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Non-pharmacologic interventions improve comfort and experience among older adults in the Emergency Department

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ABSTRACT

Objective: Determine if a comfort cart would improve older adults' comfort and facilitate communication during Emergency Department (ED) visits.
Methods: A comfort cart containing low-cost, non-pharmacological interventions to improve patient comfort and ability to communicate (e.g., hearing amplifiers, reading glasses) were made available to patients aged ≥65 years. Patients and clinicians were surveyed to assess effectiveness. We followed the Standards for Quality Improvement Reporting Excellence: SQUIRE 2.0 guidelines.
Results: Three hundred patients and 100 providers were surveyed. Among patients, 98.0%, 95.1%, and 67.5% somewhat or strongly agreed that the comfort cart improved comfort, overall experience, and independence, respectively. Among providers, 97.0%, 95.0%, 87.0%, and 83% somewhat or strongly agreed that the comfort cart provided comfort, improved patient satisfaction, increased ability to give compassionate care, and increased patient orientation.
Conclusion: The comfort cart was an affordable and effective intervention that improved patients' comfort by facilitating communication, wellbeing, and compassionate care delivery.

1. Introduction

Older adults comprise 16% [1] of the United States population and 45% of emergency department (ED) visits [2]. Older patients have many comorbidities and present atypically, which can make caring for them in the ED challenging [3,4]. Poor vision and hearing [5], a decline in functional reserve [6], cognitive impairment secondary to delirium and dementia [7], and impaired communication can be exacerbated by the busy ED environment.

In an attempt to enhance elder care in the ED, geriatric emergency experts developed ED Geriatric Guidelines which recommend numerous care modifications to address the unique needs of this population [8]. An emphasis on efficiency in the ED can lead to abandonment of modifications in assessment required to facilitate complex presentations of the elderly and to missed opportunities to provide comfort to older patients [8,9]. We identified a gap in our ability to provide comfort to our older patients, and used a five phase method the define, measure, analyze, improve, and control (DMAIC) process, to create a comfort cart. The primary aim of this intervention was to improve older adult comfort and ability to communicate with their care team while in the ED, without making structural changes to the environment. We created and deployed a comfort cart composed of low cost items aimed at improving patient comfort and communication. We assessed the effectiveness of this intervention by surveying ED patients and care team members on their perceptions about the comfort cart, its effect on patient comfort, satisfaction, orientation, and overall care.

2. Methods

We followed the "Standards for Quality Improvement Reporting Excellence: SQUIRE 2.0" standardized methodological guidelines and DMAIC for quality improvement projects [10]. This study used de-identified survey data and was deemed exempt by the Institutional Review Board.

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2.1. Study design

Using DMAIC, we identified a gap in compassionate and effective care for older patients, and aimed to improve this gap. We surveyed older adult patients to measure baseline comfort levels and reviewed geriatric literature revealing geriatric patient discomfort in the ED environment. We reviewed the geriatric ED guidelines [8] and solicited input from key stakeholders including patient representatives, nurses, physicians, a social worker, and a physical therapist. We assessed root causes of discomfort by using a pre-intervention survey, informally interviewing ED patients, and discussing comfort strategies with elderly friends and family members. We met with nursing home staff to solicit input on cart content.

We identified physician and nursing champions for the project and collectively created an items list based on the analysis, which would act as a patient menu of comfort items. We then deployed the intervention, offering and delivering items via the geriatric comfort cart. We conducted a pilot study to assess intervention feasibility, impact on workflow, and patient comfort by surveying patients/caregivers and providers. ED physician and nursing champions provided on-shift education about elderly comfort and the benefits of the cart items to nurses and providers. Education was also provided via biweekly emails and in-person presentations in monthly department meetings. Initiation of the cart took place during an enterprise-wide geriatric quality improvement workshop. To control and ensure sustainability, the cart inventory was assessed monthly for items that required restocking and to quantify usage.

2.2. Setting/context

This quality improvement project was conducted in the ED at a quaternary care academic center located in an urban area with approximately 78,000 ED patient visits per year. The menu and comfort cart were introduced on February 14, 2019.

