fibrillation, and valvular heart disease. Vascular pathologies include hypertension, stroke, and peripheral arterial disease.

Due to the sheer amount of patients with cardiovascular disease in the primary care practice, there is a constant need for input from the cardiologists on key issues including but not limited to cardiac pre-operative evaluation for surgeries, arrhythmias, and evaluation for coronary artery disease.

In the recent years, primary care physicians have started expanding their list of cardiologists to refer the patients. The likelihood that a physician refers a patient to another physician (most often a specialist) has nearly doubled.³ Numerous factors play a role in the dynamic nature of the relationship between the primary care provider and the consulting cardiologists, including patient, physician, and community factors.⁴ Limited data exists on evaluation of factors that lead to termination of referrals between primary care physicians and the cardiologists.

Methods

Study Environment

This study was conducted in the ambulatory primary care practice environment in Little Rock, Arkansas and Chicago, Illinois. The study participants were actively licensed primary care providers and were voluntarily enrolled.

Study Design

An 11 point questionnaire was compiled by Paulo A Ribeiro, MD, PhD, a cardiologist with over 24 years of practice. Each of the eleven potential factors for cause of termination of referrals to cardiologists were graded on a scale of 1 (least important) to 10 (most important).

Using a 113 mile radius around Little Lock and 20 mile radius around Chicago, a list of 220 medical service providers was generated using Google Maps, Yellow Pages, and White Pages search engine.

A group of dedicated data collectors drove to all 220 locations and handed the questionnaire to the medical service providers in a face-to-face encounter. Each physician was informed that no monetary or financial compensation will be provided for the completion of the questionnaire. 103 medical service providers completed the questionnaire (81 in family practice, 16 Internists and 6 Nurse practitioners), yielding a 46% response rate. Out of

the 103 questionnaires, 96 were completed in Arkansas and 9 in Illinois. The physicians who refused to partake in the survey were excluded from the study. The most common reason for refusal was the physicians' busy schedule and lack of time to complete the questionnaire.

Data Collection

103 primary care physicians who voluntarily agreed to complete the 11 point questionnaire were given the option to either submit the questionnaire in person or mail it to a provided address. If a physician chose the option to mail the questionnaire, a stamped envelope was provided.

The listed 11 potential factors for cause of termination of referrals were:

- Q1: Patient is not happy with the cardiologist's bedside manners.
- Q2: Patient is not happy with the cardiologist's clinical plan (tests/medications).
- Q3: Cardiologist does not answer the patient's questions during the visit/rushes the appointment.
- Q4: Patient has to wait too long to see the cardiologist in the clinic.
- Q5: Cardiologist's staff does not respond to phone calls promptly (to patient or primary care provider).
- Q6: Cardiologist's staff friendliness towards the patient.
- Q7: Tests are not done same day/results not given promptly.
- Q8: Ease of getting an appointment to see the cardiologist.
- Q9: Poor feedback with reports to the primary care doctor.
- Q10: Cardiologist is too aggressive with tests.
- Q11: Cardiologist creates follow up appointments with no changes in plan, even if only a minor cardiac problem (mitral prolapse, minor CAD).

A blank field was provided at the bottom of the questionnaire for physicians to document any potential factors that were not listed in the aforementioned 11 options.

The responses were tabulated in a Microsoft Excel document sheet.

Study Outcomes

The primary outcome measure in this study was to determine the most important factor for cause of termination of cardiology referrals to a specific cardiologist.

Table 1. Scores for each question

Variable	N	N-Missing	Mean	StDev	Min	1st Quartile	Median	3rd Quartile	Max
Q1	103	0	7.93	2.11	1	7	8	10	10
Q2	103	1	6.58	2.32	1	5	7	8	10
Q3	103	0	7.78	1.90	1	7	8	9	10
Q4	103	0	5.62	2.55	1	4	5	8	10
Q5	103	0	7.20	2.02	1	6	8	9	10
Q6	103	5	6.55	2.48	1	5	7	8	10
Q7	103	0	5.60	2.40	1	4	6	7	10
Q8	103	0	6.97	2.32	1	5	7	9	10
Q9	103	0	7.82	2.32	1	7	8	10	10
Q10	103	0	4.86	2.59	1	3	5	7	10
Q11	103	1	5.42	2.99	1	3	5	8	10

Table 2. One-way ANOVA to test the null hypothesis that “mean scores to all 11 questions are equal.”

