

# Using Gemba Boards to Facilitate Evidence-Based Practice in Critical Care

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**BACKGROUND** Tradition-based practices lack supporting research evidence and may be harmful or ineffective. Engagement of key stakeholders is a critical step toward facilitating evidence-based practice change. *Gemba*, derived from Japanese, refers to the real place where work is done. Gemba boards (visual management tools) appear to be an innovative method to engage stakeholders and facilitate evidence-based practice.

**OBJECTIVES** To explore the use of gemba boards and gemba huddles to facilitate practice change.

**METHODS** Twenty-two critical care nurses participated in interviews in this qualitative, descriptive study. Thematic analysis was used to code and categorize interview data. Two researchers reached consensus on coding and derived themes. Data were managed with qualitative analysis software.

**RESULTS** The code gemba occurred most frequently; a secondary analysis was performed to explore its impact on practice change. Four themes were derived from the gemba code: (1) facilitation of staff, leadership, and interdisciplinary communication, (2) transparency of outcome data, (3) solicitation of staff ideas and feedback, and (4) dissemination of practice changes. Gemba boards and gemba huddles became part of the organizational culture for promoting and disseminating evidence-based practices.

**CONCLUSIONS** Unit-based, publicly located gemba boards and huddles have become key components of evidence-based practice culture. Gemba is both a tool and a process to engage team members and the public to generate clinical questions and to plan, implement, and evaluate practice changes. Future research on the effectiveness of gemba boards to facilitate evidence-based practice is warranted. (*Critical Care Nurse*. 2018;38[3]:e1-e7)

**T**ransition from tradition-based practices, sometimes referred to as rituals or “sacred cows,”<sup>1</sup> to evidence-based practice (EBP) is a challenge for health care providers. Many current tradition-based practices lack adequate evidence and have the potential to create harm.<sup>2-4</sup> For example, assessment of feeding tube placement using auscultation (air insufflation) is an inaccurate method that has been associated with complications such as pneumothorax and pneumonia.<sup>5,6</sup> Radiography is the most common standard to verify feeding tube placement, but the effort to deimplement (stop) feeding tube assessment by auscultation continues.<sup>5,6</sup> There is a need for nurses to modify tradition-based clinical practices that are harmful, ineffective, or lacking

evidence and incorporate EBP to achieve optimal patient outcomes and use of resources.<sup>7</sup>

Evidence-based practice is an expected standard in health care and incorporates the best research-based evidence and clinical expertise with patient values and preferences.<sup>8,9</sup> Improved patient outcomes have been associated with EBP.<sup>4</sup> Clinicians are expected to become skilled in EBP methods and question practices that lack good-quality empirical evidence.<sup>2,8,10-12</sup> There is a strong need to develop and implement targeted, innovative strategies to facilitate EBP.<sup>13</sup>

Many steps are required for successful EBP implementation, yet engagement of key stakeholders is critical to begin the process.<sup>14</sup> A number of strategies, including educational sessions, journal clubs, meetings, posters,

### Gemba promotes communication, teamwork, and practice changes in a supportive environment.

newsletters, and email, can engage stakeholders in facilitating practice change.<sup>1,14</sup> A strategy

known as *gemba* has been borrowed from industry to promote performance improvement in the clinical setting. Gemba boards (visual management tools) appear to be an innovative method to engage stakeholders and facilitate EBP.

Gemba boards is a lean methodology technique used successfully in non-health care disciplines to promote transparency, teamwork, and openness.<sup>15,16</sup> Lean principles originated in private industry with Toyota and have been embraced by many health care organizations to enhance the customer experience by systematically engaging the entire team to reduce waste and increase efficiency. Lean production uses systematic processes

