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Fostering Humanism in Critical Care: The Footprints Project

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Abstract

Background: The technologic focus of the intensive care unit (ICU) can overshadow the 'lives lived' of critically ill patients. We developed a personalized patient Footprints Form and Whiteboard to facilitate holistic, patient-centered care, to inform clinical encounters, and to create deeper connections among patients, families, and clinicians.

Objectives: The objectives of this mixed-methods study were to assess the uptake, sustainability, and influence of the Footprints Project.

Methods: In a 22-bed university-affiliated ICU, we used 10 implementation strategies to enhance use of the Footprints Form and Whiteboard. We conducted 3 audits to examine uptake and sustainability. We conducted semi-structured interviews with 10 clinicians, and held 5 focus groups with 25 clinicians; and we interviewed 5 patients and 13 family representatives of 5 patients who survived and 5 who died in the ICU. Transcripts were analyzed using qualitative content analysis.

Results: The Footprints Project facilitated holistic, patient-centered care by setting the stage for patient and family experience, motivating the patient, and humanizing the patient for clinicians. Through informing clinical encounters, Footprints helped clinicians initiate more personal conversations, foster deeper connections and guide treatment. Professional practice influences included more focused attention on the patient, enhanced interdisciplinary communication and changes in community culture. Initially used in 15.8% of patients (audit A), uptake increased to 51.4% in Audit B, and was sustained at 57.8% in Audit C.

Conclusions: By sharing valuable personal information about patients before and beyond their illness on individualized whiteboards at each bedside, the Footprints Project fosters humanism in critical care practice.

N=250 words in abstract

N= 3791 words in text

Limitations of this Study

1. Clinician impressions about how Footprints has influenced the culture of the unit does not imply causality, nor does vernacular use of the term 'culture' indicate a validated sociologic construct.
2. We had a modest number of patient and family interviews.
3. Whether these results are generalizable to other wards or jurisdictions merits further evaluation.

Strengths of this Study

1. This was a mixed-methods design informed by interdisciplinary engagement.
2. We elicited views of patients, family members, and clinicians about the Footprints Project.
3. We used a multi-modal enabling and reminding approach to enhance and sustain uptake.

"And from there, our conversation begins….." [Chaplain]

Introduction

Barriers to patient self-expression can engender a loss of identity, creating distance between patients and clinicians (1).Difficulty that clinicians may have acknowledging their shared humanity with patients may contribute to clinician detachment (2).Such disengagement may serve as self-protection while working in an emotional environment,(3) but may attenuate empathy (3).In the intensive care unit (ICU), life-sustaining technologies and attendant communication challenges can also dehumanize patients.

Information that patients and families want shared with the healthcare team may be revealed by questionnaires, refocusing attention on personhood. For hospital-based palliative care, Chochinov and colleagues developed the Patient Dignity Question (PDQ) (2) - a single open-ended question, "What do I need to know about you as a person to give you the best care possible?" The resulting patient-partnered paragraph is placed on the chart. Clinicians reported learning something new about patients, influencing care; families recommended using the PDQ. These investigators developed a 10-item instrument documenting personal attributes called 'This is ME' (TIME) (4).Most residents canvassed in 6 nursing homes recommended using TIME, and wanted the summary placed in their chart. Clinicians stated that TIME enhanced their respect and compassion for patients.

Communication boards can also express patients' personhood. Gerontology nurses introduced the 'All About Me' board for persons with dementia unable to speak for themselves (5), offering families the opportunity to express their loved one's personality and preferences on a board installed in the patient's room. An ICU study found that conscious patients who offer information to place on their communication board may be more satisfied with care (6).

We developed the Footprints Project to promote the personhood of critically ill patients, hypothesizing this could be actualized by a combined written tool (Footprints Form) and communication board (Footprints Whiteboard). The overall goals of the Footprints Project were to facilitate holistic, patient-centered care, inform clinical

encounters, and create deeper connections among patients, families, and clinicians. Building on extensive pilot work (7-9), we incorporated Footprints into daily practice in the ICU at St. Joseph's Healthcare Hamilton.

The objectives of this study were to assess the 1) uptake, 2) sustainability and 3) influence of the Footprints Project using both qualitative and quantitative methods.

Methods

The Footprints Form documents personal information about a patient's story in a structured 16-item questionnaire completed by family members or friends (or patients, if able) [supplementary file 1]. The second component transcribes key information from the form onto a dedicated Footprints Whiteboard in each patient's room. The completed Footprints Form is placed in the medical chart.

The Footprints Project was a nursing-led inter-professional initiative in a 22-bed university-affiliated, medical-surgical ICU at St. Joseph's Healthcare Hamilton, developed following stakeholder engagement, 6-phase pilot testing [Table 1], and baseline measurements (January 2015 - December 2016). Based on challenges discovered during pilot testing, we introduced 10 implementation strategies (January to July 2017) [Table 2].

In this mixed-methods study [supplementary file 2], we addressed objectives 1-2 through audits, and objectives 1-3 through interviews and focus groups.

Quantitative Data

Following baseline measurements (Audit A) during pilot work, we conducted two 1-month audits. Audit B (July 2017) evaluated uptake (objective 1); Audit C (April 2018) evaluated sustainability (objective 2). Each audit documented patient data (e.g., mechanical ventilation, length of stay) and Footprints data (e.g., completed questions on the Form and transposition of pertinent information onto the Whiteboard). We defined a completed form as having ≥1 question completed. Audit A was a 1-day, concealed, observation period; Audits B and C were 5-days, informing bedside staff to concurrently elicit feedback.

Qualitative Data

To understand the influence of the Footprints Project on ICU clinicians, we conducted 10 semi-structured interviews (10 clinicians) and 5 focus groups (25 clinicians), between Audits B and C. Clinicians included 3 bedsides nurses, 1 charge-nurse, 4 physiotherapists, 2 respiratory therapists, 2 chaplains, 1 clerk and 12 physicians (5 fellows, 4 residents, 3 intensivists). We used purposive sampling to identify clinicians working in the ICU for ≥ 1 year (except trainees), inviting participation by email. All invited clinicians participated.

To explore the influence of the Footprints Project on the experience of patients, we interviewed 5 survivors on the ward. We interviewed 13 family members of 10 different patients to understand the influence of the Footprints Project (5 families of survivors and 5 families of decedents). Selection criteria were English-speaking and patients in ICU for ≥1 week with completed whiteboards. Participation was by telephone or in-person. All invited patients and families participated.

A lead researcher with qualitative methods training who does not work in the ICU (MS) and had no prior relationship with participants conducted interviews and focus groups in a hospital office or conference room; one family member was interviewed by telephone. A nurse (NH) and physician (DC) with qualitative methods training interviewed 5 patients they previously cared for. Semi-structured interview and focus group guides were used; each interviewer kept field notes from the focus groups and interviews. Interviews and focus groups were digitally recorded, transcribed and anonymized.

Public and Patient Involvement

The motivation for this project was humanizing members of the public when they are technologically dependent in the ICU; in this sense, the public motivated the aims of our research. We sought direct input from patients and families about the Footprints Form and Whiteboard through interviews. In this sense, patients and family members advised about the content and format of the Footprints Form and Whiteboard. We solicited their views about whether and how the Footprints Project influenced their experience of being in the ICU. Their voices motivated us to continue with the Footprints Project.

Role of the Sponsor

The sponsors had no role in the design, conduct, interpretation or write-up of this study.

Data Sharing

De-identified data will be available upon request and research ethics board approval.

Transparency Declaration

The information and findings contained in this manuscript represent an honest, accurate and transparent account of the study. No aspects have been omitted and any discrepancies have been explained.

Dissemination Declaration

Study results will be shared with clinician participants at local interprofessional rounds and meetings. We will share the Footprints materials and methods with interested parties in other wards and hospitals, at conferences and peer-review literature.

Analysis

We analyzed the uptake between Audits A and B, comparing the proportion of completed Footprints activities (e.g., completion of the form, information transposed onto the whiteboard, form on patients' chart). Whiteboard information contained dynamic (e.g., date, staff names, patient milestones), and static (patient name, family members) data. We assessed sustainability by comparing Audits B and C, summarizing quantitative data using descriptive statistics.

Conventional content analysis was used, whereby codes are derived directly from the data without preconceived categories or theoretical perspectives (10), yielding a descriptive summary of findings, consistent with qualitative description (11). Three investigators completed line-by-line open coding of 1 focus group and 5 interview transcripts, discussed resulting codes, and developed the preliminary coding list. Remaining transcripts were coded by one investigator using an audit trail documenting changes (12); the coding structure evolved during team consensus meetings. N'Vivo (V 11.0) was used for data management. We held an off-site member-checking event with 10 interprofessional colleagues.

Ethics

The Hamilton Integrated Research Ethics Board approved this study. Written informed consent was obtained from all participants.

Results

Quantitative Results: *Uptake & Sustainability*

Reflecting the pilot phase, Audit A showed use of the Footprints Form and Whiteboard for 9/57 patients (15.8%) Following 10 implementation strategies, form completion increased significantly (Audit B, 36/70) patients (51.4%) (independent t-test mean difference (MD) 0.37 [95% CI 0.21, 0.53], p<0.001)) [Table 3]. Form completion was sustained between Audit B (51.4%) and C (57.8%) (MD 0.078 [95% CI -0.93, 0.249, p=0.368).

Using patient-days to assess dynamic whiteboard information in Audits B (n=242) and C (n=247), there were no significant differences in completion. For patients in Audits B (n=70) and C (n=64), most static whiteboard data completion rates were unchanged; however, whiteboard posting of patients' preferred name significantly increased (MD 0.19 [95% CI 0.07, 0.40], p=0.006), while messages on the board declined (MD -0.19 [95% CI -0.35, -0.04], p=0.01) [Table 4].