2.3. Intervention

2.3.1. Pre-intervention and needs assessments

We administered pre-intervention surveys to both older adult patients and their ED providers/nurses to identify gaps (available in Appendix 1). There were 30 patients and 36 providers surveyed. The patient survey assessed: the level of interest in access to non-pharmacological comfort-enhancing resources; if patients felt they were receiving care specific to their needs; and solicited suggestions for items to stock. In addition, an ED staff (nurses, social workers, physicians, PA/NPs, care team assistants) survey assessed: degree to which geriatric patient care needs were met and solicited suggestions on comfort-enhancing items for geriatric patients. As a counterbalance, assessments of workflow and perceptions of their current ability to access non-pharmacological interventions were evaluated. This needs assessment identified a gap in our care of older adults with respect to their comfort.

2.3.2. Geriatric comfort menu and comfort cart creation

2.3.2.1. Geriatric comfort menu. In addition to the patient and staff surveys discussed above, we also reviewed the literature and health care websites describing interventions performed to increase patient comfort in other settings. We obtained more information from key stakeholders, forming a panel that included a patient representative from the community, ED nurses with nursing home and geriatric care experience, physicians working in nursing homes or with geriatric training, a social worker, and a physical therapist. The panel discussed each patient-recommended item for possible inclusion. We also created a list of items available on the cart or in the ED (e.g., snacks or warm blankets that had always been available on request, but were not always offered).

Once we identified items for inclusion, we worked with a patient-communication designer using principles of user-centered design to develop the comfort cart menu. This process included discussion of usual ED geriatric care and communication challenges. We reviewed and considered special clinical circumstances, such as delirium, and how menu items, like food and water or distraction items, could potentially mitigate certain disease processes. We created a visually attractive, yet simple menu to illustrate the items offered, which could be offered by any member of the ED care team or volunteers during the ED clinical encounter.

We evaluated the menu using Plan/Do/Check/Act (PDCA) cycles and subsequently tested the first prototype in routine clinical practice with 12 individual observations. After extensive stakeholder feedback, a second prototype was developed. We ultimately refined the prototype and organized the content as shown in Fig. 1. Distraction and entertainment items were large print when available. In addition, fidget quilts for patients with advanced dementia were available. Items were categorized as those to be given to the patient (e.g., fleece blankets) versus those that can be reused (e.g., hearing amplifier); compliance with infectious disease and control practices were taken into consideration. Of note, not all the items from the menu were stocked on the cart. For example extra pillows, warm blankets, and ice packs were already available in our ED and stored in different locations. Throughout the process we collaborated with ED nursing and physician leadership to facilitate implementation of the comfort menu and cart.

2.3.3. Comfort menu and cart pilot test and assessment

We piloted the comfort cart with a new cohort of 33 older adults, offering the comfort menu and requesting feedback. These patients and their ED care team members were surveyed in the same manner as the pre-assessment cohort. Feedback from patients and providers was used to refine the comfort menu, cart and survey.

To enhance awareness and improve buy-in, ED providers and nurses were educated via email and in-person presentations during nursing leadership and department meetings about the comfort cart, its items, and intended use. ED comfort cart champions sent email alerts and implemented bedside reminders to encourage providers and nurses to use the cart and offer the menu to patients. They were instructed to place a comfort menu in to the registration folder for patients age ≥ 65 when arriving at the ED, including in the triage/welcome area.

2.3.4. Comfort cart implementation

The comfort cart was located in a central area and was available for utilization by all members of the healthcare team at all times. In addition, the comfort cart items were systematically offered on a convenience basis to all eligible patients by research coordinators and trainees, which was typically during weekdays in the mid-morning and mid-afternoon. After pilot testing was complete, we implemented the menu and cart in our ED. We measured the impact on a convenience sample of 300 patients and 100 of their care team members. Since the implementation of the cart, and at varying times of the day, older adult ED patients 65 years of age and older were offered the menu listing the items of the comfort cart. Patients selected items which were retrieved by a research assistant or a healthcare provider. All ED patients aged ≥65 years were eligible to use the geriatric comfort menu. Patients with cognitive impairment, those with communication barriers, hearing difficulties and vision impairment were eligible to receive the cart as well. Pictures of the cart and its contents are provided in Fig. 2. The surveys for patients and providers are available in Appendices 2A and 2B.

