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Cover Page Footnote

We thank all of the patients who participated in this study. We gratefully acknowledge our research assistants who conducted the surveys.

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Feasibility of using emergency department patient experience surveys as a proxy for equity of care

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Abstract

Collecting and examining equity data can help inform quality improvement initiatives but is a relatively new practice in health care. The overall goal of this study was to assess different methods of administering patient experience surveys as a feasible starting point in measuring equity in an urban Emergency Department (ED) that serves a diverse patient population. Socio-demographic characteristics of patients visiting an ED were compared with those of patients who responded to provincial patient experience surveys routinely administered by mail. Patient experience survey data were collected over an 11-week period in an urban ED using different survey administration methods (face-to-face interviews vs. handout) among study participants from vulnerable populations (elderly, low income, homeless, and mental health or substance use issues). Patient populations receiving care in the ED were shown to be different from those who responded to routinely mailed patient experience surveys with elderly patients over-represented, and contrarily, low income, mental health or substance use and homeless/unstable housing populations under-represented in survey responses. From a total of 111 study participants, the response rate for face-to-face surveys was significantly higher than for surveys that were handed out ($p = 0.002$), but no significant difference in the percentage of positive responses was evident. Delivering patient experience surveys immediately upon discharge is an effective way of capturing unique responses from patients in vulnerable populations, supporting a valuable means of assessing equity in the ED. Survey administration method poses important implications when used to inform quality improvement efforts and performance measurement.

Keywords

Equity, patient experience, quality of care, emergency department

Introduction

To attain one's full health potential, there must be an absence of avoidable and unjust disparities between social groups when measuring hospital performance and quality improvement.¹⁻⁴ Since vulnerable populations and social groups who are disadvantaged due to age and/or socio-demographic status generally experience limited resources, and thus are at higher risks for morbidity and mortality than the general population, collecting and examining data pertaining to equity of care is an important part of hospital performance measurement and quality improvement.⁵ It is

generally acknowledged that patients' social contexts largely determine the use of primary and acute care services in emergency departments (ED).⁶⁻⁸ However, measuring equity remains a relatively new practice in various health care settings.⁹

Routine patient experience of care surveys monitoring patients' perceptions of quality of care is a feasible start to measuring equity in hospitals. This is because comparing patient experiences of care can illustrate whether the perceived quality of care is equitable across socio-demographic populations and can thereby direct quality

improvement efforts.^{9,10} Patient experiences of care may be captured by surveys administered via direct or indirect means. Mailed surveys are believed to have less association with certain potential handling biases compared to surveys delivered via telephone or face-to-face interviews.¹¹ However, mailed surveys make inclusion difficult or impossible for patients without a postal address and those who avoid accessing mail for personal reasons. This suggests that non-respondents may be more likely to be patients who are in poor socioeconomic conditions.^{11,12} Thus, the method of administering surveys is an important consideration when measuring patient experience, which may have critical implications related to equity of care that are previously unexplored.

The ED of St. Paul's Hospital (SPH) in Vancouver, British Columbia (BC), Canada presents an ideal setting for assessing the feasibility of measuring equity using patient experience of care surveys administered through different methods. This ED serves a variety of patient populations, particularly the Downtown East Side (DTES) where a community of 16,000 represents some of the people with the poorest socioeconomic status in urban Canada.¹³ Patient experience of care surveys are continuously administered by the province to ED visitors by mail and provide information to inform quality improvement efforts at local and regional levels.^{9,14} Yet, the mail out may easily miss the voices from vulnerable populations such as those who have unstable housing (i.e., the homeless, residing in shelters or single room occupancy hotels) and those who suffer from mental health and/or substance use (MH/SU) issues prevalent in the community serviced by SPH. The capture of patient experience of care immediately after discharge from the ED via a condensed face-to-face interview and handout surveys may better capture the voices of these individuals who are difficult to reach following their departure from the hospital.

