Put a Face to a Name:

Providing hospital patients with photographs of their care-team members may improve patient-clinician communication and increase overall patient satisfaction.

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Communication is critical within healthcare; however, breakdowns in the patient-clinician relationship have been identified in such core aspects as the ability for inpatients to identify their physicians. With increased adoption and use of new information technologies that support visual content, hospitals can begin to look at the potential of photographic aids to improve communication between patients and care providers. Making photographs of clinicians available to patients may increase patients’ knowledge of who is responsible for their care thereby creating a climate of familiarity, improving communication, and fostering patient adherence to treatment plans. We report on interim data from “Put a Face to a Name” a randomized controlled trial (ClinicalTrials.gov #NCT01658644) currently active at a large teaching hospital in Canada. This three-arm study tests whether an intervention providing patients with photographs of their clinicians results in better memory recall, improved communication, and increased patient satisfaction. Due to the frequent rotations of team members in teaching hospitals, we propose the development of a cross-platform application that collects clinicians’ photographs and information from a number of data sources and displays them organized according to patients’ circle of care. This provides for a dynamic tool that satisfies health information needs of patients and their families.

Keywords— photographic aids; patient-clinician communication; clinician identification, patient satisfaction

I. INTRODUCTION

Communication is critical within healthcare [1] and effective communication is vital as it has been linked to a reduction of clinical errors [2-6] and adverse events [7] as well as improved patient outcomes due to increased compliance with medical treatment [8]. Despite the recognized impact on quality of care and health outcomes, miscommunication continues to be a major problem in hospitals [9-12].

Although there has been an explosion of development of Health Information Technologies (HIT) intended to improve efficiency, some with a focus on communication, research and HIT advancements often overlook fundamental deficiencies occurring early in the communication process. Breakdowns in patient-clinician and inter-professional relationships have been identified in such core interactions as the ability for patients to recognize members of their care team, and for clinicians to know their colleagues by name [13]. Healthcare is currently characterized by “more to do, more to know and more people involved than ever before” [14]. Due to both complexity and increased transitions of the care team, patients admitted to a teaching hospital may meet many different physicians, nurses and therapists. For patients already vulnerable due to medical condition, keeping track of care providers may be very difficult.

In this paper we report on select and preliminary results from a clinical trial and propose the development of an electronic application designed to address the immediate health information needs of patients and their families.

With increased adoption of new information technologies that support visual content, hospitals can begin to look at the potential of photographic aids to improve recall, communication, and ultimately the quality of care. There is substantial established literature on the superiority of pictures over other types of stimuli, such as words (names), in memory recall [15]. Research shows that photographic aids can improve communication [16], help people retain information [17], and diminish inaccurate appropriations of facts [15, 17, 18]. Furthermore, photographic aids have been shown to increase feelings of empathy, compassion and understanding about a person or situation [18]. Making photographs of clinicians available to patients may increase patients’ knowledge of who is responsible for their care, thereby increasing their trust and satisfaction; providing photographs of clinicians to other fellow clinicians may help create a climate of familiarity and improve inter-professional communication and collaboration. Furthermore, having pictures of patients available for clinicians may reduce errors such as electronic ordering or documentation on the wrong patient [19], a type of error that prior to the widespread use of HIT, could be mitigated by a second clinician responsible for double checking and correcting patient orders. [20]
Relatively little research has been conducted to evaluate the benefits of using photographs as recall tools in different industries and environments. There are only a few studies addressing the use of photographic aids in hospitals, and they focus on reducing “wrong patient” errors or juxtaposition errors (orders placed for the wrong patient due to too many Electronic Patient Record (EPR) system windows opened on the same screen at once) [21]. The JPS Health Network sponsored a study looking at preventing errors that result from patient misidentification, by providing caregivers in the psychiatry units photographs of patients (placed in front the patient’s medical chart and on an index card attached to the patient’s medication administration record) as a second means of identifying patients [22]. Similarly, researchers at the Children’s Hospital in Colorado introduced an order verification screen that displayed patient photographs as an effective strategy for reducing the risk that providers will mistakenly place orders in a wrong patient’s electronic medical record (EMR). Both these interventions were successful in dramatically reducing errors [21,22].

