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Development of a real-time physician–patient communication data collection tool

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ABSTRACT

Objectives To design a tool to assess and improve physician communication, provide physicians with personalised feedback in real time, and relate specific communication behaviours to patient experience measures. It was hypothesised that performance of fundamental communication behaviours would correlate with individual patient experience scores as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) surveys.

Design Prospective observational study.

Setting Single-centre study at a mid-sized academic tertiary medical centre.

Participants Thirteen hospitalists across 305 patient interactions were assessed in this study. Participants were recruited from three geographically cohorted adult general medicine-teaching teams on two inpatient units. Participants with cognitive impairment or who were unable to speak English were excluded from the study.

Main outcome measures Frequency of performance of 10 fundamental communication behaviours.

Results The communication behaviours of 13 hospitalists were assessed by 305 surveys: 146 observations, 106 patient reports and 52 excluded interactions. During rounds, 50% of physicians introduced themselves, 40% explained their role, 44% introduced other members of the team, 59% addressed patients by name, 58% addressed friends/family, 59% attempted to be at eye level, 41% asked permission before performing a physical examination, 40% asked if patients had questions and 20% asked if patients understood the plan of care. Several variables correlated with higher HCAHPS scores; however, addressing patients by name (r=0.60482, p=0.0492) and introducing other members of the team (r=0.87239, p=0.0234) were statistically significant.

Conclusion This study highlights the importance of effective physician–patient communication and presents a unique data collection tool to assess and improve physician communication in real time. This tool can provide physicians with personalised feedback and relate specific communication behaviours to patient experience measures to provide high-quality care and improve the patient experience.

Summary box

What is already known?

- Many hospitals assess the quality of their communication using the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) surveys.
- Physician communication correlates with medication compliance, readmission rates, clinical outcomes and the patient experience.
- Through standardised communication protocols, training sessions, educational tools, real-time feedback and incentive programme, several studies have improved physician communication, the patient experience and HCAHPS scores.

What are the new findings?

- A list of 10 fundamental communication behaviours that should occur with every patient interaction.
- Specific behaviours that can improve HCAHPS scores (addressing patients by name and introducing other members of the team).
- A tool to assess physician communication, provide physicians with personalised feedback in real time and relate specific communication behaviours to patient experience measures.
- A tool that provides an opportunity to relay communication concerns to the medical team in real time.

INTRODUCTION

With continually increasing healthcare costs in the USA, hospital reimbursement is now closely linked to the delivery of high-quality care. One key quality metric is effective physician–patient communication. However, with high inpatient volumes, pressures to admit and discharge in a timely manner, and other administrative tensions, bedside communication between physicians and patients suffers. Furthermore, tools for real-time assessment and feedback of physician communication are lacking. Therefore, the objective of this study was to design a tool to assess and provide feedback to inpatient physicians on core communication behaviours in real time. It was hypothesised that fundamental communication behaviours would correlate with individual patient experience scores as measured by the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) surveys.

METHODS

This single-centre 7-week observational study was conducted at a mid-size academic tertiary

medical centre. Participants were recruited from three geographically cohorted adult general medicine-teaching teams on two inpatient units. Participants with cognitive impairment or who were unable to speak English were excluded from the study. The communication practices of all hospitalists who rotated on these teaching teams over the course of the study were observed. Of note, physicians were unaware of the specific behaviours being observed. The intervention was piloted among the hospitalist group due to the ease of observation during inpatient teaching rounds and significant opportunities for physician communication improvement in the average HCAHPS scores.

For this study, physician communication was assessed using an iPad-based tool consisting of two in-house surveys. The first survey was completed by a fourth-year medical student who observed, but did not participate, in inpatient rounds and recorded physician behaviour. The second survey was administered after rounds, and assessed patients' perception of physicians' communication behaviours. Performance on these surveys was compared with individual physician HCAHPS scores using a Pearson's correlation analysis. The in-house surveys were designed to assess what were thought to be fundamental communication behaviours, based on the current literature, and were developed through a multidisciplinary approach that included collaboration from members of the patient experience office, nursing staff and members of the Patient Family Advisory Committee (both hospital employees and community members). Both surveys were piloted on small sample sizes of patients, with numerous iterations compiled as a result of feedback from the patients, faculty and committee members regarding language improvement, ease of administration and question selection. Example of Surveys appear in online supplementary file 1.

PATIENT AND PUBLIC INVOLVEMENT

The public was involved in the design, implementation and analysis of this study through focus group meetings held with the hospital's Patient and Family Advisory Committee, as well as the hospital's Patient Experience Office. These meetings discussed the design, content, implementation and revision of the in-house surveys. There was also a feedback session with the aforementioned parties to review the results of the study, in respect to the initial hypotheses and goals established for this project. Furthermore, these focus groups discussed ideas for future research.