Qualitative Results: *Uptake & Sustainability*

Initially, clinician views on Footprints utilization reflected inconsistent uptake:

> I think it's also to do with modeling ... So, for example, nobody is even bothering to look at this whiteboard, the nurses are not bringing it up. You, as a team, are completely disconnected from it whether it's filled out well or not....If [physician name] is on, of course, or, if [RN names] are at the bedside…the reminders are going to be there. [fellow]

Clinicians identified implementation challenges which we grouped into patient, clinician and system-level barriers [Table 5]. Clinicians expressed how gradually, the Footprints Project became integrated into practice.

One physiotherapist shared: "I totally believe it's sustainable. It's become core. It's certainly become an important part of how I function from day to day in the ICU." [physiotherapist]

A physician described:

"It's common place now, for there to be not just something on the board but something in the room that's important to, or comforts, that person, whereas I think that used to be more the exception and not the standard. I think what [Footprints] does is it makes establishing that understanding of the patient as an expectation… So instead of when it's been there, seeing it as a bonus, when it's not there, it's seen as the exception." [physician]

Qualitative Results: *Influence*

Patients and family members described how Footprints influenced their experience. Clinicians reported diverse purposes of the Footprints Project, with beneficial consequences.

Facilitating holistic, patient-centered care

The Footprints Project **sets the stage for the patient and family, motivates the patient, and humanizes the patient for clinicians.**

Setting the stage

A patient shared how it felt to have the team know personal information about him:

> To me, it felt like, when they looked at it, they were looking at me - no more as a patient…they were looking at me as a family man; a dad, a husband, an uncle, a brother…. I wasn't just 'that patient in Room 4'. [patient]

One family member referred to how Footprints 'set the tone' for care [sister]. Another described:

> For me, it was a footprint to what was coming. …They really want to get to know you and your family, and they just carried on all the way down…they involved us in everything. [son]

Being invited to call the patient by their preferred name, as described by a physiotherapist, started the relationship on a different footing, offering "permission to be on a different level with the patient". [physiotherapist]

Motivating the patient

Patients and families identified how the whiteboard stimulated the patient's recovery. A partner explained:

> I feel that it triggered [my husband]. Like...certain things he loves and familiar names and things like that. It triggers something in their brain to think, 'Oh yeah, I do have that. I do have that to fight for'. [wife]

A patient affirmed the inspirational effect of the whiteboard: "For me, personally, it helped because it gave me something to wake up to, and gave me something to work towards…It helps with, you know, motivation and drive and, you know, staying on that road to recovery." [patient]

A nurse explained:

> "It makes you fight with them, whatever struggle they're going through. We had a young woman who had two young children and every time you'd look at those pictures, you're like, "Come on! You gotta do it! You gotta do it for these kids!" [nurse]

Physiotherapists and respiratory therapists reported using Footprints to incentivize rehabilitation:

> We use it to kind of distract them and get them thinking about something more positive so, knowing that they love gardening... like, “Do you buy your plants or do you grow them from seed?”…it’s just really helpful for us in getting more out of the patient because otherwise, when they're so focused on...“I’m breathing too fast,” or “I’m feeling anxious,” then we don’t get as much out of them in therapy. So I find that the whiteboard is helpful in getting them to do more than they thought that they were capable of doing or what we would have been capable of doing if we hadn’t had those cues to kind of ask them and get them engaged." [physiotherapist]

Humanizing the patient

Families perceived that the Footprints Project broadened clinician perspectives. A parent commented:

> I like it [the whiteboard], because then they know something about her, not that she’s just this person that lays in the bed and doesn’t move….that she does have feelings, she does have things she’s enjoyed; she does have a life. Because a lot of people say, ‘Well, you know, she hasn’t got much life. She’s stuck in a wheelchair.’ Hey, this girl’s on the go all the time. She loves karaoke. [mother]

A nurse stated, “To know that person, on a personal level, it just makes everything... not easier, but better, in a way that you kind of can relate to them…to humanize them in a way that you may not have known.” [nurse]

Whiteboard statements may challenge assumptions.

> As nurses, we form our own opinions a lot of the time, based on someone’s history.... then you can see on the whiteboard, oh, this person was an artist. Like, we had a really young guy pass away last week…you can read his history and kind of form your own opinions, or you can go in his room and see...all the artwork he had and how... artsy and smart and what kind of person he was. I think that changes it a little bit. [nurse]

A resident shared:

> I actually realized, when I came here... I was getting like, pretty crusty and pretty cold and removed from patients…And I never intended it to be like that... so…in that sense, that is what [Footprints] does for you - [it] humanizes the patient.. [resident]

Informing clinical encounters

The Footprints Project was perceived as influencing clinical encounters by helping to **start conversations, foster deeper relationships and guide treatment**.

A conversation-starter

Clinicians described using Footprints as a springboard. As relayed by a nurse, "it is a good conversation-starter with that patient...like, "So, you travelled. I also travel. Let's talk about traveling while I get you washed up." [nurse]

Giving family members the Footprints Form was considered rapport-building:

> It is my kind of way [of] building a rapport with them. Like, that's usually how I introduce myself - especially if they're new to the unit... I kind of want to start building that relationship of trust..."We would like to get to know you". And usually that's a good ice breaker, I find. [nurse]

A patient's sister described:

> So I think at first, like, you kind of wonder if there might have been a lot of stigma around him – you know, just an addict, or whatever, and...I think what [Footprints] triggered was conversation between us and the healthcare team...you've got a structure that helps them focus on the ... unique things about that person they're caring for.[sister]

A physician expressed:

> So when that information is there because that someone has taken it from the family...you get to use that as your leaping off point…If you're like "Oh! I see you like crosswords! Have you done any crosswords this week?" I think it is interpreted as friendlier too, because when you already know someone they're more engaged with you as opposed to when you just pick a random question and hope you're hitting in the right direction. [physician]

Fostering deeper relationships

Some clinicians articulated how learning about their patients through Footprints adds another dimension to care:

> They become less of a patient and more of someone you want to help once you kind of learn a little bit more about them. I don't know, maybe you get a little bit more, not emotional, but invested in their care. [respiratory therapist]

Families and staff described how the whiteboard influenced connections. A sibling reflected:

> I think it helped improve and just strengthen the bond...and that trust. Knowing that...my family member was being cared for – not only on the clinical side but as a human being – that genuine care of humanity…I think it strengthened the relationship and gave us comfort as well. [sister]

One physician shared:

> It allows me to establish a connection with either the patient or their family members in a more meaningful way, as well as more quickly…so it's not just the time it would take, but it's the type of relationship that you might get early on. [physician]

Clinicians believed that Footprints facilitates more emotional engagement with patients. Dismissing a potential concern that this could create inappropriate attachment, one fellow added:

> I think, if anything, understanding your patient's background better leads to greater job satisfaction making my job more interesting, sometimes even more fun... [fellow]

Guiding treatment

Staff indicated how Footprints guides their therapy. One physiotherapist described how knowing more personal information informs treatment targets:

> In your mind, when you're working with them, you have a better sense of, like, we're trying to get you back to your wife and your grandkids that you love so much... You actually can visualize the goal that you're working towards. [physiotherapist]

A respiratory therapist shared:

> There's been times that they've written on the board that the patient is anxious or claustrophobic [and] you kind of slow down, like maybe if you're putting someone on BiPAP and you're putting a big mask on their face and you've just seen that they're claustrophobic, you take that into account…you slow down and explain things a little bit better. [respiratory therapist]

A physiotherapist underscored the utility of knowing a patient's comorbidities and assistive devices (e.g., hearing aids), "because all of those things might impact how we help them recover… So we can almost cue up the patient to be as optimized as possible." [physiotherapist]

The whiteboard can be useful for goals-of-care meetings to learn more about function, interests, and family. A nurse highlighted how a conversation about what a patient 'liked and loved and lived' [nurse] was foundational during the dying process.

A resident described how a Footprints Form informed a late-night conversation with a gentleman he met for the first time:

> … [it] really framed the conversation I had next....he loved gardening and now he's here, about to be on a ventilator... and he was quite elderly…the prognosis was poor. Even though he had been deteriorating, he understood that. We could have a discussion and we ended up not being aggressive and he passed away that night, actually. [resident]

Influencing professional practice

Footprints was perceived as influencing practice by **refocusing clinician attention on personhood, enhancing interdisciplinary communication, and changing community culture.**

Refocusing attention on personhood

A physician found that Footprints can bridge that divide that can develop between patients and clinicians,

> Because as you move through medicine, it's very easy to get more black and white on the medical issues and forget everything else. And if you have particularly bad weeks or bad times in the unit, you can hide behind medical facts... as a protective mechanism for sort of your emotional well-being... And you try to detach, but stuff like that brings you back to relate to families as a human being, not as a physician anymore, not as a scientist giving numbers on prognosis. [physician]

As described by a nurse, Footprints encourages more intimate, less structured, task-oriented practice:

> It just becomes so routine and mechanical that you sometimes forget that there's a body and someone's mother and someone's child sitting in front of you and I think that board brings you back to, "Oh my God, this is a person. This isn't just a job anymore. Like, I'm actually taking care of someone's loved one." So, I think it's a really good reminder of that. [nurse]

A resident reflected that Footprints helped to refocus on personhood:

> It's not like you're changing what you're doing, it just has more meaning... it's less like you are treating numbers. [resident]

Enhancing interdisciplinary communication

Most clinicians discussed how the whiteboard enhances team communication. One physician commented, "Everybody from the physios to the nurses to speech-language pathologists - it puts us all on the same page in our common conversation about that patient." [physician]

A physician shared how the whiteboard information promoted interdisciplinary exchange:

> So it's sometimes nice to see, the therapists have written things on the board like you know, "[she] went 1.5km on the bike today." I wouldn't have otherwise known that to be honest, because I wouldn't have otherwise looked through the therapy documentation. …So I think it has helped the interdisciplinary team approach. [physician]

Changing community culture

Clinicians described how Footprints created an enhanced sense of community, as a physician noted:

> It's nice to remind people, "hey it's so-and-so's birthday tomorrow or so-and-so's anniversary". It's nice to hear those vibes through the unit - I think there has been a cultural change. I think it has changed the unit. [physician]

A nurse explained the influence of Footprints in the ICU:

> We've always asked, "Tell me about them," you know, "What do they like?"... But now it's kind of like a standard...so, there's more discussions about, I would say, who the person is rather than [just] what is going on medically. So, I think it's impacted the unit in a good way. [nurse]

A fellow who returned to the unit after several years away observed:

> I definitely think the culture has changed in the last three to four years…There's a lot more emphasis now on getting to know our patients and the humanism aspect of our medical practice than there was… It's quite different than the cultures in the other units. [fellow]

Discussion

Clinicians working in the ICU may inadvertently forget the 'lives lived' of their patients. The Footprints Project shares each patient's story or 'footprint' with the healthcare team via the Footprints Form, typically completed by families to capture personal information (e.g., preferred name and hobbies). Then selected information is transcribed onto a dedicated Footprints Whiteboard in the room. We documented how Footprints inspired patients and families, and also sparked the ICU team to further motivate the patient. Footprints enhanced multidisciplinary exchange by sharing of important information about patients' background, social and family roles - valued by seriously ill patients (13).

