Leading Quality Improvement: Essentials for Managers
Session 4: Building Sustainable Systems
Case: Comparing Two Systems

Overview
Most healthcare organizations today are continually striving to find new ways to improve their quality of care. They recognize that improvements to their current operations can often bring important benefits — but in many cases, these efforts can ultimately be a challenge to the organization if they aren’t integrated as part of a larger strategy to build sustainable systems that will be able to continue and thrive over time. In fact, when improvements are introduced without the necessary capacity and supports in place, this can create additional workload for an already overburdened staff, without providing them any resources to help them to meet the increased demands. This can make them less likely to support the improvements and they may work around them or become resistant to following the plan. Improvements that aren’t well coordinated can also take resources away from other essential operations, putting both efforts at risk.

The best and most successful improvements are usually thoughtfully developed and integrated into the broader system and they follow some key principles introduced through an approach called the Highly Adoptable Improvement Model. As the following case, which presents two scenarios, illustrates, hospitals that rely on this model to guide their efforts are more likely than their counterparts to successfully build and assess sustainable improvement initiatives and avoid common mistakes.

Comparing Two Systems
Dale Urdick and Lauren Weizhart are both Quality Improvement Managers at two large pediatric hospitals in different states. Although hundreds of miles separate them, they both operate in similar environments and share many of the same goals and concerns. For instance, both of their QI teams have been very successful at implementing projects in the past and they both have the support of the leadership behind them. Many of the physicians, point-of-care managers, and staff members at both hospitals have received basic QI training and have participated in testing and implementing QI interventions.

Both hospitals also have a pediatric VAPs Prevention program. VAP stands for ventilator-associated pneumonia and is one of the top forms of hospital-acquired infections in children and infants in pediatric intensive care units. To lower the incidence, both hospitals use the VAP Prevention Bundle, which provides a series of evidence-based protocols that nurses can implement to try to prevent the infection.

Currently, some—but not all—of the recommended bundle protocols are being implemented at both hospitals. The steps being performed in both pediatric ICUs include head-of-bed elevation, a limited sedation protocol and daily assessment for extubation, inline suctioning, and hand hygiene prior to all contact with the ventilator circuit.
To measure their compliance, both Dale and Lauren have created VAP Prevention checklists that the point-of-care nurses complete as they perform these steps. In both hospitals, the checklist is completed about 80 percent of the time and the compliance with the Prevention Bundle elements vary, with hand hygiene and head-of-bed elevation being the lowest. Both ICUs also track incidence of VAP and there has been a significant reduction in rates since the bundle and checklist were implemented in both hospitals, but the numbers are still above their target.

Although there are so many similarities in their situations, Dale and Lauren do differ in how they will be approaching the implementation of further change to try to reduce the VAP rates in their pediatric ICUs.

**Scenario #1: Dale**
With an accreditation visit on the horizon, Dale works with the ICU manager, the medical director, and the director of respiratory therapy, to add some extra steps from the VAPT Prevention bundle to try to reach their goals. The steps include oral care, drainage of water from the ventilator circuit, and improved hand hygiene.

The implementation plan for the updated guideline recommendations include the following:
- Drain condensation from the ventilator circuit every 2-4 hours and before patient is repositioned
- Perform oral care according to the table (see below)
- Keep hand sanitizers at the bedside

<table>
<thead>
<tr>
<th>Age group</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neonates and infants with no teeth</td>
<td>Every 2 hours: moisten mouth with swabs soaked in clean water or physiological saline. Every 2 hours and as needed: coat lips with petroleum jelly</td>
</tr>
<tr>
<td>Infants and children &lt;6 years with teeth</td>
<td>Every 12 hours: brush teeth with small, soft toothbrush and fluoride toothpaste; suction out excess toothpaste, but do not rinse out mouth. Every 2 hours: moisten mouth with swabs soaked in clean water or physiological saline. Every 2 hours and as needed: coat lips with petroleum jelly</td>
</tr>
<tr>
<td>Children ≥6 years with teeth</td>
<td>Every 12 hours: Brush teeth with small, soft toothbrush and fluoride toothpaste; suction out excess toothpaste, but do not rinse out mouth. Rinse mouth with 0.1% chlorhexidine: irrigate with a syringe or wipe oral mucosa with a swab; suction excess solution, but do not rinse out mouth with water; use at least 30 minutes after brushing teeth. Every 2 hours: moisten mouth with swabs soaked in clean water or physiological saline. Every 2 hours and as needed: coat lips with petroleum jelly</td>
</tr>
</tbody>
</table>

Since there is already a VAP Prevention Program in place, Dale works with the management team to modify the existing checklist and provide educational material and sessions to educate the staff on the changes. He also reaches out to infection control to create a hand hygiene poster campaign and audit-feedback. The team reviews the data collected on the checklists every two weeks and sees moderate completion of the checklist and utilization of the new practices.
Dale meets with the nurse manager and point-of-care nurses on the unit and learns that they find it challenging to add these new changes to their existing workload. With this information in hand, he meets with his team to assess their efforts and determine what to do next.