(the “plan, do, study, act” cycle) to analyze problems. To fully understand any organizational problem, stakeholders need to go to where work is performed and talk to the people who do the work.<sup>17</sup> The term *gemba* is Japanese for *workplace*, referring to “the real place where work is done.”<sup>18,19</sup> Two major lean principles that are applied “in the gemba” are seeking perfection and embracing scientific thinking.<sup>20,21</sup> A gemba walk or huddle is an opportunity for the team to gather where the work occurs and observe work as it happens.<sup>18,22</sup> Gemba huddles create a safe, nonpunitive forum for reflection, input, and observation.<sup>16</sup> Gemba huddles encourage the submission of ideas for real-time problem solving rather than generating “parking lots” for later follow-up in boardroom meetings.<sup>22</sup>

Our study site introduced gemba boards throughout the organization in July 2015.<sup>15</sup> Gemba is actualized by the use of gemba boards and gemba huddles. All inpatient units, the emergency department, and hospital administration display centrally located gemba boards and perform routinely scheduled gemba huddles. Evidence-based practice changes are routinely incorporated into gemba, which prompted us to seek more information about this intriguing method.

The purpose of this secondary data analysis was to explore the use of gemba boards and huddles to facilitate practice change. The parent study explored the broader concept of deimplementation of tradition-based practices, and this analysis specifically addressed gemba boards as a strategy to engage stakeholders to promote EBP change.

## Methods

### Design and Consent

This qualitative, descriptive inquiry used purposive sampling to recruit critical care nurses at a large, urban tertiary academic medical center in central Florida. We recruited participants at unit-specific team meetings; nurses self-selected to participate. This study was considered a secondary data analysis because the parent study focused on the process of deimplementing tradition-based practices. Hospital and university institutional review boards granted ethics approval. We performed data collection from March through July 2016. The research team for the parent study performed this secondary data analysis during the same period with the same deidentified research data.<sup>23</sup>

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We collected data during 1-hour individual telephone interviews and one 1-hour focus group interview with unit practice council members. Questions asked during the interviews focused on tradition-based practices, EBP, clinical practice changes, roles, facilitators and barriers, and processes. Consistent with thematic analysis, questions evolved over time to expand on concepts and themes that emerged with the data.<sup>24</sup> All interviews were recorded and later transcribed.

### Data Analysis

We used thematic analysis to code and categorize interview data in 2 phases.<sup>24,25</sup> Two researchers reviewed interview data separately and together to reach a consensus on coding and derived themes.<sup>26</sup> We used qualitative analysis software (HyperRESEARCH 3.7.3; ResearchWare, Inc) for data management and theme generation. Data collection ceased when no new codes or categories emerged from the interviews.<sup>25</sup> The second phase of coding resulted in the development of categories and themes following data synthesis. Themes related to the code gemba are reported here.<sup>25</sup>

## Results

### Sample

Twenty-two registered nurses (21 critical care and 1 acute care) participated in the study (Table 1). Six of the 18 staff nurses also functioned in leadership roles such as charge nurse or unit practice council member. Four participants (18%) were currently enrolled in a nursing degree program (2 in a registered nurse–bachelor of science in nursing program and 2 in a master of science in nursing program).

### Findings

Gemba was the most frequent code derived from our data (80 counts). Gemba had been introduced less than 1 year earlier, yet participants discussed this concept without prompting during their interviews. Four themes (Table 2) were derived from the gemba code. In the first theme, “facilitate staff, leadership, and interdisciplinary communication,” nurses indicated that the use of gemba encouraged interdisciplinary communication and teamwork. Nurses perceived engagement of their teams and facilitation of communication. Gemba participation could occur synchronously with other interdisciplinary team

**Table 1** Demographic characteristics of participants (N=22)

| Characteristics                            | Years, mean (range) | SD                   |
|--|---------------------|----------------------|
| Age <sup>a</sup>                           | 35 (25-60)          | 11.10                |
| Worked as RN                               | 10 (1-39)           | 10.42                |
| Worked in critical care                    | 6 (1-36 )           | 8.46                 |
|  | <b>No.</b>          | <b>%<sup>b</sup></b> |
| Female sex                                 | 21                  | 95                   |
| Employed full time                         | 22                  | 100                  |
| Role                                       |                     |                      |
| Staff nurse                                | 18                  | 82                   |
| Formal leadership role                     | 4                   | 18                   |
| Highest level of nursing education         |                     |                      |
| Associate degree                           | 4                   | 18                   |
| Bachelor's degree                          | 14                  | 64                   |
| Master's degree                            | 3                   | 14                   |
| Doctorate degree                           | 1                   | 5                    |
| Enrolled in nursing degree program         |                     |                      |
| Yes  | 4                   | 18                   |
| No   | 18                  | 82                   |
| Specialty nursing certification            |                     |                      |
| Yes  | 16                  | 73                   |
| No   | 6                   | 27                   |
| Formal training in evidence-based practice |                     |                      |
| Academic course: undergraduate level       | 9                   | 41                   |
| Academic course: graduate level            | 4                   | 18                   |
| Workplace                                  | 0                   |                      |