2.4. Study of the intervention and measures

We measured the effectiveness of the menu and cart through a survey designed with the help of our institution's Survey Center. All

MAYO CLINIC

Comfort Items

We care about your comfort while you are in the Emergency Department. Here is a list of items and services that you can ask for.

Improving Comfort

- ☐ ice packs
- ☐ warm blankets
- ☐ extra pillows
- ☐ washcloth
- ☐ snacks

(i.e.: water, ice chips, applesauce, pudding, crackers, cereal, sandwich)

- ☐ distraction tools
  - ○ magazine
  - ○ word puzzles
  - ○ aromatherapy products
  - ○ playing cards
- ☐ soft mittens
- ☐ hat
- ☐ personal care items (toothbrush, toothpaste, mouth swab, sleep mask, comb, deodorant, hand lotion)

Improving Communication

- ☐ hearing amplifier
- ☐ reading glasses
- ☐ magnifier glass
- ☐ pen light
- ☐ phone charger
- ☐ notepads

Others Who Can Help

- ☐ physical therapy (M-F)
- ☐ talking to a chaplain
- ☐ talking to a social worker (about community resources like meals on wheels, home health assistance, etc.)

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Fig. 1. Comfort cart menu.

Fig. 2. Pictures of the items in the geriatric comfort cart.

patients, including those who declined the use of the cart were offered this survey.

2.5. ED patient and care team comfort cart survey

To measure patient and provider perceptions of the comfort cart, we developed a survey with the assistance of the Associate Director of the Survey Research Center. We engaged the patient representative and key stakeholders in the advisory panel to evaluate and provide additional feedback. Based on the feedback, we shortened the survey and removed redundant questions.

Patients were invited to complete a multiple-choice survey about their perception of the cart items and the effect on their care after use. The survey included multiple choice and open-ended feedback questions related to patient comfort, overall experience, and independence. ED nurses, physicians, nurse practitioners, and physician assistants were invited to take a survey asking questions related to patient comfort, satisfaction, and orientation, as well as effect of the comfort cart on patient care. An open-ended question was included to obtain additional qualitative feedback about the cart.

2.6. Analysis

Survey data were collected via paper forms to facilitate patients' completion of the survey, and they were subsequently transcribed into RedCap (Research Electronic Data Capture, an encrypted online data base) [11] and analyzed using frequency counts and percentages.

Pilot survey questions utilized a 6-point Likert scale (very comfortable/comfortable/somewhat comfortable/somewhat uncomfortable/uncomfortable/very uncomfortable), and the final survey used a 5-point Likert scale (strongly/somewhat/neither agree nor disagree). The pilot and main survey asked different questions related to comfort; the pilot asked what the patient's comfort was from very uncomfortable-very comfortable, and after feedback the survey was modified, and the main survey asked to what extent the patient felt that the cart improved comfort. Percentages and medians were reported. Non-parametric tests were used for statistical analyses.

3. Results

During fall of 2018, our team created the comfort cart, menu, and surveys. We began implementation on February 14, 2019. Following implementation, a convenience sample of patients and providers were enrolled for the post-implementation survey between February and August 2019.

3.1. Pre-intervention and pilot surveys

The pre-intervention needs assessment identified a clear gap in comfort. The mean patient comfort level was 3.96/6.0, meaning older adult patients in the ED were between “somewhat uncomfortable” and “somewhat comfortable.” The perception of comfort level by these patients' physicians and nurses had a similar score, 3.94/6.0. Data from the pre-implementation surveys showed that 55.6% of physicians and nurses somewhat or strongly disagreed that offering additional comfort items to patients would hinder their workflow.

