

DECISION SCIENCES INSTITUTE

Creating a Culture of Continuous Improvement in Senior Services

Matt Garcia

Western Home Communities

Email: matt.garcia@westernhome.org

Dan Bumblauskas, Ph.D.

University of Northern Iowa

Email: daniel.bumblauskas@uni.edu**ABSTRACT**

Healthcare operations have garnered great interest from academics and practitioners alike. We will present on culture centric process improvement in healthcare, focusing on nursing facilities and assisted-living communities, using both traditional and innovative continuous improvement techniques such as lean and six sigma to improve patient care and delivery outcomes.

KEYWORDS: Continuous improvement, Healthcare, Lean Six Sigma, Service Operations Management

INTRODUCTION & LITERATURE REVIEW

Continuous improvement (CI) techniques have traditionally been used in manufacturing for decades and more recently in hospitals across America (Toussaint et al., 2010). Long term care and senior services are in the early stages of adoption and implementation of CI methodology. Common approaches include lean, six sigma, benchmarking, business process improvement and the Toyota Production System (TPS), 5S, etc.

One research question of interest is whether traditional lean principles of visual management, standard work, and daily accountability systems lead to improved retention, attendance, and satisfaction for employees in long term care. Lean has been documented in healthcare scenarios such as service access (LaGanga & Lawrence, 2009) and outpatient clinics (LaGanga, 2011), but could development of a TPS type system for senior services lead to better satisfaction and outcomes for customers? The purpose of this work is to determine the efficacy of the principles applied in a long term care setting. The implementation of CI principles should positively impact engagement of front line employees and managers in long term care settings. Additionally, part of the aim of this research is to contribute to the literature on process improvement in healthcare, specifically for long term care with a focus on visual management and measurement.

When healthcare workers are asked if they think what is measured improves, typically the quick answer is yes. But after further reflection, people recognize that the answer depends on a lot of variables: who is measuring, what is being measured, how it is being measured and so on. Esain et al., (2008) explore the role of developing 5S in public healthcare, inspecting planned versus emergent approaches and instill a continuous improvement mind-set in the individual and empower the “enthusiast converter” (Esain et al., 2008). While we strive for ideal project conditions and goals (Gerst, 2013) in healthcare operations, we must consider non-ideal states and measurement processes. One way to address that is information processing for decision

making (Levin et al., 2000) and to convert data to action (Bumblauskas, et al., 2017). Information processing theory in healthcare has been documented in terms of the history and tools (Haux, 2006), specific applications such as wearable motherboards (Park et al., 2002), and healthcare team collaboration (Reddy & Jansen, 2008).

Over the years while working with teams to determine how to measure the success of their work, a few thoughts have developed around measurement: 1) What is measured tends to improve; 2) What is measured publicly tends to improve faster; 3) What is measured publicly and discussed daily with the people who care about it and can impact it the most, is even more likely to improve and has a greater chance of being sustained. Our methodology and illustrative example elaborate further on this subject.

DESIGN, METHODOLOGY & APPROACH

An important aspect to measure in healthcare facilities is how often patients or residents fall. This is a widely available metric; it is measured by the government for every hospital and nursing home in the United States and shared publicly on hospitalcompare.gov and nursinghomecompare.gov. Remembering the three points from earlier, falls are already 1) measured and 2) measured publicly.

Many health facilities have lean huddles where a cross-functional unit or household staff meets together every day for 15 minutes or less to have a dialogue about safety, improvement opportunities, process changes, and 1-3 metrics. A common metric reviewed at these meetings is falls. Leaders at a hospital may ask individual caregivers what they are going to do today to prevent falls. This kind of focus and attention to one metric with the people who care about it, and can impact it the most, can lead to dramatic and sustained improvement.

The primary tools being implemented in a long term care setting are standard work, daily huddle meetings of frontline staff and managers, and leader standard work. Gathering baseline data on turnover and retention, employee attendance, employee satisfaction, and quality measures and outcomes for customers is underway. Information processing theory is one that seems to apply to our scenario regarding huddles improving falls.