Qualitative data indicate more endorsement of Footprints than the quantitative data suggest. Use of the Footprints Form and Whiteboard was low in the pilot phase, then a 37% absolute increase occurred following implementation strategies (Audit A:15% - Audit B: 51%), that was sustained (Audit C:58%), although personal whiteboard messages declined, perhaps reflecting the interim introduction of a hospital-wide electronic clinical information system. Nonetheless, the sustained overall Footprints completion through this transition lends support to its integration, which remains paper and whiteboard-based rather than web-based. As an inviting repository of information for patients and families to share with the healthcare team and vice versa, this tactile, accessible, initiative reportedly stimulated story-telling (14) and re-invigorated partnerships among the staff, and with patients and families.

While potentially serving as a conversation-starter, clinicians cautioned that reading the Footprints tools should not replace spontaneous, authentic dialogue. While trainee exposure to Footprints was during short clinical rotations, their reflections resonated with those of permanent clinicians. Exploring the untapped potential of Footprints as a more deliberate bidirectional communication vehicle, or a tool to foster clinician emotional

intelligence (15) would also be worthwhile. In our unit, the Footprints Project complements the 3 Wishes Project, promoting individualized care at the end-of- life for dying patients and their families (16). However, the Footprints Project aligns with dignity-conserving care (17) regardless of whether patients survive or succumb.

Conclusions

We explored the uptake, sustainability and influence of Footprints Project from patient, family and clinician perspectives in the ICU. By increasing access to valuable personal information about patients before and beyond their critical illness through personalized whiteboards at the patient's bedside, the Footprints Project facilitates holistic, patient-centered care, informs clinical encounters with patients and families, and enhances interprofessional practice.

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Competing Interests

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Table 1: Footprints Pilot Work and Results

Phase	Methods	Results
1	• 20 semi-structured interviews with ICU staff to generate items for the Footprints Form • 8 nurses, 2 physicians, 5 respiratory therapists, 2 physiotherapists, 1 chaplain, 1 medical student and 1 research coordinator)	• Paper-based form was favored • Form to be placed in common location (i.e. front of the medical chart) • Selected items from Form transcribed onto Whiteboard in the patient's room • Photo of the patient encouraged was for the Whiteboard
2	• The Footprints Whiteboards were installed in patient rooms to display essential information from the Footprints Form • The Footprints Form was pilot tested with the families of 16 patients	• 16 patients aged 48-89 (mean 67.1 years) were included • 5 families (participation rate 93.8%) completed the form (7 interviewer-administered and 8 self-administered) • Whiteboard data: the date, the patient's preferred name, clinician, name of the family spokesperson, aids used at home, milestones in the patient's life, important issues to share, and a message centre for family and ICU team
3	• The Footprints Form and Whiteboard was administered for 26 additional patients • Feedback was elicited from family members (verbal and written) and clinicians (verbal)	• 21 families and 30 clinicians (response rates 80.4%, 100%, respectively) • Footprints was perceived to foster holistic, personalized care and promote humanism in practice
4	• Footprints Form was used by clinicians on the unit for 5 months	• During this period, nurses provided Footprints Forms to families of patients admitted to the ICU and updated the whiteboards with selected information provided.
5	• A positive deviance group brainstorming exercise with 16 interdisciplinary colleagues was held • Strategies were identified to encourage completion of the Footprints Forms and Whiteboards, and to generate additional implementation suggestions	• Several strategies were generated to increase completion (e.g., better accessibility of forms for unit communication clerks and clinicians for distribution, and providing forms in patient rooms and waiting room for families to complete). More results are found in Table 3.
6	• A 1 month audit of the form and whiteboard for each patient who had been in the ICU for ≥48 hours was done, regardless of their mechanical ventilation status	• 57 patients audited serving as baseline Audit A • Magnets (100%) and markers (98.2%) for the whiteboards were widely available, but the Footprints Form was completed for only 9 (15.8%) of patients • Of those 9 patients, 6 (66.7%) had a copy of the Footprints Form hanging from the whiteboard and data from it included on the whiteboard • For 48 patients without completed Footprints Forms, today's date and clinician names were recorded on the whiteboard for 34 (70.8%)

Table 2 10 Footprints Implementation Strategies

Implementation Strategy	Description
1) Print on brightly coloured green paper	The Footprints Form was printed on bright green paper as a visual prompt.
2) Involve the unit communication clerk	The unit communication clerks placed the blank Footprints Form in each new patient's chart on admission.
3) Make the form available in patient room	Blank Footprints Forms were hung from the Whiteboard with a note attached for families "Please take a form to complete and return to the Nurse".
4) Make the form available in waiting room	The Footprints Forms were also placed in the ICU waiting room inviting family completion.
5) Include in Daily Goals Checklist (19)	A Footprints completion prompt was added to the Daily Goals Checklist.
6) Share family feedback with nurses via email	A synopsis and stories about Footprints family feedback were periodically emailed to each bedside RN.
7) Remind staff about Footprints in ICU Newsletter	The Footprints Project was featured in the "Practice Polisher" Newsletter.
8) Role-modelling use of Footprints in practice	Team members more attentively used the Footprints Form and Whiteboard in practice to encourage uptake
8) Include verbal reminders during huddles with bedside staff	In small group huddles and ICU walk-abouts, the research team gave ongoing verbal reminders about Footprints
9) Ongoing interprofessional engagement	The research team collaborated with ICU clinicians, Palliative Care and Liaison Psychiatry colleagues for feedback and improvement suggestions.
10) Introduce volunteer to engage families to replace former step*	Twice weekly, a volunteer (former ICU nurse) checked patient rooms for completed Footprints and Whiteboards, distributing blank forms to family members as needed, encouraging their completion and return to the bedside nurse.

*In July 2017, the tenth step was changed from "A reminder will be given to the nurses to distribute the Footprints Form and complete the Whiteboard as part of the ICU safety briefing". to the volunteer-led family engagement.

Table 3 Footprints Form Audit Results

	Audit B N=70 patients N=247 patient-days	**Audit C** N=64 patients N=242 patient-days	**Mean Difference**	**95% CI (P-value)**
Number of Audit days/patient				
Mean (SD)				
Median (IQR)	3.5 (1.61) 4 (3)	3.78 (1.47) 5 (2)	-0.281	-0.811, 0.248 (P=0.219)
Footprints Form[a] Completion rate per patient	36/70 (51.4)	37/64 (57.8)	0.078	-0.93, 0.249 (P=0.368)
Full completion, n(%)	19/70 (27.1)	11/64 (17.2)	-0.100	-0.242, 0.043 (P=0.170)
Front Page Completion				
Q1- Name, n(%) Add question	36 (100)	36 (97.3)	-0.027	-0.82, 0.028 (P=0.327)
Q2- Language, n(%)	35 (97.2)	36 (97.3)	0.001	-0.077, 0.078 (P=0.985)
Q3- Grew up, n(%)	35 (97.2)	35 (94.6)	-0.026	-0.120, 0.067 (P=0.578)
Q4- Family members, n(%)	34 (94.4)	37 (100)	0.056	-0.021, 0.132 P=0.150
Q5- Aids or Devices, n(%)	32 (88.9)	32 (86.5)	-0.024	-0.180, 0.131 (P=0.759)
Q6- Mobility before ICU, n(%)	33 (91.7)	34 (91.9)	0.002	-0.128, 0.132 (P=0.973)
Q7- Help before ICU, n(%)	30 (83.3)	33 (89.2)	0.086	-0.069, 0.240 (P=0.272)
Back Page Completion				
Q8-Beliefs, values, practices, n(%)	28 (77.8)	28 (75.7)	-0.021	-0.221, 0.179 (P=0.835)
Q9- Interests, hobbies, n(%)	33 (91.7)	33 (89.2)	-0.025	-0.164, 0.114 (P=0.724)
Q10- Pets, n(%)	32 (88.9)	31 (83.8)	-0.051	-0.213, 0.111 (P=0.533)
Q11- Roles, n(%)	32 (88.9)	27 (73.0)	-0.159	-0.342, 0.023 (P=0.086)
Q12- Personality, n(%)	33 (91.7)	33 (89.2)	-0.025	0.164, 0.114 (P=0.724)
Q13- Life events, n(%)	28 (77.8)	26 (70.3)	-0.075	-0.282, 0.132 (P=0.427)
Q14- What matters most, n(%)	28 (77.8)	29 (78.4)	0.006	-0.190, 0.202 (P=0.951)
Q15- What else, n(%)	22 (61.1)	19 (51.4)	-0.098	-0.331, 0.136 (P=0.408)
Q16- Your Footprint, n(%)	21 (58.3)	21 (56.8)	-0.016	-0.250, 0.260 (P=0.893)