RESULTS

The communication behaviours of 13 hospitalists were assessed through the administration of 305 surveys: 146 observations during rounds, 106 patient reports and 53 encounters that were excluded (table 1). Observations during rounds revealed 50% of physicians introduced themselves, 40% explained their role, 44% introduced the other members of the team, 59% attempted to be at eye level with the patient, 41% asked permission before performing a physical examination, 40% asked if patients had questions, 20% asked if patients understood the plan of care, a nurse was present during 13.7% of encounters and the average patient encounter was 5 min and 34 s.

Table 1 Observation and patient report results

Actions performed by attending physician	Observations on rounds (n=146)	Patient reports (n=106)
Knock before entering the room	35%	59%
Introduce themselves	50%	95%
Explain their role	40%	85%
Introduce other members of the medical team	44%	54%
Address the patient by name	59%	89%
Address friends/family in the room	58%	98%
Attempted to be at eye level	59%	57%
Asked permission prior to performing physical examination	41%	93%
Asked if the patient/family had any questions	40%	87%
Asked if the patient understood the plan of care	20%	72%
Average duration of patient interaction	5 min and 34 s	–
Know physician's name	–	41%
Understand diagnosis	–	4.03/5
Understand plan	–	3.82/5
Physician listens without interruption	–	4.92/5
Physician spent sufficient time with patient	–	4.52/5
Communication between teams	–	4.37/5

Patient reports revealed 41% of patients knew their physician's name, 95% of physicians introduced themselves, 85% explained their role, 53% introduced the other members of the team, 89% addressed patients by name, 98% addressed friends/family in the room, 57% attempted to be at eye level, 92% asked permission before performing a physical examination, 87% asked if patients had questions and 72% asked if patients understood the plan of care. On a scale of 1–5, patients rated how well they understood their diagnosis (4.03), how well they understood the plan of care (3.82), how well physicians listened without interrupting (4.92), the effectiveness of interprofessional team communication (4.37) and whether physicians spent sufficient time with them (4.52).

The hospitalist's HCAHPS scores from 2017 reveal the per cent of patients reporting 'always' for treating patients with courtesy and respect, listening carefully and explaining things in ways patients could understand were 74.5%, 62.5% and 54.4% respectively, which is around the fifth percentile nationally. The Pearson's correlation analysis revealed addressing patients by name (r=0.60482, p=0.0492) and patient perception of introducing other members of the team (r=0.87239, p=0.0234) were associated with higher HCAHPS scores. Several other variables correlated with higher HCAHPS scores, but were not statistically significant (table 2). The power analysis calculates a 90% power to detect a correlation of 0.80 (two physicians were excluded due to inadequate HCAHPS survey numbers for analysis).

DISCUSSION

A key component of delivering high-quality care is effective physician–patient communication, which correlates with medication compliance, readmission rates, clinical outcomes and the patient experience.[1–3] Through standardised communication protocols, training sessions, educational tools, real-time feedback and incentive programme, several studies have shown improved physician communication, the overall patient experience and HCAHPS scores.[4–10] Most of these interventions focus on the 'knowledge' aspect of communication, targeting delivery of medical information and patient education. However, behavioural aspects of communication are more subjective and difficult to measure.

Many hospitals assess the quality of their communication using the HCAHPS surveys, which assess how often physicians treat patients with courtesy and respect, listen carefully and explain things in ways patients can understand. However, these surveys are only provided to a small group of patients and are often returned months after their hospitalisation. The small sample size and delayed return make it difficult to accurately measure and provide feedback to physicians in real time. It is also difficult to determine which behaviours individual providers need to change to improve their communication skills. No study has yet related specific communication behaviours to patient experience scores. Therefore, this study's objective was to design a tool to assess communication practices in the inpatient setting, provide physicians with personalised feedback in real time and relate specific communication behaviours to patient experience measures. Furthermore, this tool provides the opportunity to relay communication concerns to the medical team prior to the patient's discharge so that issues can be addressed proactively. This allows for iterative improvement in physician–patient communication if, for example, a patient did not understand something the first day, it could be reinforced on the second.

Ten communication behaviours were identified as fundamental for establishing a strong physician–patient relationship. These include knocking before entering the room, introducing yourself, explaining your role, introducing the other members of the team, addressing patients by name, addressing family/friends in the room, attempting to be at eye level, asking permission before performing a physical examination, asking if patients have questions and asking if patients understand the plan of care. It was hypothesised these fundamental behaviours would correlate with patient experience measures. The correlation analysis revealed several variables correlated with higher HCAHPS scores; however, addressing patients by name and introducing other members of the team were statistically significant. However, for other behaviours, this study may not have had enough power to detect a difference.