The overall goal of this study was to assess the different methods of administering patient experience of care surveys as a feasible starting point in measuring equity in the ED. To do this, we first identified and compared the proportions of different patient populations receiving care in the ED with respondents who participated in the provincial mail out survey according to various socio-demographic characteristics. With the baseline data collected, we aimed to test different survey administration methods as a means of increasing the survey's reach to vulnerable patient populations. We hypothesized that the patients who answer the provincial mail out surveys under-represent the high proportion of vulnerable patient populations served in the ED and propose that alternate methods of providing such surveys may address this gap and provide a more representative understanding of patient experiences.

Materials and Methods

Study Design, Study Setting and Population

This study was conducted in the ED of SPH, an urban teaching hospital located in downtown Vancouver with an annual volume of over 75,000 patient visits. The retrospective baseline control sample included all patients who responded to a mailed survey for ED care at the SPH's ED between April 2010 and March 2011.

For the prospective study cohort, eligible patients were identified by convenience sampling in the ED for an 11-week period between November 2011 and February 2012. Patients were approached immediately following discharge from the ED to the community or to an in-patient hospital bed during two to four hours of surveying blocks covering all hours in a 24-hour day. Patients who were invited to participate in the study were those aged 19 years or older with capacity to consent, registered for care at the ED, and who belonged to the populations of interest, namely: 1) homeless or residing in unstable or transient housing; 2) presenting with a mental health or substance use complaint; 3) identified as low income; or 4) aged 75 years and older. Socioeconomic (income) status and housing status were determined by residential postal codes and addresses found in Vancouver's DTES. Patients who received services due to MH/SU were identified by their triaged presenting complaints which are electronically coded by a triage nurse upon presentation to the ED. Identified patients were then approached by the Research Assistants (RA) for consent to participate in the study. Patients who were severely injured or ill (e.g., requiring resuscitation), those who posed a risk to the safety of the RAs, or left without being seen by ED staff or a physician were excluded from the study. Ethical approval for the study was granted by the University of British Columbia-Providence Health Care Research Ethics Board.

Data Sources

Data for analyses of demographics, characteristics of patients visiting the ED, and survey respondents were obtained from the hospital's health information system and provincial patient experience survey results. Data were anonymized and aggregated in accordance with regional policy such that confidentiality of the individual patients was respected and maintained.

Instrument: Patient Experience Survey

A condensed version of the existing validated 67-item NRC Picker Canada patient experience survey that is continuously administered by mail in 110 EDs across BC, including SPH, was used. The condensed survey is comprised of nine questions from the original survey that represent key performance indicators for quality of care: overall impressions of care, communication, overall satisfaction, coordination of care and access, physician care, responsiveness, information and education, respect

for patients' preferences and courtesy. Based on an analysis of the provincial ED survey data since 2007, the first seven indicators are those with both the lowest scores and high correlation with overall patient satisfaction.¹⁵ The eighth question asks for patient's ratings of overall quality of care and satisfaction. The final question relates to courtesy of care providers, and was included based on findings showing that courtesy can be both the biggest positive and negative influence on the rating of the overall quality of care score.¹⁵ These key performance indicators are those reported in summary form to the ED on a monthly basis, whereas a full set of the entire survey outcomes is reported on a quarterly basis to inform quality improvement efforts. The condensed survey was ideal for this study, considering the strength of these indicators and the time requirements to complete the surveys when administered to patients post-discharge. In addition to the nine multiple-choice questions, an open-ended question was included for the participants to express other comments related to their ED visits.

Survey Administration Methods

Potential study participants were identified by independently trained RAs who were not part of the ED staff. Eligible patients were approached immediately upon discharge from the ED and were invited to participate in the condensed patient experience survey either via a face-to-face interview or by filling out a paper-based survey that was to be returned upon completion. Those respondents who received a handout survey were asked to place the completed survey in the sealed envelope provided and return it to the designated drop-box near one of the hospital exits. Patients were not approached when ED staff members were interacting with them. ED staff members were blinded to the study's purpose to mitigate potential Hawthorne effect.