Table 4 Footprints Whiteboard Audit Results

	Audit B N= 70 patients	**Audit C** N=64 patients	**Mean Difference**	**95% CI (p-value)**
Static Whiteboard Information				
Picture	9 (12.8)	8 (12.5)	-0.004	-0.118, 0.111 (P=0.951)
Call me	25 (35.7)	38 (59.4)	0.237	0.069, 0.404 (P=0.006)
Spokesperson	22 (31.4)	32 (50.0)	0.186	0.020, 0.352 (P=0.029)
Goals	9 (12.8)	2 (3.12)	-0.097	0.190 -0.004 (P=0.041)
Messages	30 (42.9)	15 (23.4)	-0.194	-0.354, -0.035 (P=0.017)
About me	29 (41.4)	34 (53.1)	0.117	-0.054, 0.288 (P=0.178)
Average Completion	29.5%	33.9%		
Dynamic Whiteboard Information				
	Audit B N= 247 patient-days	**Audit C** N=242 patient days	**Mean Difference**	**95% CI (p-value)**
Date	224 (90.7)	217 (89.7)	-0.014	-0.068, 0.039 (P=0.599)
RN	223 (90.2)	220 (90.9)	0.002	-0.050, 0.055 (P=0.937)
MD	216 (87.4)	210 (86.8)	-0.011	-0.071, 0.049 (P=0.723)
RT				
Total patient days, Audit B, n=247 Audit C, n=242	169 (68.4)	133 (55.0)	-0.139	-0.225, -0.053 (P=0.002)
Invasive MV days Audit B, n=126 Audit C, n=160	104 (81.9)	101 (63.1)		
PT				
Weekdays Audit B, n=166 Audit C, n=198	19 (11.4)	25 (12.6)		
Average Completion	72.32%	68.62%		

Table 5 Footprints: Implementation Challenges Identified by Clinicians

Patient/Family Level Challenges	Clinician Level Challenges	System Level Challenges
Patient too unstable; other care priorities	Clinicians unsure of how to explain form.	Completed forms not kept in consistent location.
Patient or family language barrier.	Clinicians concern that it won't be well received.	Form and whiteboard completion not considered mandatory or enforced.
Perception that family is too distressed.	Clinicians too busy to hand out or review form or abstract information for whiteboard.	Considered unnecessary for patients who are able to communicate themselves.
Patient has no family or friend available.	Perceived nursing ownership of the whiteboard; other clinicians reluctant to write on board.	Considered unnecessary for patients with a very short ICU stay.

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Supplementary File 1

Patient Label

FOOTPRINTS

We'd like to get to know you

To help us provide more personalized care in the ICU, we would like to get to know our patients better. We invite you to answer these questions on behalf of your family member. If you prefer not to share certain information, you can leave spaces blank.

This information will be kept on the chart as a reference for the healthcare team.

We encourage you to **bring in a photo** to display on the whiteboard as well.

Please return the form to the nurse when complete. Thanks!

Patient Name: _____ ICU Admission Date: _____

1. What **name** do you prefer to be called?

_____

2. What **language** do you prefer to speak?

_____

3. **Where** did you **grow up**?

_____

4. **Family members** that we may meet:

_____

5. Type of **aids or devices** you use at home:
(e.g., glasses, dentures, hearing aid, CPAP machine, iPad, tablet)

_____

6. Level of **mobility before ICU**:
(e.g., independent / no assistance, cane or walker, wheelchair)

_____

7. **Help** you needed **before ICU**:
(e.g., driving, cooking, bathing, finances)

_____

(Continued on other side)

FOOTPRINTS

8.**Beliefs, values or practices** that are **spiritual or religious**:

_____

9. **Interests/Hobbies:**
(e.g., TV, reading, music, golf, knitting, woodworking)

_____

10. **Pets at home:**

_____

11. **Roles** – past or present:
(e.g., parent, volunteer, teacher, caregiver)

_____

12. **Personality traits:**
(e.g., shy, talkative, funny, anxious, claustrophobic)

_____

13. **Life events**:
(e.g., recently married, just retired, grandparent, experienced a loss)

_____

14. **What matters most to you:**
(e.g., physical independence, ability to manage personal matters, comfort)

_____

15. **What** else **should we know** about you as a person to look after you right now?

_____

16. **A little more about your FOOTPRINT -**Please add a few key words, phrase or quote that summarizes your views or journey, or what is important to you

_____

_____

Supplementary File 2

Audit

Interviews and Focus Groups
10 Clinician Interviews
25 Clinicians in 4 Focus Groups
13 Family Members of 10 Families
5 Patients

Audit A
July 2016

Audit B
June 2017

Audit C
May 2018

Implementation Strategies
1.Green paper
2.Blank form inclusion in chart
3.Blank forms hung from white board
4.Waiting room copies
5.Incorporation in daily goals checklist
6.Email updates
7.Nursing Newsletter
8.Interprofessional role modeling
9.Ongoing verbal reminders
10.Safety briefing highlight -→

Implementation Strategies
1. Green paper
2. Blank form inclusion in chart
3. Blank forms hung from white board
4. Waiting room copies
5. Incorporation in daily goals checklist
6. Email updates
7. Nursing Newsletter
8. Interprofessional role modeling
9. Ongoing verbal reminders
10.Volunteer 2x/week

COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	6
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	1
Occupation	3	What was their occupation at the time of the study?	6
Gender	4	Was the researcher male or female?	NA
Experience and training	5	What experience or training did the researcher have?	6
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	6
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	6
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	NA
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	8
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	6
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	6
Sample size	12	How many participants were in the study?	6
Non-participation	13	How many people refused to participate or dropped out? Reasons?	6
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	6
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	NA
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	6
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	6
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	NA
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	6
Field notes	20	Were field notes made during and/or after the inter view or focus group?	6
Duration	21	What was the duration of the inter views or focus group?	6
Data saturation	22	Was data saturation discussed?	8
Transcripts returned	23	Were transcripts returned to participants for comment and/or	NA

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	8
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	8
Software	27	What software, if applicable, was used to manage the data?	8
Participant checking	28	Did participants provide feedback on the findings?	8
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	9-17
Data and findings consistent	30	Was there consistency between the data presented and the findings?	9-17
Clarity of major themes	31	Were major themes clearly presented in the findings?	9-17
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	9-17

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.

BMJ Open

Fostering Humanism: A Mixed Method Evaluation of the Footprints Project in Critical Care

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Fostering Humanism: A Mixed Method Evaluation of the Footprints Project in Critical Care

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Abstract

Objectives: The objectives of this mixed-methods study were to assess the uptake, sustainability, and influence of the Footprints Project.

Setting: 22-bed university-affiliated ICU in Hamilton, Canada.

Participants: ICU patients admitted and their families, as well as clinicians.

Interventions: We developed a personalized patient Footprints Form and Whiteboard to facilitate holistic, patient-centered care, to inform clinical encounters, and to create deeper connections among patients, families, and clinicians.

Outcome Measures: We conducted 3 audits to examine uptake and sustainability. We conducted semi-structured interviews with 10 clinicians, and held 5 focus groups with 25 clinicians; and we interviewed 5 patients and 13 family representatives of 5 patients who survived and 5 who died in the ICU. Transcripts were analyzed using qualitative content analysis.

Results: The Footprints Project facilitated holistic, patient-centered care by setting the stage for patient and family experience, motivating the patient, and humanizing the patient for clinicians. Through informing clinical encounters, Footprints helped clinicians initiate more personal conversations, foster deeper connections and guide treatment. Professional practice influences included more focused attention on the patient, enhanced interdisciplinary communication and changes in community culture. Initially used in 15.8% of patients (Audit A), uptake increased to 51.4% in Audit B, and was sustained at 57.8% in Audit C.

Conclusions: By sharing valuable personal information about patients before and beyond their illness on individualized whiteboards at each bedside, the Footprints Project fosters humanism in critical care practice.

Strengths and limitations of this study:

- Mixed-methods design informed by interdisciplinary engagement, and representative views of patients, family members, and clinicians
- Multi-modal enabling and reminding approach to enhance and sustain uptake

- The Footprints Project supports individualized care at the end-of- life for dying patients and their families, complementing palliative care interventions in our unit such as the 3 Wishes Project, aligning with dignity-conserving care by humanizing patients whether they survive or succumb
- Includes a modest number of patient and family interview
- Clinicians cautioned that reading the Footprints tools should not replace spontaneous, authentic dialogue

N=232 words in abstract

N= 455 words in text

"And from there, our conversation begins….." [Chaplain]

Introduction

Barriers to patient self-expression can engender a loss of identity, creating distance between patients and clinicians (1). Difficulty that clinicians may have acknowledging their shared humanity with patients may contribute to clinician detachment (2). Such disengagement may serve as self-protection while working in an emotional environment,(3) but attenuate empathy (3).In the intensive care unit (ICU), life-sustaining technologies causing communication challenges can also dehumanize patients.

Information that patients and families want shared with the healthcare team may be revealed by questionnaires, refocusing attention on personhood. For hospital-based palliative care, Chochinov and colleagues developed the Patient Dignity Question (PDQ) (2) - a single open-ended question, "What do I need to know about you as a person to give you the best care possible?" The resulting patient-partnered paragraph is placed on the chart. Clinicians reported learning something new about patients, influencing care; families recommended using the PDQ. These investigators developed a 10-item instrument documenting personal attributes called 'This is ME' (TIME) (4). Most residents canvassed in 6 nursing homes recommended using TIME, and wanted the summary placed in their chart. Clinicians stated that TIME enhanced their respect and compassion for patients.

Communication boards can also express patients' personhood. Gerontology nurses introduced the 'All About Me' board for persons with dementia unable to speak for themselves (5), offering families the opportunity to express their loved one's personality and preferences on a board installed in the patient's room. An ICU study found that conscious patients who offer information to place on their communication board may be more satisfied with care (6).