This communication tool identified several behaviours to improve, including physician and team member introduction, role explanation, addressing patients by name and friends/family in the room, attempting to be at eye level, asking permission before performing physical examinations, asking if patients have questions and asking if patients understand the plan of care. This tool also indicated room for improvement in patient education as many patients reported not fully understanding their diagnosis or plan of care despite 87% reporting being asked if they had questions and 72% reporting being asked if they understood the plan of care. The low percentage of patients who knew their physician's name suggests introductions may need to be made more than once or reinforced by other team members/visual aids. This tool also revealed nurse presence during rounds and communication between teams were lacking. Furthermore, this tool identified several discrepancies between what was observed on rounds and what patients reported with patients tending to report higher frequencies. As the perception of care is associated with its quality, patients' perception of communication behaviours may be more important than what was performed/observed.[11]

It is important to discuss limitations and areas for future research. The small number of physicians and patients, as well as the narrow spread of HCAHPS scores, limited the power and correlation analysis, and thus limited the ability to make statistically significant conclusions about behaviours that should be addressed. Therefore, this study may need to be repeated with a hospitalist group

Table 2 Pearson correlation analysis

Parameter	Listen carefully	Treat with courtesy and respect	Explain in a way patients could understand	Average HCAHPS score
Introduce themselves (O)	0.11243 (p=0.7421)	0.40094 (p=0.2217)	0.03187 (p=0.9259)	0.15138 (p=0.6568)
Introduce themselves (R)	0.37788 (p=0.4602)	0.09257 (p=0.8615)	0.41587 (p=0.4122)	0.39309 (p=0.4407)
Explain their role (O)	−0.14973 (p=0.6604)	0.15218 (p=0.6551)	0.00522 (p=0.9878)	−0.04232 (p=0.9017)
Explain their role (R)	0.77182 (p=0.0722)	0.49170 (p=0.3219)	0.73767 (p=0.0942)	0.78037 (p=0.0671)
Introduce team (O)	0.28673 (p=0.3926)	0.20874 (p=0.5379)	0.37790 (p=0.2518)	0.27602 (p=0.4113)
Introduce team (R)	0.64532 (p=0.1664)	0.32592 (p=0.5284)	0.87239 (p=0.0234)	0.78564 (p=0.0640)
Address patient (O)	0.60382 (p=0.0492)	0.51233 (p=0.1071)	0.57180 (p=0.0661)	0.56555 (p=0.0698)
Address patient (R)	0.39341 (p=0.4403)	0.53687 (p=0.2721)	0.45918 (p=0.3596)	0.40349 (p=0.4276)
Address friends/family (O)	0.38232 (p=0.2756)	0.46322 (p=0.1776)	0.41730 (p=0.2302)	0.47818 (p=0.1621)
Address friends/family (R)	0.60793 (p=0.2004)	0.54137 (p=0.2673)	0.56500 (p=0.2427)	0.48374 (p=0.3310)
Attempt to be at eye level (O)	0.30608 (p=0.3600)	0.37945 (p=0.2498)	0.43868 (p=0.1771)	0.36670 (p=0.2673)
Attempt to be at eye level (R)	−0.06905 (p=0.8966)	−0.06051 (p=0.9093)	0.24303 (p=0.6426)	0.11576 (p=0.8271)
Ask permission before examination (O)	0.03945 (p=0.9083)	−0.03229 (p=0.9249)	−0.05696 (p=0.8679)	−0.09365 (p=0.7842)
Ask permission (R)	−0.08391 (p=0.8744)	−0.18526 (p=0.7253)	0.16510 (p=0.7546)	0.00212 (p=0.9968)
Ask if patient has any questions (O)	−0.09450 (p=0.7823)	−0.01611 (p=0.9625)	−0.11141 (p=0.7443)	−0.17362 (p=0.6097)
Ask if patient has any questions (R)	0.36363 (p=0.4786)	0.08080 (p=0.8791)	0.61722 (p=0.1917)	0.55011 (p=0.2581)
Assess understanding of plan (O)	−0.41504 (p=0.2043)	−0.27695 (p=0.4097)	−0.33118 (p=0.3198)	−0.44184 (p=0.1736)
Assess understanding of plan (R)	0.33868 (p=0.5114)	0.09599 (p=0.8565)	0.57690 (p=0.2306)	0.46412 (p=0.3538)
Average duration of patient encounter (O)	0.08825 (p=0.7964)	0.19272 (p=0.5702)	−0.06574 (p=0.8477)	−0.02541 (p=0.9409)
Know physician's name (R)	0.66406 (p=0.1503)	0.44477 (p=0.3768)	0.57185 (p=0.2357)	0.54795 (p=0.2603)
Understand diagnosis (R)	−0.12898 (p=0.8076)	−0.27906 (p=0.5923)	0.28541 (p=0.5835)	0.18908 (p=0.7198)
Understand plan (R)	0.69563 (p=0.1249)	0.44320 (p=0.3787)	0.60646 (p=0.2018)	0.61697 (p=0.1920)
Physician listens without interruption (R)	0.18136 (p=0.8186)	−0.13103 (p=0.8690)	0.34215 (p=0.6578)	0.24563 (p=0.7544)
Physician spent sufficient time with patient (R)	0.50379 (p=0.4962)	0.39814 (p=0.6019)	0.60198 (p=0.3980)	0.64629 (p=0.3537)