<sup>a</sup> Years of age and years worked in critical care: staff nurses only (n = 18).

<sup>b</sup> Percentages may not equal 100 because of rounding.

members during a huddle or independently by viewing the gemba board when the nurses' schedules permitted.

The second theme, “transparency of outcome data,” demonstrated that continuous availability of outcome metrics allowed nurses to assess unit-based results and compare results across the institution. Data transparency was perceived to have benefits such as motivating team members to improve practice, celebrating positive outcomes, and promoting trust by increasing public awareness of ongoing initiatives to promote patient safety.

“Solicitation of staff ideas and feedback,” the third theme, indicated that the nurses felt supported and safe to make suggestions for workplace improvements using the gemba process. Nurses had a positive perception of leadership in their organization when it came to practice changes and trusted that follow-up would occur for all suggestions and comments.

**Table 2** Major themes derived from gemba code

| Themes  | Representative quotes  |
|---|--|
| Facilitate staff, leadership, and interdisciplinary communication | <p>“I think [gemba] engages the team. [Gemba] teaches them to start thinking differently and to put their ideas up there and see if an idea comes to fruition.”</p> <p>“[Gemba boards] are on every unit in the hospital. Our leadership and management encourage bedside nurses, frontline staff, or anyone really. If they have an idea for how to improve something. They encourage us to put it on there [gemba boards]. That way we can discuss it [practice change] with any of the stakeholders who might be involved. I believe that it is encouraged and those ideas are supported from our leadership. They want to hear from us.”</p> <p>“... the information is always up there [gemba board] for me to look at. So I can see how our unit is performing in certain things. I can make suggestions. I can see other people’s suggestions and it also gives us a good look at how we are performing within the hospital as a unit.”</p> |
| Transparency of outcome data                                      | <p>“I see patients reading over it [gemba board] and looking at it.”</p> <p>“This year there are 2 main initiatives and it [information on gemba board] even breaks it down on how we are doing. What our data is on that initiative at any given time. [The gemba board] is updated monthly.”</p> <p>“... kind of helps us see as a unit how we are doing overall in terms of comparison to hospital wide.”</p>   |
| Solicitation of staff ideas and feedback                          | <p>“That [gemba board] is a good opportunity for suggestions and improvement opportunities to be mentioned.”</p> <p>“... we have a suggestion spot where if we see something that’s going on we will write something down why we think it is important to change and how we would go about changing it and then it is publically there on the [gemba] board so people can see it and then you can go to the unit practice council and you can also mention things at the unit practice council.”</p>   |
| Dissemination of practice changes                                 | <p>“So everyone can see that UPC [unit practice council] is working on this [practice change] and it is improving stuff or it is not improving stuff. So I like that that everyone can see.”</p> <p>“We have [gemba] huddles every shift and we will add those things to the huddle. Hey make sure you know this is changing, that same information goes out for a week.”</p> <p>“Well if it’s at gemba then we just discuss it. Then there is 2 categories just do it or think about it. Then we chose which one to put it in. Then we follow-up the next week.”</p>  |

The fourth theme, “dissemination of practice changes,” indicated that nurses were aware of all ongoing practice change initiatives on their unit. If they were unable to attend a gemba huddle, nurses had confidence that the gemba board would display the necessary information to make them aware of current and future practice changes.