FINDINGS

A pilot study was conducted in an assisted living (AL) facility. The facility started daily huddles at 6am and 2pm with all nurses and caregivers at the work site. One daily huddle metric was related to employee attendance. Absenteeism in January 2016 was 7.8% for all caregivers. Visual management was used to post the number of staff who were scheduled to work and the name of staff who called-in sick each day as shown in table 1. By February 2016 absenteeism reduced to 2.8%, representing over a 60% drop in absenteeism in one month. Team interviews explained that management felt they were visually accountable to apply the attendance policy to all staff. Additionally, front line staff now have a better understanding of valid reasons of when to call in sick. Note that form templates are given in the appendix and can be considered as “informational workpieces” to document work (Kalghatgi & Bumblauskas (2016, p. 3).

Table 1: Staff Call-Ins
Metric: Call-ins

January																					
Day of the Week	Data						Target	Staff who called in or Reason for Call-in													
Fri	2	1	9	0	16	1	23	0	30	0											
Sat	3	0	10	1	17	0	24	0	31	0											
Sun	4	2	11	1	18	0	25	1													
Mon	5	2	12	0	19	1	26	1													
Tue	6	0	13	1	20	1	27	1					28-Jan								
													27-Jan								
													26-Jan								
													21-Jan								22-Jan
Wed	7	1	14	0	21	1	28	1			27-Jan	16-Jan	23-Jan	5-Jan	5-Jan			11-Jan			21-Jan
											8-Jan	1-Jan	2-Jan	4-Jan	4-Jan	1-Jan	7-Jan	8-Jan	13-Jan	1-Jan	19-Jan
Thu	1	3	1	15	0	22	1	29	0												
											Shay	Desi	Lesha	Nibia	Sharon	Steven	Hogan	Sue	Cindy	Geniva	Rubin

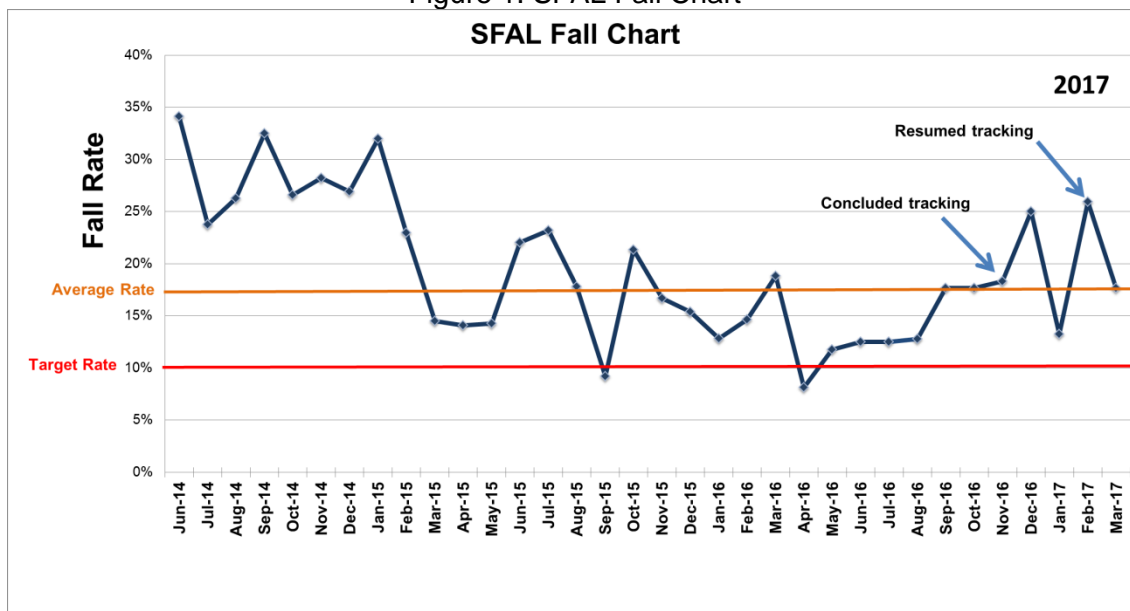
Another daily metric was about front line caregivers failing to complete dictation phone calls for services they provided in AL. When the calls are not completed, the AL loses out on the revenue for the services provided. Prior to posting the data, the AL facility was missing 2 calls per week. After the data was posted daily and discussed, the team missed only 2 calls per month as shown in table 2.