We developed the Footprints Project to promote the personhood of critically ill patients, hypothesizing this could be actualized by a combined written tool (Footprints Form) and communication board (Footprints Whiteboard). The overall goals of the Footprints Project were to facilitate holistic, patient-centered care, inform clinical encounters, and create deeper connections among patients, families, and clinicians. Building on extensive pilot work (7-9), we incorporated Footprints into daily practice in the ICU at St. Joseph's Healthcare Hamilton.

*Table 1 inserted here

The objectives of this study were to assess the 1) uptake, 2) sustainability and 3) influence of the Footprints Project using both qualitative and quantitative methods.

Methods

Setting

The Footprints Project was a nursing-led interprofessional initiative in a 22-bed university-affiliated, medical-surgical ICU at St. Joseph's Healthcare Hamilton.

Intervention

The Footprints Form documents personal information about a patient's story in a structured 16-item questionnaire completed by family members or friends (or patients, if able) [Supplementary file 1]. The second component involves transcription of key information from the form onto a dedicated Footprints Whiteboard in each patient's room. The completed Footprints Form is placed in the medical chart. Both components were developed following engagement and feedback from key stakeholders, 6-phase pilot testing [Table 1], and baseline completion measurements (January 2015 - December 2016). Based on low uptake in our pilot audit (Audit A) (July 2016) and implementation challenges discovered during pilot testing, we introduced 10 strategies to enhance project uptake (January to July 2017) [Table 2].

*Table 2 inserted here

Quantitative Methods

Audit B (June 2017) was conducted to evaluate project uptake (Objective 1). We defined successful form and whiteboard uptake as a statistically significant increase in completion rates between Audits A and B. We chose this definition for feasibility purposes based on low uptake in pilot data and barriers identified during pilot work [Table 2]. Audit C (May 2018) was conducted to measure sustainability (Objective 2) and was defined as a statistically significant increase or no change in completion rates from Audit B to C. Each audit documented patient data (e.g., mechanical ventilation, length of stay) and Footprints data (e.g., completed questions on the

form and transposition of pertinent information onto the whiteboard). We defined a completed form as having ≥1 question completed. This low threshold was defined to respect the invitational, non-coercive nature of the form, but typically most questions were completed. Audit A was a 1-day, concealed audit; Audits B and C followed patients over a ≤5-day observation period, informing bedside staff to concurrently elicit feedback.

Qualitative Methods

To understand the influence (Objective 3) of the Footprints Project on ICU clinicians, we conducted 10 semi-structured interviews (10 clinicians) and 5 focus groups (25 clinicians), between Audits B and C. Clinicians included 3 bedsides nurses, 1 charge-nurse, 4 physiotherapists, 2 respiratory therapists, 2 chaplains, 1 clerk and 12 physicians (5 fellows, 4 residents, 3 intensivists). We used purposive sampling to identify interdisciplinary clinicians working in the ICU for ≥1 year (except trainees), inviting participation by email. All invited clinicians participated.

To explore the influence of the Footprints Project on the experience of patients and family members, we interviewed 5 survivors on the ward and 13 family members of 10 different patients (5 families of survivors and 5 families of decedents). Selection criteria were English-speaking patients in ICU for ≥1 week with completed whiteboards. Participation was by telephone or in-person. All invited patients and families participated. We conducted interviews until data saturation was reached and no further themes emerged in our analysis.

A lead researcher with qualitative methods training who does not work in the ICU (MS) and had no prior relationship with participants conducted interviews and focus groups in a hospital office or conference room; one family member was interviewed by telephone. A nurse (NH) and physician (DC) with qualitative methods training interviewed 5 patients they previously cared for. Semi-structured interview and focus group guides were used; each interviewer kept field notes from the focus groups and interviews. Interviews and focus groups were digitally recorded, transcribed and anonymized.

See Supplementary file 2 for a timeline of quantitative and qualitative activities.

Analysis

We assessed uptake by calculating the proportion of completed Footprints activities in Audit B (e.g., completion of the form, information transposed onto the whiteboard) to Audit A. Whiteboard data was analyzed in two information categories: dynamic (information updated daily, i.e. date, nurse, physician, respiratory therapist, and physiotherapist) with a denominator of total patient audit days, or static (information that remained constant over the ICU stay, i.e. presence of photos, patient name, spokesperson, goals, messages, about me) with a denominator of total patients. We evaluated sustainability by comparing the proportion of completed Footprints activities between Audits B and C using Pearson's Chi square (χ^2) test with a significance level of $p<0.05$. All statistics were conducted in SPSS (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp.)

For interview and focus group data, conventional content analysis was used, whereby codes are derived directly from the data without preconceived categories or theoretical perspectives (11), yielding a descriptive summary of findings, consistent with qualitative description (12). Three investigators completed line-by-line open coding of 1 focus group and 5 interview transcripts, discussed resulting codes, and developed the preliminary coding list. Remaining transcripts were coded by a single investigator using an audit trail documenting changes (13); the coding structure evolved during team consensus meetings. N'Vivo (V 11.0) was used for data management. We held an off-site member-checking event with 10 interprofessional colleagues who were not previously interviewed to share qualitative results and verify whether findings accurately reflected their experiences and perceptions of the Footprints Project.

Ethics

The Hamilton Integrated Research Ethics Board approved this study (Project # 3214). Written informed consent was obtained from all participants.

Results

Quantitative Results: *Uptake & Sustainability*

Reflecting the pilot phase, Audit A showed use of the Footprints form and whiteboard for 9/57 patients (15.8%) Following 10 implementation strategies, form completion increased significantly (Audit B, 36/70 patients, 51.4%) ($p<0.001$). Overall form completion rate was sustained between Audits B (51.4%) and C (37/64 patients, 57.8%) ($p=0.604$) [Table 3]. Using patient-days in Audits B (n=242) and C (n=247), there were no significant differences in dynamic information completion except for a decrease in names of respiratory therapists ($p=0.002$). For patients in Audits B (n=70) and C (n=64), some static whiteboard data completion rates were unchanged; however, messages, spokesperson, and daily goals on the board declined [Table 4].

**Table 3 and Table 4 inserted here*

Qualitative Results: *Uptake & Sustainability*

The uptake and sustainability of the Footprints project were discussed during the focus groups and interviews. Initially, clinician views on Footprints utilization reflected inconsistent uptake:

> I think it's also to do with modeling ... So, for example, nobody is even bothering to look at this whiteboard, the nurses are not bringing it up. You, as a team, are completely disconnected from it whether it's filled out well or not....If [physician name] is on, of course, or, if [RN names] are at the bedside…the reminders are going to be there. [fellow]

Clinicians identified implementation challenges which we grouped into patient, clinician and system-level barriers [Table 5]. Clinicians expressed how gradually, the Footprints Project became integrated into practice.

**Table 5 inserted here*

One physiotherapist shared: "I totally believe it's sustainable. It's become core. It's certainly become an important part of how I function from day to day in the ICU." [physiotherapist]

A physician described:

"It's common place now, for there to be not just something on the board but something in the room that's important to, or comforts, that person, whereas I think that used to be more the exception and not the standard. I think what [Footprints] does is it makes establishing that understanding of the patient as an expectation… So instead of when it's been there, seeing it as a bonus, when it's not there, it's seen as the exception." [physician]

Qualitative Results: *Influence*

Patients and family members described how Footprints influenced their experience. Clinicians reported diverse purposes of the Footprints Project, with beneficial consequences. The themes and subthemes from the analysis of the qualitative data on influence are illustrated in Supplementary File 3.

A. Facilitating holistic, patient-centered care

The Footprints Project **sets the stage for the patient and family, motivates the patient, and humanizes the patient for clinicians.**

i) Setting the stage

A patient shared feeling respected as an individual to have the team know personal information about him:

> To me, it felt like, when they looked at it, they were looking at me - no more as a patient…they were looking at me as a family man; a dad, a husband, an uncle, a brother…. I wasn't just 'that patient in Room 4'. [patient]

One family member referred to how Footprints 'set the tone' for care [sister]. Another described:

> For me, it was a footprint to what was coming.…They really want to get to know you and your family, and they just carried on all the way down…they involved us in everything. [son]

Being invited to call the patient by their preferred name, as described by a physiotherapist, started the relationship on a different footing, offering "permission to be on a different level with the patient". [physiotherapist]

ii) Motivating the patient

Patients and families identified how the whiteboard stimulated the patient's recovery. A partner explained:

> I feel that it triggered [my husband]. Like...certain things he loves and familiar names and things like that. It triggers something in their brain to think, 'Oh yeah, I do have that. I do have that to fight for'. [wife]

A patient affirmed the inspirational effect of the whiteboard: "For me, personally, it helped because it gave me something to wake up to, and gave me something to work towards…It helps with, you know, motivation and drive and, you know, staying on that road to recovery." [patient]

A nurse explained how whatever struggle patients are going through,

> It makes you fight with them... We had a young woman who had two young children and every time you'd look at those pictures, you're like, 'Come on! You gotta do it! You gotta do it for these kids!' [nurse]

Physiotherapists and respiratory therapists reported using Footprints to incentivize rehabilitation:

> We use it to kind of distract them and get them thinking about something more positive so, knowing that they love gardening... like, 'Do you buy your plants or do you grow them from seed?'…it's just really helpful for us in getting more out of the patient because otherwise, when they're so focused on...'I'm breathing too fast,' or 'I'm feeling anxious,' then we don't get as much out of them in therapy. So I find that the whiteboard is helpful in getting them to do more than they

> thought that they were capable of doing or what we would have been capable of doing if we hadn't had those cues to kind of ask them and get them engaged. [physiotherapist]

iii) Humanizing the patient

Families perceived that the Footprints Project broadened clinician perspectives. A parent commented:

> I like it [the whiteboard], because then they know something about her, not that she's just this person that lays in the bed and doesn't move...that she does have feelings, she does have things she's enjoyed; she does have a life. Because a lot of people say, 'Well, you know, she hasn't got much life. She's stuck in a wheelchair.' Hey, this girl's on the go all the time. She loves karaoke. [mother]

A nurse stated, "To know that person, on a personal level, it just makes everything... not easier, but better, in a way that you kind of can relate to them…to humanize them in a way that you may not have known." [nurse]

Whiteboard statements may challenge assumptions.