**Scenario #2: Lauren**
One of Lauren’s hospital’s annual corporate objectives is to further reduce the incidence of VAP by incorporating the additional elements of the pediatric VAP Prevention Bundle into the pediatric ICU.
The main components of the additional interventions to be added to further prevent VAP include oral care, drainage of water from the ventilator circuit, and improved hand hygiene. The implementation plan for the guidelines recommendations include the following:

- Drain condensation from ventilator circuit every 2-4 hours and before patient is repositioned
- Perform oral care according to the table below
- Provide hand sanitizers at the bedside

<table>
<thead>
<tr>
<th>Age group</th>
<th>Intervention</th>
</tr>
</thead>
</table>
| Neonates and infants with no teeth | Every 2 hours: moisten mouth with swabs soaked in clean water or physiological saline  
|                             | Every 2 hours as needed: coat lips with petroleum jelly                       |
| Infants and children <6 years with teeth | Every 12 hours: brush teeth with small, soft toothbrush and fluoride toothpaste; suction out excess toothpaste, but do not rinse out mouth  
|                             | Every 2 hours: moisten mouth with swabs soaked in clean water or physiological saline  
|                             | Every 2 hours as needed: coat lips with petroleum jelly                       |
| Children ≥6 years with teeth | Every 12 hours: Brush teeth with small, soft toothbrush and fluoride toothpaste; suction out excess toothpaste, but do not rinse out mouth  
|                             | Rinse mouth with 0.1% chlorhexidine: irrigate with a syringe or wipe oral mucosa with a swab; suction excess solution, but do not rinse out mouth with water; use at least 30 minutes after brushing teeth  
|                             | Every 2 hours: moisten mouth with swabs soaked in clean water or physiological saline  
|                             | Every 2 hours as needed: coat lips with petroleum jelly                       |

Lauren and her team believe that the new elements of the VAP Prevention Bundle will likely create additional workload for the point-of-care staff. She decides to assess the workload associated with the entire Bundle protocol by observing and timing the current processes of care, then she talks with the staff nurses about barriers and enablers of the current processes.

She learns that the original elements, including the checklist, added significant additional work and the nurses are not sure that all the elements are value-added in reducing VAP. She discusses the checklist with charge nurses, who feel they could easily incorporate a smaller set of measures into their regularly occurring charge nurse rounds, thereby avoiding these steps needing to be completed by the bedside nurses who say that they not have time to incorporate the new work.

Lauren has some volunteer nurses try the new draft processes and she learns that they indeed add up to one hour of additional work. Working with the point-of-care staff and the interprofessional team, she realizes that the respiratory therapists can easily incorporate the scheduled water drainage into their existing rounds and on trialing, she finds that it adds less than 20 minutes per shift. The RTs understand the importance and feel they can manage this. The RTs also volunteer to help raise the head of the bed during their rounds.

Lauren also realizes that significant time is spent on getting the equipment for oral care. With help for the clinical assistants, oral care bundles are created and provided at the bedside every shift. However, the nurses still believe that the oral care component adds significant workload and on observing, Lauren finds that it still takes an additional 40 minutes. One member of the team who sits on the Patient and Family Centered Care Committee reports that during a peer site visit, she had noticed that family members were assisting with oral care since they help brush their children’s teeth at home. There is some concern about risk given the endotracheal tube, but the team decides to do some trial
training for parents and families to involve them in managing this task. This sparks a conversation on how else the hospital can involve families to help add capacity and improve patient centeredness.

**Discussion Questions**

*For Clinical and Allied Health Professions Managers:*

1. What were the major differences in how Carl and Lauren approached the improvement of adding more VAP prevention steps into the pediatric ICU staff's workload?
2. What do you think the strengths or weaknesses were in Carl's approach? How about in Lauren's?
3. What similar improvement initiatives has your hospital undertaken? Which style was used to incorporate the improvement and what were the results?
   a. How can clinicians be involved in the improvement process in the most effective way?
   b. How can the respiratory therapists contribute in the most significant way such a process improvement? Was Carl overlooking an important resource by now reaching out to them?
4. What input or advice might the nurses have given to Carl to help make the improvement more effective overall?
   a. Should the RTs and other allied health professionals be involved in designing improvement processes so they can give more input into how things play out?
5. How might Carl have involved the nurses in a way that they may have felt more ownership or buy-in in the VAP prevention protocol? Would this have changed the outcome at all?
   a. How can the allied health workers communicate with the clinical staff over shared areas of responsibilities in a way that ensures there are no gaps or oversights?

*For Quality Improvement Managers*

1. What were the major differences in how Carl and Lauren approached the improvement of adding more VAP prevention steps into the pediatric ICU staff's workload?
2. What do you think the strengths or weaknesses were in Carl's approach? How about in Lauren's?
3. What similar improvement initiatives has your hospital undertaken? Which style was used to incorporate the improvement and what were the results?
   a. How would you have handled this case — like Carl or like Lauren, or would you have taken a completely different approach? And why?
4. How can QI managers get buy-in from staff to help make improvements that can be adopted over time?
5. What type of outcome measurements and monitoring processes might be helpful to track the progress of any improvements like this one? How might the information be used to create more effective programs?