Table 2: Missed Telephony Calls
Metric: Missed Telephony Calls

January														
Day of the Week	Data						Target	Reason for Miss Call						
Fri	11	1	11	1	11	0	10	0	30	0				
Sat	6	3	7	0	5	0	4	1	31	0				
Sun	1	0	1	0	1	0	1	0						
Mon	12	0	12	0	13	0	11	0						
Tue	11	0	11	0	14	0								
Wed	13	0	13	0	11	0								
Thu	12	1	11	0	11	0	12	2						
											No called in	Sick Call - schedule	Call in	Cancel
											22-Jan	9-Jan		
											20-Jan	5-Jan	3-Jan	
											1-Jan	3-Jan	3-Jan	24-Jan

The same team in the AL facility was also tracking falls. Their daily interaction at their huddle led to informal root cause discussions which helped generate awareness and better real time understanding of resident fall risks as shown in figure 1. This daily interaction helped lead to a reduction in the fall rate in their facility. The AL team stopped publicly tracking falls in November of 2016. Shortly after that, some variation returned and the fall rate increased. Certainly there are other factors that impacted the fall rate, such as incidence of flu and other illness during the winter months. However, it should not be forgotten how powerful public measurement can be for a team to know how they are doing relative to expectations (McChesney, et al., 2012).

Figure 1: SFAL Fall Chart



Another team in a nursing facility (NF) has a daily huddle and has also implemented Leader Standard Work (LSW) for the manager. The NF manager has a list of daily, weekly, and monthly tasks to complete or check on throughout a month. The tasks on the LSW forms are used as reminders to help the managers follow up on important work as shown in Figure 2. A majority of the tasks require the manager to be out of the office and with the workers on the floor engaging in direct observation where the action is taking place (Spear, 2004). As seen in the LSW below, the manager checks in with her team daily, updates the huddle board and does rounding. She checks in with families and customers at weekly care plans and reviews water temps and missed time clock punches for payroll weekly. These things all sound pretty routine and uncomplicated. However, this list sends a clear message about expectations for that month. The manager also uses the LSW as a reminder to give each of her team members' feedback at least once per month (threads comment section removed for anonymity).

Figure 2: Leader Standard Work

HHC tasks out off Month: Feb-2017

Daily	M	Tu	W	Th	F	M	Tu	W	Th	F	M	Tu	W	Th	F	M	Tu	W	Th	F
Rounds	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Head count sheets	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Check supplies	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Check in with CNA's	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Check in with nurses	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Huddle board update	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X

Weekly	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Spend time with 3 residents	1.KC	2.DW	3.NJ					1.KC	2.NG	3.AH								1.KC	2.BH	3.										
Water temps		X						X										X												
Check escalations			not works					X										X												
Check missed punches								X										X												
Chart in PCC								X										X												
MDS's/paperwork								X										X												
Check activity charting								X										X												
Hold care conferences								X										X												
Clean part of the house								X										X												
Approve invoices								X										X												
Audits								X										X												

Monthly	As Needed
Calendar	New Hire
New cleaning logs (wkly/rm)	Orientation
Fire drill	In-services
Door checks/fire ext.	
Hospitality schedule	
Evaluations	
Set up care conferences	
File kitchen logs	

Threads	Comments

Some of the quick success in the AL facility and the NF can be attributed to the power of visual management and measurement. The attendance and dictation examples in the AL facility support the three thoughts around measurement detailed earlier in this article. The LSW used in the NF may lead to reduced turnover for caregivers there. The evidence also suggests that using traditional CI tools in long term care and senior services can have a positive impact on the short term engagement of employees. Long term engagement of employees within a type of TPS applied to a long term care setting is yet to be determined and is the focus of the remainder of this study. Manufacturing and more recently health systems have had success (Kenny, 2011) applying CI tools, and senior services are ripe with opportunity.