> As nurses, we form our own opinions a lot of the time, based on someone's history.... then you can see on the whiteboard, oh, this person was an artist. Like, we had a really young guy pass away last week…you can read his history and kind of form your own opinions, or you can go in his room and see...all the artwork he had and how... artsy and smart and what kind of person he was. I think that changes it a little bit. [nurse]

A resident shared:

> I actually realized, when I came here... I was getting like, pretty crusty and pretty cold and removed from patients…And I never intended it to be like that... so…in that sense, that is what [Footprints] does for you - [it] humanizes the patient.. [resident]

B. Informing clinical encounters

The Footprints Project was perceived as influencing clinical encounters by helping to **start conversations, foster deeper relationships, and guide treatment**.

i) A conversation-starter

Clinicians described using Footprints as a springboard. As relayed by a nurse, "it is a good conversation-starter with that patient...like, 'So, you travelled. I also travel. Let's talk about traveling while I get you washed up.'" [nurse]

Giving family members the Footprints Form was considered a way to build rapport with families:

> Like, that's usually how I introduce myself - especially if they're new to the unit... I kind of want to start building that relationship of trust...'We would like to get to know you'. And usually that's a good ice breaker, I find. [nurse]

A patient's sister described:

> So I think at first, like, you kind of wonder if there might have been a lot of stigma around him – you know, just an addict, or whatever, and...I think what [Footprints] triggered was conversation between us and the healthcare team...you've got a structure that helps them focus on the ... unique things about that person they're caring for. [sister]

A physician expressed the utility of information taken directly from the family:

> You get to use that as your leaping off point…If you're like 'Oh! I see you like crosswords! Have you done any crosswords this week?' I think it is interpreted as friendlier too, because when you already know someone they're more engaged with you as opposed to when you just pick a random question and hope you're hitting in the right direction. [physician]

ii) Fostering deeper relationships

Some clinicians articulated how learning about their patients through Footprints adds another dimension to care:

> They become less of a patient and more of someone you want to help once you kind of learn a little bit more about them. I don't know, maybe you get a little bit more, not emotional, but invested in their care. [respiratory therapist]

Families and staff described how the whiteboard influenced connections. A sibling reflected:

> I think it helped improve and just strengthen the bond...and that trust. Knowing that...my family member was being cared for – not only on the clinical side but as a human being – that genuine care of humanity…I think it strengthened the relationship and gave us comfort as well. [sister]

One physician shared:

> It allows me to establish a connection with either the patient or their family members in a more meaningful way, as well as more quickly…so it's not just the time it would take, but it's the type of relationship that you might get early on. [physician]

Clinicians believed that Footprints facilitates more emotional engagement with patients. Dismissing a potential concern that this could create inappropriate attachment, one fellow added: "I think, if anything, understanding your patient's background better leads to greater job satisfaction making my job more interesting, sometimes even more fun..." [fellow]

iii) Guiding treatment

Staff indicated how Footprints guides their therapy. One physiotherapist described how knowing more personal information informs treatment targets:

> In your mind, when you're working with them, you have a better sense of, like, we're trying to get you back to your wife and your grandkids that you love so much... You actually can visualize the goal that you're working towards. [physiotherapist]

A respiratory therapist shared:

> There's been times that they've written on the board that the patient is anxious or claustrophobic [and] you kind of slow down, like maybe if you're putting someone on BiPAP and you're putting a big mask on their face and you've just seen that they're claustrophobic, you take that into account…you slow down and explain things a little bit better. [respiratory therapist]

A physiotherapist underscored the utility of knowing a patient's comorbidities and assistive devices (e.g., hearing aids), "because all of those things might impact how we help them recover… So we can almost cue up the patient to be as optimized as possible." [physiotherapist]

The whiteboard can be useful for goals-of-care meetings to learn more about function, interests, and family. A nurse highlighted how a conversation about what a patient 'liked and loved and lived' [nurse] was foundational during the dying process.

A resident described how a Footprints Form informed a late-night conversation with a gentleman he met for the first time:

> … [it] really framed the conversation I had next…he loved gardening and now he's here, about to be on a ventilator... and he was quite elderly…the prognosis was poor. Even though he had been deteriorating, he understood that. We could have a discussion and we ended up not being aggressive and he passed away that night, actually. [resident]

C. Influencing professional practice

Footprints was perceived as influencing practice by **refocusing clinician attention on personhood, enhancing interdisciplinary communication, and changing community culture.**

i) Refocusing attention on personhood

A physician found that Footprints can bridge that divide that can develop between patients and clinicians,

> Because as you move through medicine, it's very easy to get more black and white on the medical issues and forget everything else. And if you have particularly bad weeks or bad times in the unit, you can hide behind medical facts... as a protective mechanism for sort of your emotional well-being... And you try to detach, but stuff like that brings you back to relate to families as a human being, not as a physician anymore, not as a scientist giving numbers on prognosis. [physician]

As described by a nurse, Footprints encourages more intimate, less structured, task-oriented practice:

> It just becomes so routine and mechanical that you sometimes forget that there's a body and someone's mother and someone's child sitting in front of you and I think that board brings you back to, 'Oh my God, this is a person. This isn't just a job anymore. Like, I'm actually taking care of someone's loved one.' So, I think it's a really good reminder of that. [nurse]

A resident reflected that Footprints helped to refocus on personhood, "It's not like you're changing what you're doing, it just has more meaning... it's less like you are treating numbers." [resident]

ii) Enhancing interdisciplinary communication

Most clinicians discussed how the whiteboard enhances team communication. One physician commented, "Everybody from the physios to the nurses to speech-language pathologists - it puts us all on the same page in our common conversation about that patient." [physician]

A physician shared how the whiteboard information promoted interdisciplinary exchange:

> So it's sometimes nice to see, the therapists have written things on the board like you know, '[she] went 1.5km on the bike today.' I wouldn't have otherwise known that to be honest, because I wouldn't have otherwise looked through the therapy documentation. …So I think it has helped the interdisciplinary team approach. [physician]

iii) Changing community culture

Clinicians described how Footprints created an enhanced sense of community, as a physician noted:

> It's nice to remind people, 'hey it's so-and-so's birthday tomorrow or so-and-so's anniversary'. It's nice to hear those vibes through the unit - I think there has been a cultural change. I think it has changed the unit. [physician]

A nurse explained the influence of Footprints in the ICU:

> We've always asked, 'Tell me about them," you know, "What do they like?'... But now it's kind of like a standard...so, there's more discussions about, I would say, who the person is rather than [just] what is going on medically. So, I think it's impacted the unit in a good way. [nurse]

A fellow who returned to the unit after several years away observed:

> I definitely think the culture has changed in the last three to four years…There's a lot more emphasis now on getting to know our patients and the humanism aspect of our medical practice than there was… It's quite different than the cultures in the other units. [fellow]

Discussion

Clinicians working in the ICU may inadvertently forget the 'lives lived' of their patients. The Footprints Project shares each patient's story or 'footprint' with the healthcare team via the Footprints form, typically completed by families to capture personal information (e.g., preferred name and hobbies). Then selected information is transcribed onto a dedicated Footprints whiteboard in the room. We documented how Footprints inspired patients and families, and also sparked the ICU team to further motivate the patient. Footprints enhanced multidisciplinary exchange by sharing of important information about patients' background, social, and family roles - valued by seriously ill patients (14).

Qualitative data indicate more endorsement of Footprints than the quantitative data suggest. Use of the Footprints form and whiteboard was low in the pilot phase, then a 37% absolute increase in form completion occurred following implementation strategies (Audit A:15% - Audit B: 51%), that was sustained (Audit C: 58%), although personal whiteboard messages, spokesperson, and daily goals declined, perhaps reflecting the interim introduction of a hospital-wide electronic clinical information system. Nonetheless, the sustained overall Footprints completion through this transition lends support to its integration, which remains paper and whiteboard-based rather than web-based. As an inviting repository of information for patients and families to share with the healthcare team and vice versa, this tactile, accessible, initiative reportedly stimulated story-telling (15) and re-invigorated partnerships among the staff, and with patients and families.

If dignity represents the inherent worth of all human beings, and respect represents the actions that appropriately honor and acknowledge such dignity (16,17), this conceptualization can facilitate identification of concrete, observable behaviors of respectful and disrespectful care (18). As such, many participants in this study considered the Footprints Project as an intervention promoting respectful care, aligned with the definition that respect is recognition of the unconditional value of patients as persons (19).

Limitations of this study include a modest number of patient and family interviews. While trainee exposure to Footprints was during short clinical rotations, their reflections resonated with those of permanent clinicians. While potentially serving as a conversation-starter, clinicians cautioned that reading the Footprints tools should not replace spontaneous, authentic dialogue. Clinician impressions about how Footprints has influenced the

culture of the unit does not imply causality, nor does vernacular use of the term 'culture' indicate a validated sociologic construct.

Strengths of this study include the mixed-methods design informed by interdisciplinary engagement, and representative views of patients, family members, and clinicians. We used a multi-modal enabling and reminding approach to enhance and sustain uptake. The Footprints Project also supports individualized care at the end-of-life for dying patients and their families, complementing palliative care interventions in our unit such as the 3 Wishes Project (20), aligning with dignity-conserving care (21) humanizing patients whether they survive or succumb.