The condensed patient experience surveys were administered in a pseudo-randomized manner. Specifically, the administration method offered initially was alternated within each population of interest, wherein participants who were offered a face-to-face interview initially and declined were then offered the paper-based survey to complete on their own and return in the drop box and vice versa if the paper-based survey was offered first. The initial method offered was logged and tracked by the RA to inform what method to offer first with the next participant, ensuring equal offering of administration methods in this study.

Data Analyses

The sample size for the study was computed based on an estimated response rate of 80% and requirement for a two-sided 95% confidence interval. The outcomes measured are as follows:

- Response rates for study samples were calculated according to the method of administration by dividing

the number of participants who accepted the survey or the number of surveys received in the case of those returned in the drop box by the total number of participants who were initially offered that administration method.

- Overall patient experience was measured using the percentage of positive responses in the completed surveys. Positive responses are defined by an existing categorization of responses to each of the key performance indicators included in the condensed survey that are deemed 'positive' for routine reporting in this sector. The percentage of positive responses for each survey question was calculated based on the proportion of the number of responses categorized as "positive" to the total number of responses for the question.

STATISTICA (StatSoft, Inc., Tulsa, Oklahoma) was used for analyzing the quantitative data. Chi-square test with Yates continuity correction was used to compare categorical variables, whereas unpaired Student's *t*-test and Fisher's exact test were employed to compare means of continuous variables and categorical variables respectively. Continuous variables are presented as means with standard deviation. P-values are two-sided and defined as statistically significant when $p \leq 0.05$.

Qualitative data from the open-ended survey question were adjudicated by three investigators with each response coded as positive, negative, both positive and negative or neutral.

Results

Comparison of ED Visits and Survey Respondents

In this study, we selectively focused on four specific populations of patients who are generally acknowledged as most representative of vulnerable populations: elderly patients aged 75 or above, patients who have low income, are homeless or reside in unstable housing, or are disenfranchised with MH/SU issues. It is generally acknowledged that SPH serves many of these select patient populations. Table 1 shows that within the same period, the patient populations receiving care in the ED at SPH are different from those who responded to the ongoing provincial initiative that randomly mails post-ED visit patient experience surveys. Elderly patients are over-represented among the mailed survey respondents compared to those visiting the ED. Similarly, in the low income, MH/SU and homeless/unstable housing patient populations; the proportions of these survey respondents are under-represented. The differences in proportions between ED visits and survey respondents for all subgroups, except the low-income patient population, are statistically significant ($p < 0.0001$). Of particular note is that none of the patients in the homeless subgroup responded to mailed provincial surveys.

Table 1. Comparison of ED visits and survey respondents for the period of April 2010 to March 2011 by socio-demographic subgroup

	ED Visits (N = 67,732)	SPH Provincial Survey Respondents (N = 310) ‡	Survey respondents to ED Visits at SPH*
Aged 75 or above	5,202 (7.7%)	34 (11.0%)	$\chi^2 = 4.68; p = 0.031$
Low income	7,601 (11.2%)	25 (8.1%)	$\chi^2 = 3.10; p = 0.078$
Mental health/ substance use	6,103 (9.0%)	8 (2.6%)	$\chi^2 = 15.83; p < 0.0001$
Homeless/ unstable housing	2,485 (3.7%) ‡	0 (0%)	

* degree of freedom (df) = 1

† This subgroup cannot be identified at the regional level since residential postal code is not available in the regional ED database.

‡ df = 1

Participation and Response Rates for Survey via Face-to-face Interviews and Handout

To test the effect of different methods for survey administration, face-to-face interviews and the handout methods were used with the study participants in a pseudo-randomized manner. As illustrated in Figure 1, among 170 patients who belonged to the patient subgroups of interest and approached at discharge from the ED, 111 patients consented to participate in the study with an overall participation rate of 65%. Participation rates among patients who were admitted to inpatient care (65%) and those who were treated and released directly from the ED (66%) ($\chi^2 = 0.04, df = 1, p = 0.85$) are similar. 101 participants returned their completed surveys by the end of the study period (59.4%): 68 of the surveys came from face-to-face interviews and 33 of the 43 surveys handed out were returned.