Source	DF	SS	MS	F	p-value
Factor	10	1182.26	118.23	20.87	0
Error	1115	6316.51	5.67		
Total	1125	7498.78			

Statistical Analysis

The 11 potential factors for cause of termination of referrals were graded on a scale of 1 (least important) to 10 (most important). Mean scores and standard deviations were computed for the 11 questions. Software used for statistical analysis was CPSS. The p-value threshold for significance was $p < 0.05$. Out of 103 questionnaires, 1 physician did not document a response to Q2, 5 physicians to Q6, and 1 physician to Q11. Mean scores and standard deviations were computed for the 11 questions. Using the data, a box plot was generated. (see figure 1)

One-way ANOVA was used to test the null hypothesis that “mean scores to all 11 questions are equal.” Since the p-value of the F-test was less than 0.05, the mean scores for all eleven questions were not equal. The individual 95% confidence intervals for all 11 mean scores were plotted using the calculated pooled standard deviation of 2.38.

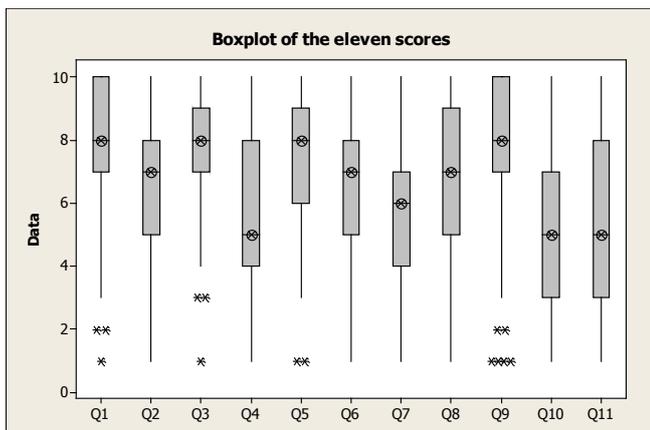


Figure 1.

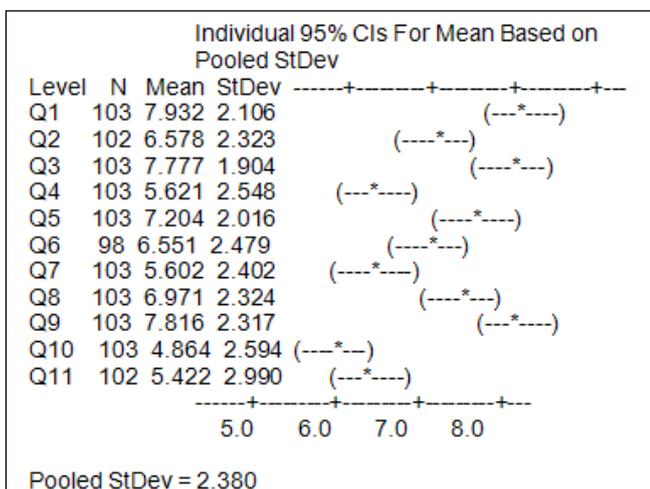


Figure 2. Legend: The individual 95% confidence intervals for all 11 mean scores were plotted using the calculated pooled standard deviation of 2.38.

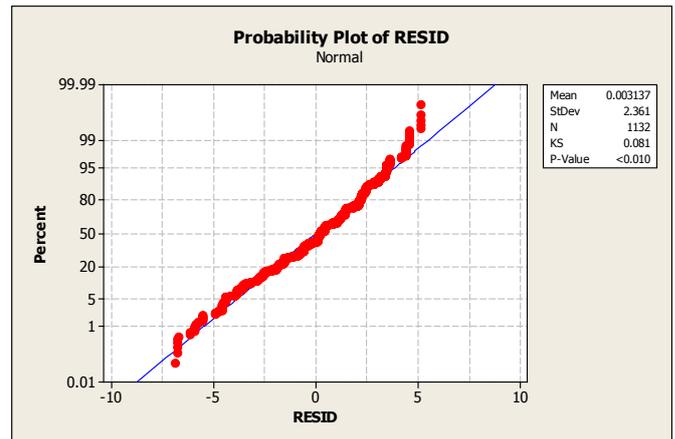


Figure 3: Test of normality of the residuals from one-way ANOVA model

The 95% confidence intervals for the mean scores for all eleven questions showed that Q1, Q3, and Q9 had the highest mean scores.

There was an overlap between the confidence intervals of Q1, Q3, Q9 with Q5, Q8 which indicated that the means of the questions Q5 and Q8 may have been statistically equal to the means of Q1, Q3, and Q9. Therefore, Tukey’s multiple comparison method was used to further investigate the statement.

The mean scores that did not share a letter were significantly different. In other words, questions Q1, Q9, and Q3 were the most important factors in termination of referrals by primary care physicians to cardiologists.