## Discussion

Participants were quite enthusiastic about the perceived benefits of unit-based gemba. Only 1 participant was less optimistic about the use of gemba boards, yet this participant stated that team members were recognized by “. . . personal congratulations and kudos and things like that.”

Gemba boards (Figure 1) are standardized throughout the organization, although individual units have the flexibility to customize content. Unit-based gemba boards are organized by columns that align with strategic imperatives from the organization’s annual strategic plan. Content typically displayed on the boards includes (1) celebrations, (2) new ideas, (3) the team (ideas completed, practices changes in progress), (4) embracing quality and safety imperatives (including patient experiences and outcome metrics such as falls, hospital consumer assessments of health care providers and systems, hospital-acquired infections, and new initiatives), (5) enhancing ease of use (such as length of stay and “plan, do, study, act” process models), (6) driving growth and innovation, (7) becoming the best place to



**Figure 1** Gemba board.

work (turnover, engagement), (8) strengthening economics, and (9) earning physician loyalty (Figure 2).

Gemba huddles take place at the gemba board a minimum of 2 times weekly for approximately 15 minutes. Individual units customize scheduling to meet the needs of their team. The unit-based leadership triad (manager, unit practice council chair, and physician) are accountable for board content and facilitation of gemba huddles. Board content is posted by the leadership triad, with the exception of new ideas, which are supplied by all team members. New ideas are posted without prescreening, although they are reviewed by the manager before the huddle. Although new ideas may be submitted anonymously, identification is strongly encouraged to provide credit and promote professional, constructive feedback. Huddles are open to anyone wishing to attend, including team members, patients, families, and visitors. The boards do not contain personal health information or private employee information.

There have been no negative effects associated with patient or public involvement.

Effective gemba board huddles help team members understand how their work connects to the success of the organization by looking at the “big picture.” Team member ideas undergo trials, and when these are successful, administrative

**Gemba board huddles help team members understand how their work connects to the success of the organization.**

support is obtained and ideas are often disseminated. This institution reported an unexpectedly high degree of team member engagement since the implementation of gemba; team member engagement was supported by the data obtained in this study.

Some positive outcomes were realized through the use of gemba. Five environment-of-care practices were improved to meet Joint Commission criteria, and acute length of stay decreased through improvements to



**Figure 2** Close-up of gemba board (left panel).

interdisciplinary rounding processes (A. Evans, written communication, October 11, 2017). Another example is the use of gemba to promote deimplementation of a harmful practice. An idea was presented on the gemba board to promote removal of urinary catheters. A gemba huddle resulted in a practice change to formally include assessment of urinary catheters on evening rounds in the critical care units (L. Aguirre, oral communication, October 11, 2017). This small gemba-facilitated practice change has resulted in numerous orders to remove unnecessary urinary catheters and reduce the risk for patient harm.

A perceived benefit of the gemba board is the ability to quickly locate information on current practice change initiatives in a consistent location on each unit.<sup>27</sup> This organization's use of gemba includes elements associated with a strong EBP culture, such as multiple methods of communication, prominent EBP display, and a direct link with the organization's mission, vision, and goals.<sup>27</sup> Additionally, gemba brings leadership and

team members together; nurses feel that their practice change ideas are appreciated and their team has a more collaborative approach toward EBP. A positive EBP culture, including a spirit of inquiry and leadership involvement, has been directly associated with successful EBP initiatives.<sup>27-30</sup>

### Limitations

The study method limited our ability to observe gemba boards and huddles while they are being used by team members, patients, and families. This gap is an opportunity for future research. Additionally, studying how patients and families engage with gemba may provide information about its possible impact on person-centered care.

### Conclusions

Gemba boards and huddles have become a communication hub to facilitate the EBP process on individual

critical care units. Gemba has become both a tool and a process to engage team members and the public to generate clinical questions and to plan, implement, and evaluate practice changes. Staff nurses and leaders in critical care value the transparency of information and ongoing opportunities to discuss and disseminate clinical practice changes. Additionally, we propose that gemba boards may become a forum to identify tradition-based practices and begin discussions around deimplementation, facilitating a more comprehensive approach to EBP. **CCN**

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