As shown in Table 2, the response rate of administering the survey via face-to-face interviews among the study participants is consistently 100% for all socio-demographic subgroups; this is higher than the response rate when administering the survey by handout overall (80%). Although the response rates of surveys administered via handout by socio-demographic subgroup are consistently lower than the surveys administered by face-to-face interviews, the differences are not significant as determined by Fisher's exact test. Nevertheless, both face-to-face interviews and handout surveys overall as well as by socio-demographic subgroup yield higher response rates when independently compared with the ongoing mail-out survey response rates as determined by Chi-square test ($p < 0.001; df = 1$). As shown in Table 3, the study participants who received face-to-face interviews or handout surveys had no difference in baseline characteristics.

Analysis of Patient Experiences

In terms of perceptions of experience of ED care; Table 4 compares the percentages of positive responses of the study cohort who chose face-to-face interviews against those who opted for handout survey. The experiences of care between these two groups of participants are similar, indicating that the difference in administration methods does not affect scores.

Qualitative responses from 65 study participants in the open-ended condensed survey question (Q10) enabled respondents to express additional information about their ED visit and provided further insight to the unique experience of vulnerable and socially disadvantage populations. These qualitative responses were coded into positive, negative, or neutral valences by three investigators, which resulted in 42% of the comments being positive, 20% negative comments and 39% both positive and negative or neutral comments. While similar proportion of respondents from both groups of participants provided written comments (65% of face-to-face interviews; 64% of hand-out surveys), positive comments in the group with face-to-face interviews (50%) are almost twice as prevalent compared to the group with hand-out surveys (29%). Examples of positive comments among study participants include: "The ER staff are very humane in their treatment of mentally ill patients knowing that, hopefully the stigma of mentally illness can be removed"; "I think people have been friendly and attentive (and) will take the time to check on you; prepared to listen to me, if I don't understand, I don't feel like I'm bothering them. Same with the doctors." Examples of comments coded as negative include: "Need to be more fully examined to find out exactly what is wrong, I am discharged and still in the same pain. I was when I got here, I don't feel fully investigated"; "Too many assumptions made based on staff's own experience that I wasn't asked and misinterpreted and hurriedly discharged. Not enough patient care interest. Needs to be better liaison with social worker and more social assistance people. Not enough sensitivity."

Figure 1. Schematic of study participation. Patients who met selection criteria were invited to participate in the study at discharge. Study participants were asked to complete the surveys via face-to-face interviews or handouts. All 68 of face-face interviews were completed vs. 33 of 43 handout surveys.