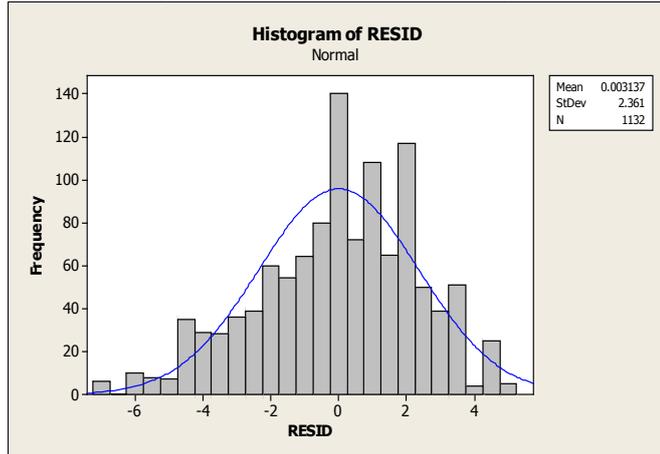
The Analysis of Variance method (ANOVA) required that the residuals from the linear model be normally distributed. The normality plot (Figure 3) and the histogram (Figure 4) revealed that the residuals were not normally distributed, but departure from normality was not severe, which suggested that the above results from one-way ANOVA were valid.

Table 3.

	N	Mean	Grouping
Q1	103	7.932	A
Q9	103	7.816	A
Q3	103	7.777	A
Q5	103	7.204	A B
Q8	103	6.971	A B
Q2	102	6.578	B C
Q6	98	6.551	B C
Q4	103	5.621	C D
Q7	103	5.602	C D
Q11	102	5.422	D
Q10	103	4.864	D

Legend: The mean scores for each question that did not share a letter were significantly different.

Figure 4: Histogram of the residuals from one-way ANOVA model



Results

Three statistically significant factors that lead primary care providers to terminate their ongoing cardiology referrals to a specific cardiologist were:

- Q1 (most important factor): Patient was not happy with the cardiologist's bedside manner.
- Q9 (second most important factor): Poor feedback with reports to the primary care doctor.
- Q3 (third most important factor): Cardiologist did not answer the patient's questions/rushed the appointment.

Out of 103 primary care providers interviewed in Little Rock, Arkansas and Chicago, Illinois, 84 providers were practicing in the city limits and 19 in the rural areas. The average years in practice for the primary care physicians were 20.9 years.

The most important factors for termination of referrals in the order of decreasing importance were cardiologist's bedside manners as perceived by the patient (7.9 ± 2.1), poor feedback to the primary care provider from the cardiologist (7.8 ± 2.3), and patients not getting their questions fully answered by the cardiologist during the visit (7.8 ± 1.9). Less important factors were the staff's inability to promptly respond to calls (7.2 ± 2.0), the ease of getting an appointment (7.0 ± 2.3), patient being displeased with the clinical plan (6.6 ± 2.3), staff friendliness (6.6 ± 2.5), physician promptness (5.6 ± 2.6), tests not being done the same day/results not being given promptly (5.6 ± 2.4), cardiologist keeping the patient even if there was only a minor cardiac problem (5.4 ± 3.0), and cardiologist being too aggressive with the tests (4.9 ± 2.6).

Discussion

There is a paucity of data that exists in literature regarding the factors that influence the relationship between primary care physicians and their consultants. Our study succeeded in identifying key factors that lead to the termination of a consultant-relationship between a primary care physician and a cardiologist.

The most important factor for termination of referrals was cardiologist's bedside manners as perceived by the patient. This received a score of 7.9 ± 2.1 in importance. These findings are consistent with Gröber-Grätz D et al.⁸ study which also found a "good doctor-patient relationship" as an important factor when choosing referrals. The relationship

between primary care physicians and cardiologists is a fragile bond that relies heavily on patient input. With advancements in technology the extent of the physical exam has become limited. A thorough physical exam serves a dual purpose: allowing the cardiologist to increase the interactive time with the patient and establishing a stronger bond with the patient. Elucidating the factors that play an important role in developing good bedside manner was outside the scope of our study. Attributes such as good communication skills and proper explanation of a patient's health care plan are known factors that improve bedside manner. These qualities also likely have an impact on the relationship between a primary care physician and consultant.

The second most important factor was poor feedback to the primary care provider from the cardiologist. Due to time constraints, primary care physicians rarely have an opportunity to meet their consultants face-to-face. Therefore, patient's impression of the consultant and the consultant's notes play a crucial role in decision making for future referrals. Proper communication of patient information between referring physicians and cardiologists can significantly enhance the referring physician satisfaction. Studies have shown that suggestions for future care, follow-up arrangements, and plans for co-managing care are important factors in overall satisfaction for referring physicians⁵. Primary care physician's satisfaction and quality of patient care can be improved simply by timeliness of information.

The third most important factor was the patients not getting their questions fully answered by the cardiologist during the visit. The advancements in technology and development of medical websites have empowered patients to take an active role in their health and to choose their medical service providers. According to one survey of 50,000 patient reviews, 25% of patients now find their doctor on the internet.⁶ Therefore, patient's involvement in the medical decision-making process has a two-fold benefit; it empowers the patient to take charge of his/her health and plays a pivotal role in future referrals from a primary care physician for other patients.