A recent systematic review (22) focused on the effect of humanized care of critically ill patients on empathy among healthcare professionals, anxiety among relatives, and burnout and compassion fatigue in both groups, Galvin and colleagues identified 12 studies addressing 4 interventions (liberal visitation, diaries, family participation in basic care, and witnessed resuscitation) and 1 mixed intervention. Of 12 studies, 11 were at high risk of bias, 10 measured anxiety among 1,055 relatives, 2 measured burnout in 288 ICU professionals, and none addressed empathy or compassion fatigue. The effect of humanizing interventions on any of these psychologic outcomes was not quantifiable, but reviewers identified a trend towards reduced anxiety among families participating in basic patient care, liberal visitation, and diary keeping; the effects of liberal visitation on burnout among clinicians was conflicting. This review underscores the potential for this domain of inquiry.

Further Research

Whether the Footprints Project results are generalizable to other wards or jurisdictions merits further evaluation. Exploring the untapped potential of Footprints as a more deliberate bidirectional communication vehicle, or a tool to foster clinician emotional intelligence (23) would also be worthwhile.

Public and Patient Involvement

The motivation for this project was humanizing members of the public when they are technologically dependent in the ICU; in this sense, the public motivated the aims of our research. We sought direct input from patients and families about the Footprints Form and Whiteboard through interviews, thereby eliciting advice about their content and format. We solicited their views about whether and how the Footprints Project influenced their experience in the ICU. Their voices motivated us to continue with the Footprints Project. After

sharing the preliminary results locally, final study results will be shared with clinicians at local interprofessional rounds and scientific meetings.

Conclusions

We explored the uptake, sustainability and influence of Footprints Project from patient, family and clinician perspectives in the ICU. By increasing access to valuable personal information about patients before and beyond their critical illness through personalized whiteboards at the patient's bedside, the Footprints Project facilitates holistic, patient-centered care, informs clinical encounters with patients and families, and enhances interprofessional practice.

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Role of the Sponsor

The sponsors had no role in the design, conduct, interpretation or write-up of this study.

Data Sharing

De-identified data will be available upon request and research ethics board approval.

Transparency Declaration

The information and findings contained in this manuscript represent an honest, accurate and transparent account of the study. No aspects have been omitted and any discrepancies have been explained.

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Competing Interests

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Table 1: Footprints Pilot Work and Results

Phase	Methods	Results
1	• 20 semi-structured interviews with ICU staff to generate items for the Footprints Form • 8 nurses, 2 physicians, 5 respiratory therapists, 2 physiotherapists, 1 chaplain, 1 medical student and 1 research coordinator)	• Paper-based form was favored • Form to be placed in common location (i.e. front of the medical chart) • Selected items from Form transcribed onto Whiteboard in the patient's room • Photo of the patient encouraged was for the Whiteboard
2	• The Footprints Whiteboards were installed in patient rooms to display essential information from the Footprints Form • The Footprints Form was pilot tested with the families of 16 patients	• 16 patients aged 48-89 (mean 67.1 years) were included • 5 families (participation rate 93.8%) completed the form (7 interviewer-administered and 8 self-administered) • Whiteboard data: the date, the patient's preferred name, clinician, name of the family spokesperson, aids used at home, milestones in the patient's life, important issues to share, and a message centre for family and ICU team
3	• The Footprints Form and Whiteboard was administered for 26 additional patients • Feedback was elicited from family members (verbal and written) and clinicians (verbal)	• 21 families and 30 clinicians (response rates 80.4%, 100%, respectively) • Footprints was perceived to foster holistic, personalized care and promote humanism in practice
4	• Footprints Form was used by clinicians on the unit for 5 months	• During this period, nurses provided Footprints Forms to families of patients admitted to the ICU and updated the whiteboards with selected information provided.
5	• A positive deviance group brainstorming exercise with 16 interdisciplinary colleagues was held • Strategies were identified to encourage completion of the Footprints Forms and Whiteboards, and to generate additional implementation suggestions	• Several strategies were generated to increase completion (e.g., better accessibility of forms for unit communication clerks and clinicians for distribution, and providing forms in patient rooms and waiting room for families to complete). More results are found in Table 3.
6	• A 1 month audit of the form and whiteboard for each patient who had been in the ICU for ≥48 hours was done, regardless of their mechanical ventilation status	• 57 patients audited serving as baseline Audit A • Magnets (100%) and markers (98.2%) for the whiteboards were widely available, but the Footprints Form was completed for only 9 (15.8%) of patients • Of those 9 patients, 6 (66.7%) had a copy of the Footprints Form hanging from the whiteboard and data from it included on the whiteboard • For 48 patients without completed Footprints Forms, today's date and clinician names were recorded on the whiteboard for 34 (70.8%)

Table 2 10 Footprints Implementation Strategies

Challenge	Implementation Strategy	Description
Low visibility of paper forms	1) Print on brightly coloured green paper	The Footprints Form was printed on bright green paper as a visual prompt.
No accountability for form distribution	2) Involve the unit communication clerk	The unit communication clerks placed the blank Footprints Form in each new patient's chart on admission.
Lack of form availability	3) Make the form available in patient room	Blank Footprints Forms were hung from the Whiteboard with a note attached for families "Please take a form to complete and return to the Nurse".
Lack of form availability	4) Make the form available in waiting room	The Footprints Forms were also placed in the ICU waiting room inviting family completion.
Not part of routine care	5) Include in Daily Goals Checklist (10)	A Footprints completion prompt was added to the Daily Goals Checklist.
Lack of nurse motivation	6) Share family feedback with nurses via email	A synopsis and stories about Footprints family feedback were periodically emailed to each bedside RN.
Staff forgetfulness	7) Remind staff about Footprints in ICU Newsletter	The Footprints Project was featured in the "Practice Polisher" Newsletter.
Staff forgetfulness	8) Role-modelling use of Footprints in practice	Team members more attentively used the Footprints Form and Whiteboard in practice to encourage uptake
Staff forgetfulness	8) Include verbal reminders during huddles with bedside staff	In small group huddles and ICU walk-abouts, the research team gave ongoing verbal reminders about Footprints
Lack of awareness	9) Ongoing interprofessional engagement	The research team collaborated with ICU clinicians, Palliative Care and Liaison Psychiatry colleagues for feedback and improvement suggestions.
Lack of nursing time to complete form	10) Introduce volunteer to engage families to replace former step*	Twice weekly, a volunteer (former ICU nurse) checked patient rooms for completed Footprints and Whiteboards, distributing blank forms to family members as needed, encouraging their completion and return to the bedside nurse.

*In July 2017, the tenth step was changed from "A reminder will be given to the nurses to distribute the Footprints Form and complete the Whiteboard as part of the ICU safety briefing". to the volunteer-led family engagement.

Table 3 Footprints Form Audit Completion Rates

	Audit B N=70 patients	**Audit C** N=64 patients	**Mean Difference (95% CI)**	**P-value**
Number of Audit days/patient, Mean (SD)	3.50 (1.61)	3.78 (1.47)	-0.281 (0.81, 0.25)	p=0.295
				χ^2 (p-value)
Forms with ≥1 Question Completed, n(%)	36 (51.4)	37 (57.8)		p=0.491
Q1- Name, n(%)	36 (100)	36 (97.3)		p=0.321
Q2- Language, n(%)	35 (97.2)	36 (97.3)		p=0.984
Q3- Grew up, n(%)	35 (97.2)	35 (94.6)		p=0.572
Q4- Family members, n(%)	34 (94.4)	37 (100)		p=0.146
Q5- Aids or Devices, n(%)	32 (88.9)	32 (86.5)		p=0.755
Q6- Mobility before ICU, n(%)	33 (91.7)	34 (91.9)		p=0.972
Q7- Help before ICU, n(%)	30 (83.3)	34 (91.9)		p=0.266
Q8-Beliefs, values, practices, n(%)	28 (77.8)	28 (75.7)		p=0.832
Q9- Interests, hobbies, n(%)	33 (91.7)	33 (89.2)		p=0.719
Q10- Pets, n(%)	32 (88.9)	31 (83.8)		p=0.526
Q11- Roles, n(%)	32 (88.9)	27 (73.0)		p=0.084
Q12- Personality, n(%)	33 (91.7)	33 (89.2)		p=0.719
Q13- Life events, n(%)	28 (77.8)	26 (70.3)		p=0.465
Q14- What matters most, n(%)	28 (77.8)	29 (78.4)		p=0.951
Q15- What else, n(%)	22 (61.1)	19 (51.4)		p=0.401
Q16- Your Footprint, n(%)	21 (58.3)	21 (56.8)		p=0.892

Table 4 Footprints Whiteboard Audit Completion Rates

	Audit B N= 70 patients	**Audit C** N=64 patients	χ^2 **(p-value)**
Picture n(%)	10 (14.3)	8 (12.5)	p=0.762
Patient Name n(%)	63 (90.0)	58 (90.6)	p=0.903
Spokesperson n(%)	41 (58.6)	25 (39.1)	p=0.024*
Goals n(%)	9 (12.8)	2 (3.1)	p=0.040*
Messages n(%)	30 (42.9)	15 (23.4)	p<0.001*
About me n(%)	29 (41.4)	34 (53.1)	p=0.107
	Audit B N= 247 patient audit days	**Audit C** N=242 patient audit days	χ^2 **(p-value)**
Date n(%)	224 (90.7)	216 (89.3)	p=0.598
RN n(%)	223 (90.2)	219 (90.5)	p=0.936
MD n(%)	216 (87.4)	209 (86.4)	p=0.722
RT n(%)	169 (68.4)	132 (54.5)	p=0.002*
PT n(%)	19 (11.4) $^{\alpha}$	25 (12.6)$^{\beta}$	p=0.731

We excluded weekends and holidays in calculating the patient audit days denominator for physiotherapist name within dynamic whiteboard completion rates. α- Audit B denominator: n=166 days; β- Audit C denominator: n=198 days

Table 5 Footprints: Implementation Challenges Identified by Clinicians

Patient/Family Level Challenges	Clinician Level Challenges	System Level Challenges
Patient too unstable; other care priorities	Clinicians unsure of how to explain form	Completed forms not kept in consistent location
Patient or family language barrier	Clinicians concern that it won't be well received	Form and whiteboard completion not considered mandatory or enforced
Perception that family is too distressed	Clinicians too busy to hand out or review form or abstract information for whiteboard	Considered unnecessary for patients who are able to communicate themselves
Patient has no family or friend available	Perceived nursing ownership of the whiteboard; other clinicians reluctant to write on board	Considered unnecessary for patients with a very short ICU stay

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Supplementary File 1

Patient Label

FOOTPRINTS

We'd like to get to know you

To help us provide more personalized care in the ICU, we would like to get to know our patients better. We invite you to answer these questions on behalf of your family member. If you prefer not to share certain information, you can leave spaces blank.