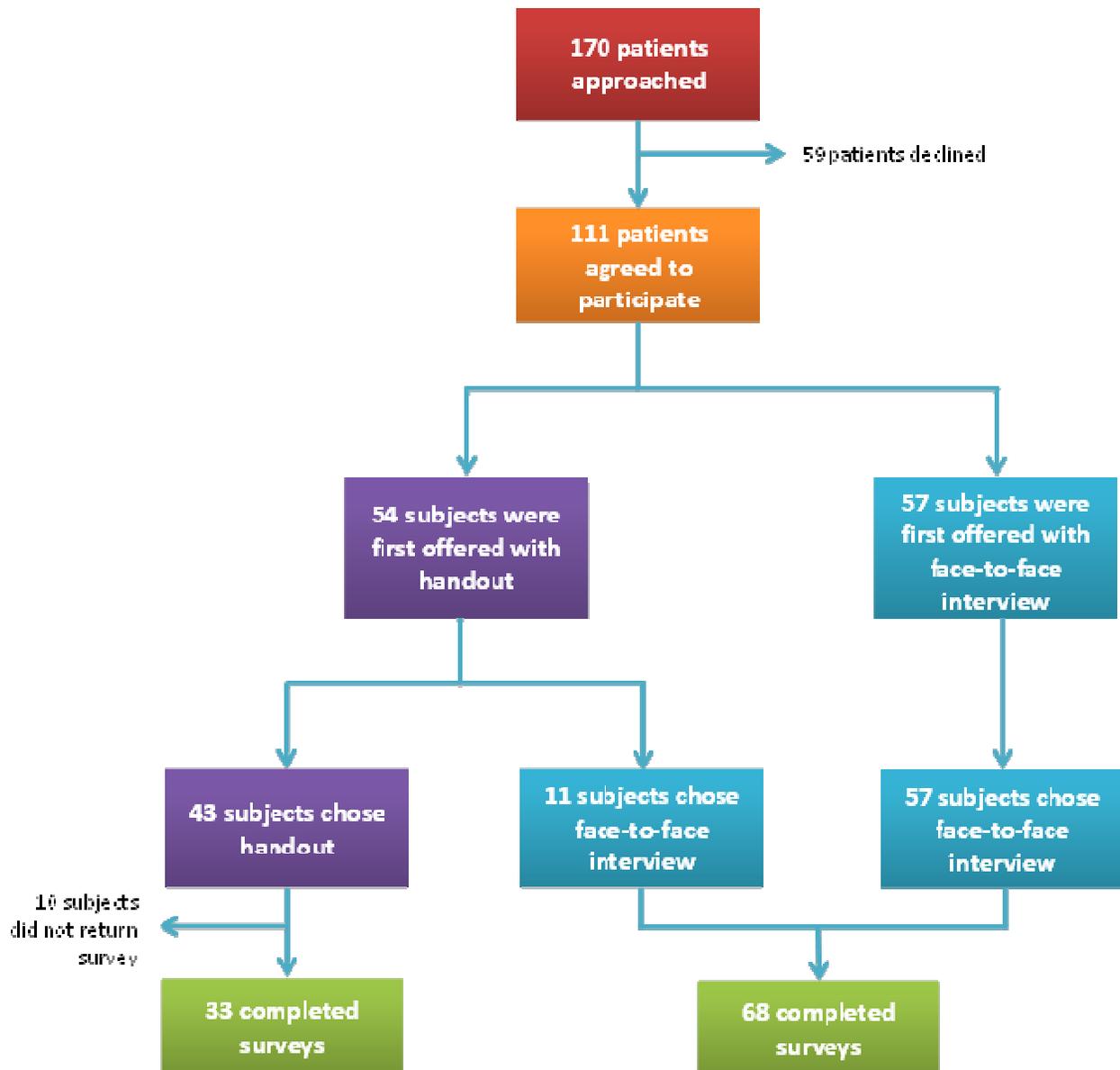


Table 2. Response rate by socio-demographic subgroup

	Face-to-Face Interviews	Handout	p-value*
Aged 75 or above	100%	79%	0.081
Low income	100%	80%	0.242
Mental health/substance use	100%	85%	0.226
Homeless/ unstable housing	100%	75%	0.075
Overall	100%	80%	0.002

*Fisher’s exact test, 2-tailed

Table 3. Baseline characteristics of those who opted for face-to-face interviews vs. handout survey.

Characteristics	Face-to-Face Interviews	Handout	p-value
Average Age (SD)	58 (21)	53 (22)	0.3334
Gender			
Male (%)	34 (50%)	25 (58%)	0.4480
Female (%)	33 (49%)	18 (42%)	
Transgender (%)	1 (1%)	0	
Arrival Mode			
By ambulance	32 (47%)	18 (42%)	0.5918
Acuity*			
CTAS I to III (%)	54 (79%)	28 (65%)	0.0949
CTAS IV to V (%)	14 (21%)	15 (35%)	
Admission (%)	41 (60%)	19 (44%)	0.0971
Average Time To MD[†] - Minutes (SD)	21 (18)	28 (23)	0.1031
Average ED LOS[‡] – Minutes (SD)	844 (933)	646 (778)	0.2352

* Canadian Emergency Department Triage and Acuity Scale (CTAS): Level I, resuscitation; Level II, emergent; Level III, urgent; Level IV, less urgent; Level V, non-urgent

[†]Average wait time until being seen by a physician (MD)

[‡]Average length of stay (LOS) at the ED

[§]Chi-square test: df = 1

Table 4. Patient experience survey percentages of positive responses of face-to-face interviews vs. handout surveys