Based on the results of the needs assessment, a small pilot study was conducted to assess feasibility and workflow counterbalance. In the pilot phase, we offered the comfort menu and cart to 33 older adult patients and requested feedback from these patients and their ED care team members using the same survey as the pre-assessment cohort. The pilot assessment showed that patient comfort increased by 19.7% from 3.96 to 4.94/6.0 ($p = 0.004$) on a 1 to 6 point scale. Similarly, provider perception of patient comfort improved by 18.1% from 3.94 to

4.81/6.0 ($p = 0.002$). The pre- and post-pilot assessment cohort characteristics were not significantly different by age (83.7 versus 82.0 years; $p = 0.34$), gender (46.7% versus 51.5% women; $p = 0.71$), comorbidities and elderly risk assessment score [12] (12.3 versus 10.6; $p = 0.37$), rate of dementia (26.7% versus 27.3%; $p = 0.958$), or length of stay in the ED prior to survey completion (3 h and 35 min versus 3 h and 6 min; $p = 0.10$).

3.2. Post-implementation surveys

After the pilot was completed, a convenience sample of 300 ED patients and 100 of their ED physicians and nurses were enrolled. No significant modifications were made to the cart. Among the 73% of surveyed patients who selected comfort cart items for use, 98.0%, 95.1%, and 67.5% somewhat or strongly agreed that comfort cart items improved patient comfort, overall experience, and independence, respectively. Of the remaining 27% of surveyed patients who declined the items in the comfort cart, 87.8% of them somewhat or strongly agreed that simply knowing the items were available made them feel more comfortable. Among nurses and physicians surveyed, almost all somewhat or strongly agreed that comfort cart items provided patient comfort (97.0%), improved patient satisfaction (95.0%), increased ability to care compassionately (87.0%), and increased patient orientation (83.0%).

4. Discussion

4.1. Key findings

Use of the comfort cart improved older adult contentment and enhanced their ability to communicate while in the ED. Most providers offering cart items indicated cart items enhanced patient comfort, increased ability to care compassionately, and increased patient orientation.

4.2. Project strengths

Implementation of the comfort cart had many distinctive strengths. Cart items could be offered by anyone working in the ED and had minimal impact on staff workflow. The cart was easily accessible to patients and ease of mobility allowed it to be utilized in all geographic areas of the ED. Mobility of the cart benefitted patients in the waiting room who may be the most uncomfortable, frustrated, and vulnerable given the wait for evaluation. Lastly, the interventions were relatively low-cost (see Appendix 3) and easily purchased online, thereby this cart can be easily reproduced and applied in other institutions.

4.3. Interpretation

A geriatric-centered ED is one that promotes improvements in safety, comfort, mobility, memory cues, and sensory perception [8]. It has been well established that voice amplifiers [13], hearing aids [14], and acoustic orientation [8] improve patient orientation, patient-doctor communication, and are effective in reducing delirium in older patients [15]. Moreover, the literature suggests effective provider communication significantly increases patient satisfaction and overall experiences of care [16,17]. Older adults may not only have decreased ability to hear specific words due to a loss of hearing in high-frequency ranges, but they may also have increased sensitivity to loud sounds [18]. Furthermore, hearing loss is the leading modifiable risk factor for dementia [19] and might contribute to delirium. Other non-pharmacological environmental enhancements, such as non-slip flooring [8], thicker mattresses [8,20], warming devices/warm blankets [8], increased lighting to improve visual clarity, and the creation of specialized care teams [21], have proven to help create a geriatric-friendly ED that meets the needs and improves the comfort, care, and safety of older adult patients and patients of all ages [8]. Unfortunately, many of these environment enhancements may be out of reach for most resource-constrained EDs. The comfort cart is a simple intervention, with minimal additional expense, that can improve the care of older adults in the ED.

We sought to lessen communication barriers commonly seen in the geriatric population, such as poor vision and hearing [5]. To do so, we provided several items previously shown to be effective, such as voice amplifiers [13], hearing aids [14] and reading glasses. Feedback from staff members was positive on their ability increase orientation and decrease confusion for patients who used them. These results are consistent with literature regarding nonpharmacological delirium interventions for geriatric patients [15]. Some providers reported the voice amplifiers and glasses to be most beneficial during acute resuscitative environments, times that are even more hectic.