FUTURE WORK

There are several areas of future work inherent with this study. One area of interest is the impact of "alarm fatigue," or false and constantly sounding alarms, on metrics such as responsiveness, quality of care, etc. Another is expanding upon CI projects performed to improve process efficiency at a Midwestern Neurology Clinic, European AL, critical access hospitals, etc. We have also created a survey to assess the huddles and review the board which asks the huddle leader questions about what they like and dislike about process. This is still in the preliminary data collection phase. In addition, we are partnering with AL providers in the USA (Iowa, Missouri) and Europe (Ireland) to utilize similar techniques on on-going projects.

APPENDIX

<u>Metric: Frequency of PRN Anxiety/Pyschotropic Medications</u>														
Day of the Week	Data					Target	Reason for PRN Anxiety/Psycotropic Meds							
Fri						0								
Sat						0								
Sun						0								
Mon						0								
Tue						0								
Wed						0								
Thu						0								

<u>Leadership Huddles Audited / Day</u>									
Day of the Week	Actual	Target	Reasons for Miss						
Fri		2							
Sat		0							
Sun		0							
Mon		1							
Tue		2							
Wed		2	Not enough time on schedule						
Thu		2							

Example: 12/13 JJ

REFERENCES

Bumblauskas, D., Nold, H., Bumblauskas, P., & Igou, A. (2017). Big data analytics: transforming data to action. *Business Process Management Journal*, 23(3), 703-720. Available: <http://www.emeraldinsight.com/doi/abs/10.1108/BPMJ-03-2016-0056> or http://pfcservicesinc.com/?page_id=839.

Esain, A., Williams, S., and Massey, L. (2008). Combining planned and emergent change in a healthcare Lean transformation. *Public Money & Management*, 31(2), 21-26.

Gerst , R. M. (2013). Full house: understanding and expanding capacity in healthcare. *Six Sigma Forum Magazine*, May, 8-13.

Haux, R. (2006). Health information systems—past, present, future. *International Journal of Medical Informatics*, 75(3), 268-281.

Kalghatgi, S. & Bumblauskas, D. (2016). Creating a culture of order and cleanliness at Irish Court Services.” *Proceedings of the Production and Operations Management Society (POMS) Conference*, Orlando, FL, May. Available: <https://www.pomsmeetings.org/ConfPapers/065/065-0264.pdf>.

Kenny, C. (2011). *Transforming Healthcare, Virginia Mason Medical Center's Pursuit of the Perfect Patient Experience*, 41-48.

LaGanga, L. R. (2011). Lean service operations: reflections and new directions for capacity expansion in outpatient clinics. *Journal of Operations Management*, 29(5), 422-433.

LaGanga, L. R., & Lawrence, S. R. (2009). Increasing access to healthcare services through service time process improvements. *Proceedings of Production and Operations Management Society Annual Conference*, Orlando, FL, May.

Levin, I. P., Huneke, M. E., & Jasper, J. D. (2000). Information processing at successive stages of decision making: Need for cognition and inclusion–exclusion effects. *Organizational Behavior and Human Decision Processes*, 82(2), 171-193.

McChesney, C., Covey, S., Huling, J. (2012). *The 4 Disciplines of Execution*. 12-13.

Park, S., Mackenzie, K., & Jayaraman, S. (2002). The wearable motherboard: a framework for personalized mobile information processing (PMIP). *Proceedings of the 39th annual design automation conference (ACM)*, June, 170-174.

Reddy, M. C., & Jansen, B. J. (2008). A model for understanding collaborative information behavior in context: A study of two healthcare teams. *Information Processing & Management*, 44(1), 256-273.

Spear, S. (2004). Learning to lead at Toyota. *Harvard Business Review*, May, 78-91.

Toussaint, J., Gerard, R., Adams, E. (2010), *On the Mend, Revolutionizing Healthcare to Save Lives and Transform the Industry*, 9-13.