	Face-to-Face	Handout	Face-to-Face vs. Handout*
Q1 (Did not wait too long to see a ED doctor)	67.2%	69.7%	NS
Q2 (ED explained danger signals to watch for)	36.8%	54.8%	$\chi^2 = 2.87; p = 0.09$
Q3 (Amount of time spent in ED)	70.6%	75.8%	NS
Q4 (Received all ED services needed)	69.1%	78.1%	NS
Q5 (ED explained causes for problem understandably)	65.2%	77.4%	$\chi^2 = 1.25; p = 0.26$
Q6 (Had enough say about ED care)	56.1%	60.0%	NS
Q7 (Enough privacy during ED visit)	58.1%	58.1%	NS
Q8 (Overall quality of ED care)	83.3%	87.1%	NS
Q9 (Courtesy of ED staff)	83.3%	87.1%	NS
Number of Survey Respondents	68	33	

*Chi-square test: df = 1; NS means non-significance with $p > 0.40$

Discussion

Our findings indicate that measuring equity in the ED is feasible through the use of patient experience surveys as an indicator for perceived quality of care. However, the method of survey administration poses important implications when utilizing this information to inform quality improvement efforts in vulnerable or disadvantaged patient populations. Consistent with our hypothesis, we found that the socio-demographic profile of respondents who responded to mailed surveys varied from those who received care in the ED. Except for the over-representation of the elderly, the other subgroups (patients who have low income, are homeless or reside in unstable housing, or are disenfranchised with MH/SU issues) are under-represented in the routine mailed survey responses. These results are consistent with previous findings by Murray¹⁶ who found that older persons are more likely than younger persons to respond. Patient experience evaluations of ED care often fail to include those from vulnerable populations for various reasons.^{11,14,17} However, our study shows that delivering the surveys to these patient populations immediately upon discharge on site is possible and essentially fills a critical gap in current practice.

We demonstrated that capturing the experience of patients from vulnerable populations is feasible with both face-to-face interviews and handout surveys. The response rates of both survey administration methods were very high which is consistent with the literature that suggests response rates are generally higher when surveys are administered on site at the ED rather than surveys mailed post-discharge.^{11,14} However, our results contradict Gasquet et al,¹⁸ who claimed that mailed distribution was preferred to distribution at patient discharge as demonstrated by the resulting response rates in their study. The difference between this study and the findings of Gasquet et al may be due, in part, to unique study settings and in part to the calculation of response rates.

It can also be argued that response rate for surveys delivered on site and the overall positive experiences calculated in this study may be subjected to acquiescence bias. That is, patients, especially respondents such as those from the vulnerable population, may tend to provide positive response to the survey items even if it is different from their true opinions.^{11,19,20} Surveys delivered on site may be more prone to this bias as it involves interaction between the respondents and the person conducting the face-to-face interviews or handing out the surveys. We tried to mitigate the risk of bias by having RAs introduce themselves as being independent of the hospital, reassuring patients of confidentiality and anonymity in responding, and advising patients who were approached that they would not disclose the patient's decision to participate to the ED staff. Although we cannot

completely eliminate such bias as evident in the higher prevalence of positive qualitative comments in responses obtained via the face-to-face interview mode compared to those obtained via the handout survey mode, the quantitative survey responses of the evaluative, multiple choice questions are comparable. Thus, the bias may depend on the type of responses and warrant further investigation.

The overall preference for face-to-face interviews over handout surveys observed amongst the study cohort may be related to the location of the drop box, as this may not have been at the exit by which some of the patients left the ED. Similarly, face-to-face interview is especially convenient for those admitted for acute in patient care, accounting for the higher rate of admitted patients who opted for this survey method. This preference in admitted patients, however, did not seem to introduce bias as participation rates were similar with both admitted patients as well as patients treated and released from the ED. Face-to-face interviews may be the preferred mode by those who value the opportunity for conversation with a RA, and who require assistance due to visual impairment or due to difficulty understanding the survey questions. Nevertheless, with lower cost for administration, handout surveys may be a more attractive and sustainable approach for capturing the unique experience of patients from vulnerable populations on an ongoing basis than the more resource-intensive interview mode.