This information will be kept on the chart as a reference for the healthcare team.

We encourage you to **bring in a photo** to display on the whiteboard as well.

Please return the form to the nurse when complete. Thanks!

Patient Name: _____ ICU Admission Date: _____

1. What **name** do you prefer to be called?

_____

2. What **language** do you prefer to speak?

_____

3. **Where** did you **grow up**?

_____

4. **Family members** that we may meet:

_____

5. Type of **aids or devices** you use at home:
(e.g., glasses, dentures, hearing aid, CPAP machine, iPad, tablet)

_____

6. Level of **mobility before ICU**:
(e.g., independent / no assistance, cane or walker, wheelchair)

_____

7. **Help** you needed **before ICU**:
(e.g., driving, cooking, bathing, finances)

_____

(Continued on other side)

FOOTPRINTS

8.**Beliefs, values or practices** that are **spiritual or religious**:

_____

9. **Interests/Hobbies:**
(e.g., TV, reading, music, golf, knitting, woodworking)

_____

10. **Pets at home:**

_____

11. **Roles** – past or present:
(e.g., parent, volunteer, teacher, caregiver)

_____

12. **Personality traits:**
(e.g., shy, talkative, funny, anxious, claustrophobic)

_____

13. **Life events**:
(e.g., recently married, just retired, grandparent, experienced a loss)

_____

14. **What matters most to you:**
(e.g., physical independence, ability to manage personal matters, comfort)

_____

15. **What** else **should we know** about you as a person to look after you right now?

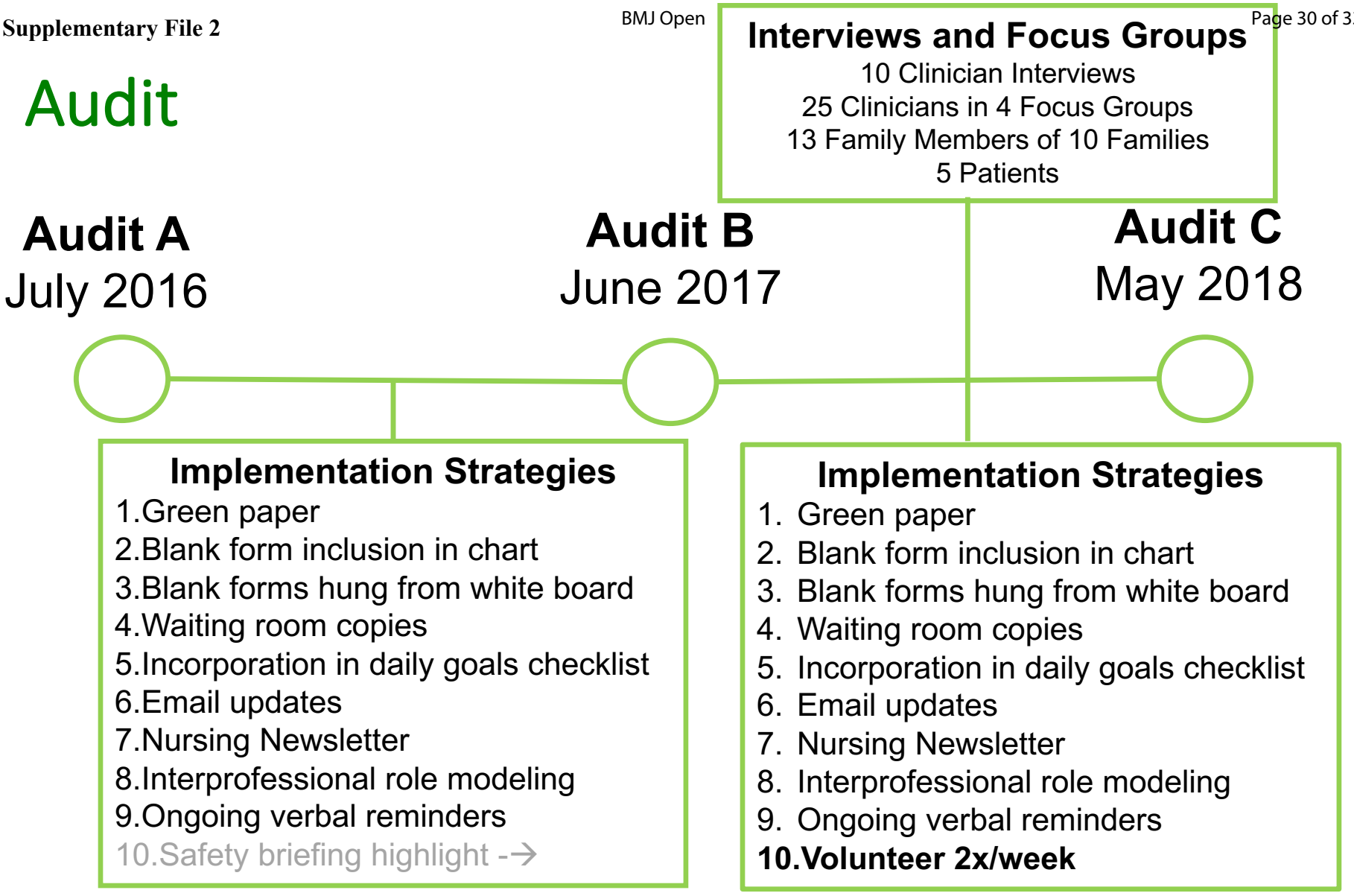
_____

16. **A little more about your FOOTPRINT -**Please add a few key words, phrase or quote that summarizes your views or journey, or what is important to you

_____

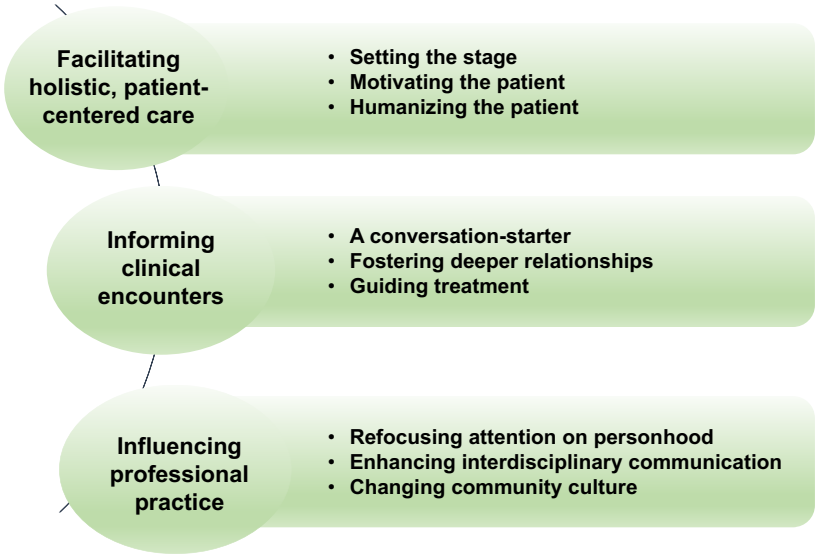
_____

Audit


Interviews and Focus Groups
10 Clinician Interviews
25 Clinicians in 4 Focus Groups
13 Family Members of 10 Families
5 Patients
Audit A
July 2016
Audit B
June 2017
Audit C
May 2018
Implementation Strategies
1.Green paper
2.Blank form inclusion in chart
3.Blank forms hung from white board
4.Waiting room copies
5.Incorporation in daily goals checklist
6.Email updates
7.Nursing Newsletter
8.Interprofessional role modeling
9.Ongoing verbal reminders
10.Safety briefing highlight -→
Implementation Strategies
1. Green paper
2. Blank form inclusion in chart
3. Blank forms hung from white board
4. Waiting room copies
5. Incorporation in daily goals checklist
6. Email updates
7. Nursing Newsletter
8. Interprofessional role modeling
9. Ongoing verbal reminders
10.Volunteer 2x/week

Supplementary File 3

Qualitative Results for Influence of the Footprints Project



COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	6
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	1
Occupation	3	What was their occupation at the time of the study?	6
Gender	4	Was the researcher male or female?	NA
Experience and training	5	What experience or training did the researcher have?	6
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	6
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	6
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	NA
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	8
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	6
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	6
Sample size	12	How many participants were in the study?	6
Non-participation	13	How many people refused to participate or dropped out? Reasons?	6
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	6
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	NA
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	6
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	6
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	NA
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	6
Field notes	20	Were field notes made during and/or after the inter view or focus group?	6
Duration	21	What was the duration of the inter views or focus group?	6
Data saturation	22	Was data saturation discussed?	8
Transcripts returned	23	Were transcripts returned to participants for comment and/or	NA

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	8
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	8
Software	27	What software, if applicable, was used to manage the data?	8
Participant checking	28	Did participants provide feedback on the findings?	8
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	9-17
Data and findings consistent	30	Was there consistency between the data presented and the findings?	9-17
Clarity of major themes	31	Were major themes clearly presented in the findings?	9-17
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	9-17

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.