Even fewer studies looked at providing patients with photographs with the intent to empower patients and improve patient-physician communication. In 2010, investigators from Vanderbilt University listed a study on clinicaltrials.gov that was designed to improve the patient-physician relationship and improve patient satisfaction by providing a biosketch card of the attending orthopedic trauma surgeon to the patient [23]. The biosketch card was meant to include a picture of the attending orthopedic surgeon with a brief synopsis of his or her: education background, specialty, surgical interests, research interests, and other interests including hobbies. Each patient would be randomized to the control group or the intervention group receiving a biosketch card, and within two weeks of discharge from the hospital, but before the patient's first clinic visit, each patient would be called by the Vanderbilt University Medical Center (VUMC) for a patient satisfaction telephone survey. However, according to clinicaltrials.gov, this study never started recruiting [23].

It is surprising that while only few research studies focus on addressing hospitalized patients’ information needs, the majority of communication related complaints raised by patients refers to the lack of information available to patients [9]. Our research study aims to fill a gap in the literature by conducting a controlled experiment to determine if photographic aids have the potential to fulfill patients’ information needs and increase memory recall, thereby improving patient-physician communication, and ultimately the quality of care.

II. METHODS

A. Ethics
All study procedures were approved by the Research Ethics Board at University Health Network (UHN), and the Institutional Review Board at Rutgers University. Written informed consent was obtained from all participants.

B. Overview of Design
“Put a Face to a Name” (Face2Name) is a randomized control trial (ClinicalTrials.gov #NCT01658644) currently active at a large teaching hospital in Canada. This three-arm study tests whether an intervention providing patients with photographs of their clinicians results in better memory recall, improved communication, and increased patient satisfaction.

C. Inclusion Criteria and Study arms
Following the findings as per O’Leary et al. [13], we set the goal for the sample size at 300 patients. With the exception of patients diagnosed with significant confusion, delirium or dementia, all patients newly admitted to the general internal medicine (GIM) department were eligible for inclusion. All patients who met the inclusion criteria and provided informed consent were randomized for participation in one of three study groups: Group A, the control group, would not receive any intervention (the handout), as per current hospital practice; Group B would receive a handout with the names and roles of their clinical care team; Group C would receive a handout with photographs in addition to the names and roles of their clinical care team. See Fig. 1 and Fig. 2 for Group B and C handouts respectively.

D. Setting
The study was conducted at a large academic, urban hospital on two general medicine wards. The wards consist of 36 beds and are staffed by one of two physician services: (i) a house staff covered teaching service or (ii) a non–house staff hospitalist service. Each teaching service unit is staffed by four teaching service physician teams (teams 5, 6, 7, 8) who care for patients solely in their designated unit. Teaching service teams consist of one attending physician, one second or third year medical resident, two to three interns, and one to two medical students. Additionally, each hospitalist service unit is staffed by three to four hospitalists (team 9). Hospitalists care for patients without the assistance of house staff or midlevel professionals (nurse practitioners or physician assistants). Patients are admitted to these units based on bed availability, either from the emergency department or directly by an outpatient physician. Each care team includes nurses, pharmacists, physiotherapists, occupational therapists, social workers, dieticians, speech language pathologists, and spiritual care providers.

E. Procedures
Every weekday during the study period, a member of the research team approached patients who had been admitted into the GIM ward the previous day, and were available and willing to participate in the study. Consented patients were randomized into one of three study groups, and received the corresponding intervention (Group B – handout with clinicians’ names and roles; Group C - similar handout but also includes clinicians’ photographs), or no handout at all (Group A, the control arm).
Patients who received handouts were encouraged to use them as often as desired during their hospital stay. Prior to discharge (on the same day or a day before) participating patients were given a standardized survey to test their memory recall of their clinical team and to evaluate their overall perception of the quality of communication with their clinicians. The surveys were filled in by the patients, or, if the patient required physical assistance, by either a present family member or the researcher.

F. Survey Instrument

The research team created a structured survey instrument designed to evaluate patients’ knowledge of the names and roles of their hospital care team as well as to assess patients’ satisfaction with the level and quality of patient-clinician communication. Questions were derived from a review of literature [13], through team discussions, and were based on HCAHPS [24], the validated national standard for collecting or publicly reporting patients’ perspectives. The survey tool was pilot tested on 12 patients to evaluate whether the questions were clear, easy to follow, and allowed for honest response. As a result, the number of questions was reduced from 40 to 10. Also the sequence of the questions and some wording was revised. See Fig. 3 for sample pages from the survey instrument.