After an extensive search of the indexed articles on PubMed, no articles were identified that satisfied the MeSH terms "referral and consultation" and "termination". After a thorough search of the articles listed under the MeSH term "referral and consultation" alone, multiple studies were identified that revealed the general practitioners' view points on the consultant referral process.

A Scandinavian study was conducted to identify and describe general practitioners' (GP) reflections on and attitudes to the referral process and cooperation with hospital specialists⁷. 17 female and 14 male GPs aged 29 to 61 years from 21 different practices, who had practiced for 3-35 years. The results were that the GPs wished for improved dialogue with the hospital specialists. The referral process was often considered as asymmetric and sometimes humiliating.

In the previously mentioned German study by Gröber-Grätz D et al., general practitioners (GP) were interviewed about their experiences and opinions regarding their cooperation with specialists⁸. The aim of this study was to identify criteria and barriers of the referral process. The main identified criteria for referral to specialists included: specialists' medical skills, good doctor-patient relationship and patient satisfaction. Additional mentioned criteria included the willingness to arrange short-term appointments in urgent cases, timely diagnosis and



adequate communication. The identified barriers included long appointment wait times.

However, both studies were conducted in different countries and were therefore constrained by their respective health care systems. Additionally, both studies focused on the aspect of initiation of new referrals. Our study focused on evaluating factors for termination of an established relationship between a primary care provider and the cardiologist.

Study Limitations

The study was limited to interviewing primary care providers and did not include any patient interviews/input. A more extensive questionnaire may have been created if a panel of physicians were asked to collectively draft a list of reasons for causes of termination. The study was also limited by surveying internal medicine physicians, family medicine physicians, and nurse practitioners to comprise the group of primary care physicians. Future studies could focus solely on surveying one particular group.

Conclusion

The three most important factors (in the order of importance) that result in termination of referrals between primary care physicians and cardiologists include cardiologist's bedside manners as perceived by the patient, poor feedback to the primary care provider from the cardiologist, and the patients not getting their questions fully answered by the cardiologist during the visit.

Future

Multiple future opportunities can be availed from this study. A large scale study strictly interviewing a cohort of family medicine or internal medicine physicians can be constructed. Another study, using a more comprehensive list of factors for termination, can be designed to evaluate causes that were potentially overlooked by this study. Using the same study design, factors that prompt termination of continued collaboration between primary care physicians and other consulting services can also be evaluated.

Declarations of Interest

The authors declare no conflicts of interest

Acknowledgements

The authors agree to abide by the requirements of the "Statement of publishing ethics of the International Cardiovascular Forum Journal."⁹

References

1. Murphy SL, Xu JQ, Kochanek KD. 2013. Deaths: Final data for 2010. *Natl Vital Stat Rep.* 61:4.
2. Heidenreich PA, Trogdon JG, Khavjou OA, et al. 2011. Forecasting the future of cardiovascular disease in the United States: a policy statement from the American Heart Association. *Circulation.* 123:933-44. DOI: 10.1161/CIR.0b013e31820a55f5
3. Barnett ML, Song Z, Landon B. 2012. Trends in Physician Referrals in the United States, 1999-2000. *Arch Intern Med.* 172. 2:163-70. DOI: 10.1001/archinternmed.2011.722
4. Chan BT, Austin PC. 2003. Patient, physician, and community factors affecting referrals to specialists in Ontario, Canada: a population-based, multi-level modeling approach.
5. Forrest CB, Glade GB, Baker AE, Bocian A, von Schrader S, Starfield B. 2000. Coordination of specialty referrals and physician satisfaction with referral care. 154. 5:499-506. DOI: <http://dx.doi.org/10.1001/archpedi.154.5.499>
6. Segal J. 2014. The Right Way to Fight Bad Online Reviews. *Medscape Business of Medicine.* Retrieved from: <http://www.medscape.com/viewarticle/835077>.
7. Thorsen OI, Hartveit M, Baerheim A. 2012. General practitioners' reflections on referring: an asymmetric or non-dialogical process?. *Scandinavian journal of primary health care.* Dec;30(4):241-6. DOI: 10.3109/02813432.2012.711190
8. Gröber-Grätz D et al. 2011. Which criteria affect the cooperation between general practitioners and specialists in ambulatory care? A qualitative study about general practitioners' perception. *Zeitschrift für Evidenz, Fortbildung und Qualität im Gesundheitswesen.* 105(6):446-51. DOI: 10.1016/j.zefq.2011.06.001
9. Shewan LG, Coats AJS, Henein M. Requirements for ethical publishing in biomedical journals. *International Cardiovascular Forum Journal* 2015;2:2 DOI: 10.17987/icfj.v2i1.4