Our pre-intervention survey confirmed a gap in the comfort of older adults. After soliciting input from key stakeholders, patients, and older family members and using the Geriatric Emergency Department guideline suggestions [8], we provided warm blankets, fleece blankets, and extra pillows as options on the comfort cart menu, all of which contributed to the increase in patient comfort. After implementation we found a significant increase in both patient comfort as well as physician perception of patient comfort. Nurses and physicians enjoyed having easily accessible non-pharmacologic interventions to augment care, and patients appreciated the extra effort to help with their experience in the ED. A high percentage of patients, even those who did not use any of the offered items, agreed that using the items or knowing they were available increased their comfort.

4.4. Limitations

Our study is limited by the fact that it is a single-center study and the results may not be generalizable to other EDs. We also recognize the observed improvement in the patient comfort may be confounded by many other factors. Approximately 30% of the patients did not complete the survey, and so their opinions were not captured. Although 300 patients and 100 providers participated in the study, the cart was offered more frequently but not all patients were surveyed. Lastly, although providers felt confusion and orientation were impacted when the cart items were used, it is well known that ED providers' recognition of delirium in elderly patients is poor. Theoretically, use of these items may improve agitation and disorientation, as many items can improve pain perception and provide distraction and activity, but we cannot say for certain these items directly improved the rate of delirium.

5. Conclusions

The cart improved comfort and satisfaction of patients and increased provider perception of patient comfort, as well as enhanced communication. Patients' experience of care and overall satisfaction is part of the Institute for Healthcare Improvement Triple Aim, which is included in reimbursement models for both private payers and Centers for Medicare and Medicaid Services. It is an indicator for the value of care provided. Patient-centered care is an essential aspect of meeting patient expectations [22]. Enhancing patient physical comfort and communication can improve the quality and value of emergency medical care provided. Additionally, items included in the cart may translate to improved patient outcomes with respect to delirium, among others.

5.1. Sustainability and potential to spread

Implementation of the comfort cart was successful in a single busy ED and is currently undergoing adoption in other EDs within our region and enterprise. Sustainability requires an ongoing departmental commitment to ensuring continued comfort cart integration into usual ED care for older adults. This includes an ongoing allocation of personnel to stock and administer the cart items. Based on the low cost of the

included items and the mobility of the cart, many EDs are likely to be able to implement this intervention.

This cart may also be used in different medical care arenas, such as hospital-based or outpatient practices. Patient comfort needs, wait times, and desire for an exemplary experience are consistent across multiple disciplines in medicine. Using the cart in these different medical environments may have similar beneficial results.

5.2. Implications for practice

Making patients feel more comfortable and valued is exactly what we set out to do with this project, and we hope it will continue to have a positive effect on the patient experience and that patients will continue to remember how we made them feel. Patient experience will continue to be a driver of hospital reimbursement, with at-risk compensation that will be lost when performance is poor. Improving patients' comfort can make patients feel valued and influence whether or not they would like to return to be cared for in the same ED.

5.3. Next steps

The comfort menu and cart continues to be utilized in patient care at our institution. We anticipate introduction of the cart in additional EDs in our health care system and plan to engage colleagues in other areas such as primary care and hospital medicine to use the cart as well. We plan further studies regarding the impact cart items have on the development or improvement in confusion and delirium. Given the suggested increase in mortality extrapolated from inpatient data, ways to alleviate delirium is imperative for the care of our geriatric population. Patients want to feel heard, valued, and empathically cared for. We will continue to evaluate whether use of the cart is sustainable, and monitor if positive effects remain. As we continue the control phase, we plan to develop a volunteer- or student-based role for ongoing daily implementation to ensure continued success and has long-term sustainability.

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Conflict of interest disclosure

All authors report no conflict of interest.

Author contributions

MJB and FB conceived and designed the study. IML and MJB conducted the acquisition of the data. FB and MMJ provided methodological and statistical expertise. IML, MMJ, RLC, LEW and FB analyzed and interpreted the data. SMB, LEW and JAS provided content expertise about the topic. IML and MJB drafted the manuscript and all authors contributed substantially to its revision with critical revision of the manuscript for important intellectual content. FB obtained research funding, was the mentor of this project and takes responsibility as a whole.

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Appendix A. Supplementary data

Supplementary material

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