G. Data Analysis

Once completed surveys were collected, a member of the research team entered the data into a database. Statistical analyses were run on the interim results using IBM SPSS Statistics 21 software package for Windows.

For statistical analyses, the independent variables were:
I. Gender (male/female),
II. Age (17-62/63-89),
III. Length of Stay, the number of days from receiving consent from patients and surveying them,
IV. Study arm assignment (Group A/ B/ C).

The dependent variables were:
i. Number of names of clinicians correctly recalled,
ii. Number of roles of clinicians correctly identified,
iii. Number of faces of clinicians correctly identified.

III. FINDINGS

We report on interim data from the trial that encompasses 100 surveys taken between August 1st, 2012 and January 31, 2013.

Of the surveyed participants, 43 were female (43%); 33 were randomized in Group A (33%), 34 in Group B (34%) and 33 in Group C (33%). The age range was 17 to 89, the mean 61, and the median 62.
Across all arms of the study, 60% of patients did not know the name of any of their clinicians (14 photographs of their clinicians were printed on the second page of the survey). This supports the argument that there is an unsatisfied information need; patients stand to benefit from an intervention that can help them get to know their clinicians.

Gender and age were not significantly correlated to any of the three dependent variables. This strengthens the argument that patients of all ages, regardless of gender, can benefit from receiving a handout with the names, roles, and photographs of the members for their clinical care teams.

Length of stay did have a significant effect on the number of clinician names recalled correctly (p=.040) and the amount of clinicians’ role correctly identified (p=.067), but there was no statistical significance relating to clinicians’ correctly identified faces (p=.156). From this we can conclude that, as expected, the greater the length of time between consent and survey (i.e. the longer a patient has remained in the hospital), the better the patient’s recognition of their clinicians will be. However, the results still reveal that patients, regardless of length of stay have difficulty identifying who their clinicians are by face, and therefore, can still stand to benefit from receiving a handout with labeled photographs.

Finally, looking at the impact of the study arm assignment on the dependent variables, there is a statistically significant difference between groups (p=.023), with patients randomly assigned to Group C recalling on average 64% more than patients randomly assigned to Group A or 54% more when compared to Groups A and B combined. This finding supports the current literature and confirms our hypothesis that photographs, in addition to names, help patients better remember their clinicians.

Based on the interim data analysis, we believe that the provision of clinician photographs, when accompanied by names, fulfills an important patient information need. Of all the patients surveyed, when asked to choose between receiving photographs or only names of their clinicians, 68% preferred to receive photographs.

We assume that patients know the members of their clinical team however, this is often not the case. We found that in our control group (33 subjects), patients could only recognize on average 2 out of 14 of their clinicians (based on identifying clinicians’ photographs). Furthermore, on average patients in the control group could only correctly specify the role of one of their clinicians (50% of the participants could not remember a single role), and patients could only recall on average 0.5 of their clinicians’ names (64% of the participants could not remember a single name). Our interim results are more pronounced than previous literature [13], which shows that only 32% of patients can correctly name at least 1 of their hospital physicians, and only 11% can correctly name their physicians’ role. Intuitively it makes sense that patients should find it easiest to recognize faces, find it more challenging to recall one’s professional role, and finally, find it most difficult to remember names. The addition of clinician photographs to the intervention tool appeared to be beneficial over the provision of just names and roles with regards to improving recall. The amount of clinicians that patients were able to correctly identify when provided with the handout with photographs (Group C) increased by 64% when compared to the control group, those patients that do not receive any handout as per the current standard of care.

**DISCUSSION**

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Feedback from patients in all arms of the study suggests that providing this information improves patients’ satisfaction with their hospital stay and the perception about the care received. The intervention used in the clinical study, the paper handout with clinicians’ photos, names and roles, is a relatively simple, cost-effective way at managing patient expectations and helping them to know their care team. Although it appears simple and intuitive, in a teaching hospital environment the paper-based method is in no way sustainable and such an intervention must be electronically based if it were to be adopted. We suggest the intervention become a hospital-supported multi-platform electronic application for the reasons described below.