Continued

Table 2 Continued

Parameter	Listen carefully	Treat with courtesy and respect	Explain in a way patients could understand	Average HCAHPS score
Communication between teams (R)	0.51538 (p=0.4846)	0.66050 (p=0.3395)	0.35187 (p=0.6481)	0.45746 (p=0.5425)
Nurse presence during rounds (O)	−0.20570 (p=0.5440)	0.00730 (p=0.9830)	0.15113 (p=0.6574)	0.00012 (p=0.9997)

Two physicians were excluded from the Pearson correlation analysis due to inadequate survey sample size.
HCAHPS, Hospital Consumer Assessment of Healthcare Providers and Systems; O, observed on rounds (n=11); R, reported by patients (n=6).

both containing a wider breadth of HCAHPS scores and more physicians to determine whether associations between additional behaviours and HCAHPS scores can be achieved. Furthermore, this study did not observe physician–patient interactions outside of inpatient rounds, and physician behaviour may have been altered simply due to being observed by a third party. To limit recall bias, patient surveys were administered the same day that rounds were observed. It would also be interesting to compare communication practices between first and subsequent encounters as it may be important to perform some behaviours with each encounter. Additionally, expanding the fundamental behaviours identified in this study to all physicians and incorporating them into medical school and resident curricula can improve the communication behaviours of future physicians and physicians in training to create a culture of 'always' for every patient, every interaction, every day. Furthermore, using students, residents and volunteers can establish a sustainable model for continuous assessment using this tool.

CONCLUSION

This study highlights the importance of effective physician–patient communication and demonstrates how it can be difficult to assess. However, this unique data collection tool can assess and improve physician communication by providing physicians with personalised feedback in real time and relating specific communication behaviours to patient experience measures. With this tool and a multidisciplinary approach incorporating feedback from patients and the community, we can assess and improve physician–patient communication, provide high-quality care and improve the patient experience.

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REFERENCES

1 Stewart MA. Effective physician-patient communication and health outcomes: a review. *CMAJ* 1995;152:1423–33.
2 Carter J, Ward C, Wexler D, *et al*. The association between patient experience factors and likelihood of 30-day readmission: a prospective cohort study. *BMJ Qual Saf* 2018;27.
3 Kemp KA, Santana MJ, Southern DA, *et al*. Association of inpatient Hospital experience with patient safety indicators: a cross-sectional, Canadian study. *BMJ Open* 2016;6:e011242.
4 Horton DJ, Yarbrough PM, Wanner N, *et al*. Improving physician communication with patients as measured by HCAHPS using a standardized communication model. *Am J Med Qual* 2017;32:617–24.
5 Banka G, Edgington S, Kyulo N, *et al*. Improving patient satisfaction through physician education, feedback, and incentives. *J Hosp Med* 2015;10:497–502.
6 Stein SM, Shah SS, Carcich A, *et al*. A novel approach to improving patient experience in Orthopedics. *Am J Med Qual* 2017;32:655–60.
7 Davidson KW, Shaffer J, Ye S, *et al*. Interventions to improve Hospital patient satisfaction with healthcare providers and systems: a systematic review. *BMJ Qual Saf* 2017;26:596–606.
8 Khan A, Naushad Chaudhry M, Khalid S, *et al*. Improvement of patient satisfaction with the neurosurgery service at a large tertiary care, London-based Hospital. *BMJ Qual Improv Rep* 2014;3.
9 Baker P, Tytler B, Artley A, *et al*. The use of a validated pre-discharge questionnaire to improve the quality of patient experience of orthopaedic care. *BMJ Qual Improv Rep* 2017;6.
10 Trickey AW, Newcomb AB, Porrey M, *et al*. Two-Year experience implementing a curriculum to improve residents' patient-centered communication skills. *J Surg Educ* 2017;74:e124–32.
11 Stein SM, Day M, Karia R, *et al*. Patients' perceptions of care are associated with quality of hospital care: a survey of 4605 hospitals. *Am J Med Qual* 2015;30:382–8.