Our findings suggest that patient experience surveys can be provided to patients when discharged from the ED or additional resources are dedicated to contacting vulnerable groups through means other than mailed distribution to collect their feedback on an ongoing basis and ensure consistent representation in quality improvement considerations. Optimal timing for administering patient experience of care surveys may impact the responses but unfortunately has not been well studied.²¹ For example, we may gain real-time insight by surveying the patients immediately post-discharge, but the patients, especially those who are being discharged to other units for further care, may still be too unwell to comprehend the whole experience in the ED. Furthermore, limited resources and other logistical issues (e.g. space and privacy considerations) may deter the use of the survey administration methods tested in this study. Nevertheless, hospitals may wish to consider periodically surveying by face-to-face interviews or handout surveys in a small sample of the populations of interest that are likely missed in the regular survey to validate if the responses are in congruence with the responses obtained from the regular survey to ensure equity of care.

The patient experience survey is a tool to measure patients' perceived experiences of quality of care but inherent limitations in administering the survey indicate that it

alone does not provide sufficient information to guide quality improvement activities.²² As a potential indicator of equity, patient experience should be measured alongside other types of quality indicators to guide overall quality improvement and provide a balanced view of performance.²³⁻²⁵ For example, process indicators such as time to see a physician or time from arrival to analgesics use may be compared across socio-demographic subgroups, since pain management is a well-studied area in emergency medicine and involves both objective and subjective elements.^{9,26} Re-admission rate and a subset of evidence-based quality of care indicators (e.g. overall patient assessment of communication, length of stay in ED etc.) for EDs developed by national consensus may also be utilized with an equity lens by stratifying indicators according to socio-demographic characteristics.²⁷ Jha and Zaslavsky recently suggested that performance measures without socio-economic status adjustment may be supplemented with stratified results to provide comprehensive information to guide quality improvement efforts.²⁸ These objective metrics can help both reinforce patient perceptions about care and help provide guidance for areas of quality improvement in the equity domain in the ED.

This study sought to collect a more representative understanding of patient experience of care in the ED by testing face-to-face and handout methods of survey administration and focusing on selected vulnerable populations, but other study methods, such as focus groups, may also be employed to verify the results of this study. Equity assessment and stratification can also be expanded to include other socio-demographic subgroups (e.g., gender, immigration status and ethnicity, socio-demographic factors as relevant to the local settings). Moreover, further studies of factors contributing to patients' positive and negative experiences are warranted. To better understand patient experiences and equity dimensions, the measurement of equity should be continually and rigorously evaluated and refined according to the needs of the patient populations in the ED and within other hospital settings.

Limitations

There are several limitations that may potentially introduce biases and therefore need to be addressed for appropriate interpretations of the study results. Using a single site means that the generalizability of our findings is uncertain. However, in most large communities, there is usually a single urban hospital that provides care to a majority of patients from vulnerable populations that will likely find these study results relevant. It is also recommended that similar studies be carried out at individual EDs to assess the equity of care that reflects their particular patient populations. Furthermore, with the potential gentrification of the DTES, postal code use for identifying the low-

income subgroup may have led to mixed socio-demographic characteristics such that some patients may have been misidentified or misclassified into the low-income subgroups, affecting the precisions of our results. We tried to minimize that problem by using a single postal code that refers to the poorest neighbourhood in the country to identify the low-income subgroup. We also used a specific list of postal codes matched to locations of transitional housing with verification of the addresses to confirm those who belong to the homeless/ unstable housing subgroup where necessary.

Conclusions

Delivering patient experience surveys immediately upon discharge is an effective way of capturing unique responses from patients of vulnerable populations, supporting a valuable means of assessing equity in the ED. Our findings demonstrated that when patient experience surveys are administered by face-to-face interview or handout surveys, it is possible to create a fair opportunity to capture the voices of all patients and to evaluate their experiences in the ED regardless of socio-demographic status to inform quality improvement activities.

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