A. Frequency of Staff Rotations and Shifts

The frequency of staff rotations in teaching hospitals, daily shifts, and weekend on-call teams makes it impractical to update the handouts for the patients to reflect the correct makeup of the care-team on a daily basis in a timely manner. In addition to evening and weekend shifts, teaching service teams rotate medical students every two weeks, residents every two months, attending physicians every month, and nurses—which are organized not by team, but by floor—rotate three times daily. The only practical way to stay up-to-date with the changes in the care-teams is for an application to automatically draw from the existing roster databases where schedules are already entered and continuously updated.

B. Dynamic Display Benefits

The creation of an electronic application should allow for dynamic displays that suit various patients’ needs for example some patients are visited by health professionals (e.g. social workers, physiotherapists, dieticians) while others are not. An application can display selectively only those clinicians assigned to visit the patient, and the corresponding roles descriptions and visit schedules can be presented to the patient.

C. Additional Features Potential

Developing an electronic application over other types of interventions also gives the opportunity to expand the amount of information available through the tool, such as providing details of the patient’s care plan. Patients’ lack of understanding of their plan of care (when and why they get various tests done) was another information need identified in the literature [13] and throughout the study.

D. Extended Access

Electronic applications allow the users ubiquitous access. Users do not have to be concerned about misplacing the information (e.g. losing the handout). They would be able to access the information from their personal devices (e.g. mobile phones, laptops) and from their homes after being discharged.

E. Security and Privacy Protection

An electronic system can implement security and privacy protection, and ensure that only those who are allowed to view information about clinicians have access to it.

F. Adaptability and Extensibility

Finally, by developing this intervention as an electronic flexible application, this allows for future extension to support additional information needs of other types of users within the hospital, such as facilitating the provision of patients’ photographs to clinicians. If clinicians could have access to photographs and information about their patients there could be potential for workflow efficiencies and improved patient-clinician, and inter-professional communication.

V. LIMITATIONS

Firstly, the study reports on interim data from 100 surveyed patients, with about a third in each of the study arms. This limits the statistical power of the results. Secondly, although relatively diverse in their medical conditions, and age (due to the nature of patients admitted to the general internal medicine ward) and their ethnic and cultural background (the population served at this hospital) results may not be generalizable to other institutions or other countries. Thirdly, due to varying length of stay and unexpected patient discharges, maintaining a standard minimum of three days between patient consent and survey administration was difficult. This had an effect on the patients’ ability to recall members of their clinical care team. Surveys completed by a family member or researcher (for patients that required assistance) could have also introduced some bias. This information was recorded on the survey to allow for analysis, but to date, insufficient number of participants completed surveys in order to control for such covariates. Nonetheless, preliminary results can inform discussion for the development of a simple system intervention that can readily meet both patient and clinician information needs.

VI. IMPLICATIONS

Patients presenting to the emergency department requiring admission are cared for by a multitude of providers. Combining this with an acute medical illness, the number of care providers coming in contact with patients can be overwhelming, especially at a time when they feel vulnerable. For inpatients as per current standard practice (without this intervention), knowing names and roles, as well as recognizing clinicians can be daunting. We found that providing photographs significantly improved patient recall of their clinical care team members. Across all study participants, 68% preferred to receive photographs to just names as memory aids. While it is unlikely that providing photographs directly improves the quality of care provided, our findings indicate that it improves the patient experience, and patient satisfaction.

This research builds on the current literature addressing visual data on memory recall, as well as research conducted on patient-clinician communication, and effective inter-professional team building. Although studies addressing the effectiveness of HIT have had inconsistent outcomes, many researchers remain convinced that adoption and implementation of information technologies and mediated communication systems are the future of improved clinical
care. Hospitals now have the information technology tools that can support visual data. The capability of these tools to disseminate visuals, specifically the use of photographic aids, in hospital environments has not yet been studied. This study provides the foundation for researching the potential for photographic aids to improve patient-clinician and interprofessional communication, ultimately improving the quality of care.

Future research should entail the development and evaluation of an application that provides patients with the names and photographs of the members of their care team. In situ usability studies should identify where and how the tool is used most effectively and uncover unintended consequences. Observations should also accompany qualitative inquiry to better understand why and how to mitigate patient and clinician concerns regarding the sharing of personal information.

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