Infection Control Performance Improvement
Quality Assurance & Performance Improvement (QAPI) Case Study

Happy Acres Nursing Center is a 99-bed skilled nursing facility (SNF). The facility is divided into two neighborhoods, Neighborhood A, which mostly comprises of short-term residents, and Neighborhood B, long-term residents. The assistant director of nurses (ADON) has been submitting *Clostridium difficile* (*C. diff*) data to the National Healthcare Safety Network (NHSN) for a year. While reviewing their quarterly report, the team observed that the number of *C. diff* events increased from 1 event in January 2018 to a total of 7 events from January to March based on their NHSN CDI report. After reviewing the records of all seven residents who had *C. diff* events, they noticed that all of the residents were from Neighborhood A. They also noticed that 6 out of the 7 residents had taken antibiotics before they developed *C. diff*.

**NHSN CDI Report:**

<table>
<thead>
<tr>
<th>Facility Org ID</th>
<th>Resident ID</th>
<th>Resident Type*</th>
<th>Date of Current Admission</th>
<th>Days: Admit to Event</th>
<th>Event Date</th>
<th>Location**</th>
<th>Transferred from Acute Care Facility in Past 4 Weeks?</th>
</tr>
</thead>
<tbody>
<tr>
<td>45188</td>
<td>555258</td>
<td>SS</td>
<td>12/13/2017</td>
<td>21</td>
<td>1/2/2018</td>
<td>ND A</td>
<td>Y</td>
</tr>
<tr>
<td>45188</td>
<td>30259</td>
<td>SS</td>
<td>2/15/2018</td>
<td>10</td>
<td>2/24/2018</td>
<td>ND A</td>
<td>Y</td>
</tr>
<tr>
<td>45188</td>
<td>39820</td>
<td>LS</td>
<td>6/14/2017</td>
<td>237</td>
<td>2/5/2018</td>
<td>ND A</td>
<td>N</td>
</tr>
<tr>
<td>45188</td>
<td>28596</td>
<td>SS</td>
<td>1/8/2018</td>
<td>30</td>
<td>2/6/2018</td>
<td>ND A</td>
<td>N</td>
</tr>
<tr>
<td>45188</td>
<td>87952</td>
<td>SS</td>
<td>2/14/2018</td>
<td>24</td>
<td>3/9/2018</td>
<td>ND A</td>
<td>N</td>
</tr>
<tr>
<td>45188</td>
<td>55589</td>
<td>LS</td>
<td>9/13/2017</td>
<td>182</td>
<td>3/13/2018</td>
<td>ND A</td>
<td>N</td>
</tr>
</tbody>
</table>

*SS = Short Stay; LS = Long Stay  
**ND A = Neighborhood A

**The Issue:**

Happy Acres Nursing Center had an increased number of *C. diff* events over the last three months based on their NHSN surveillance report, from 1 event in January to a total of 7 events from January to March. These events seemed to be affecting the patient population in Neighborhood A of the facility.

**The Plan:**

To address the immediate issue, the facility created an Infection Prevention and Control Team and decided to appoint the ADON as the Infection Control Officer (ICO). The team consisted of the following: ADON, director of staff development (DSD), a charge nurse, a certified nursing assistant (CNA), a nurse
practitioner working under the facility medical director, pharmacist consultant, and a housekeeper, all associated to Neighborhood A. It was decided that the team would meet bi-monthly until the number of incidents decreased and new policies and procedures were implemented, then monthly thereafter.

The team decided to adopt QAPI and start a Performance Improvement Project (PIP) to address this issue because this trend posed high-risk and quality-of-life problems for their residents.

Based on their current issue, the Infection Control Team decided to complete a PIP Charter.

**TIP:** Conducting a PIP is helpful to examine and improve care or services in areas that are identified as needing attention.

**Step-by-Step PIP Process**

The team decided to complete the PIP Charter to have a clear outline of each step of the program. By defining each key charter components, the team will have a clearer understanding of what the project is trying to accomplish.

**TIP:** Refer to the PIP Charter sample.
Based on their needs, the team decided to select the key members of the PIP team.

**TIP:** The Infection Prevention and Control Team does not necessarily have to involve only licensed staff members, but also include other staff members from different departments.

### Project Team and Responsibilities:

<table>
<thead>
<tr>
<th>TITLE</th>
<th>ROLE</th>
<th>PERSON ASSIGNED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Sponsor</td>
<td>Provide overall direction and oversee financing for the project</td>
<td>Dr. Feelgood, Medical Director</td>
</tr>
<tr>
<td>Project Director</td>
<td>Coordinate, organize and direct all activities of the project team</td>
<td>Jack Doe, Director of Nursing (DON)</td>
</tr>
<tr>
<td>Project Manager</td>
<td>Manage day-to-day project operations, including collecting and displaying data from the project and infection prevention and control duties</td>
<td>Susie Lookup, Assistant Director of Nursing (ADON) and Infection Control Officer (ICO)</td>
</tr>
<tr>
<td>Team members*</td>
<td>Assisting in examining policy and procedures</td>
<td>Jose Reyes, Consultant Pharmacist</td>
</tr>
<tr>
<td></td>
<td></td>
<td>John Smith, Director of Staff Development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Susie Anne, Housekeeping Supervisor</td>
</tr>
<tr>
<td></td>
<td>Assist in data collection</td>
<td>Anna Cruz, Charge Nurse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>John Smith, Director of Staff Development</td>
</tr>
</tbody>
</table>

**TIP:** Choice of team members will likely be deferred to the project manager based on interest, involvement in the process, and availability. It is best practice to include other departments and staff members to the project.

The team decided to focus PIP efforts on the increase in the number of *C. diff* events. Based on the March Surveillance Report, there was an increase in the number of *C. diff* events from 1 event in January to 7 events from January to March.

Their project name: **Operation: Reduce *C. diff***

The PIP Team set a specific, measureable, attainable, relevant, time-bound (SMART) goal for *C. diff* event reduction in Neighborhood A of the facility which would then reflect in their surveillance report.

**SMART Goal:** To decrease the number of *C. diff* events within Neighborhood A of Happy Acres Nursing Center from 7 events to 0 events by October 31, 2018, based on the NHSN CDI report.
On their very first PIP meeting, the team decided to conduct a Root Cause Analysis (RCA) to determine the causes of the increased number of C. diff events in Neighborhood A.

**Root Cause Analysis (RCA) Fishbone Sample**

**Goal**
To decrease the number of C. diff events within Neighborhood A of Happy Acres Nursing Center from 7 events to 0 events by October 31, 2018, based on the March 2017 NHSN report.

**Problem**
7 C. diff events based on the March NHSN report.

**TIP:** Performing a Root-Cause Analysis can help you focus on issues you have more control over and prioritize those that you can easily address. Ask these two questions:
1. Which root cause(s) has/have the highest impact on the issue?
2. Which root cause(s) do you have the most control over?

**Summary of their RCA exercise**
- All residents that developed C. diff had rooms in Neighborhood A of the facility.
- Majority of the residents who developed C. diff were short term residents.
- All residents who developed C. diff recently took antibiotics for a urinary tract infection (UTI).
- There was no system in place to track infections weekly. They were only tracking it monthly.
- The last infection control in-service was done one year ago.
• There was a new housekeeping supervisor and new housekeeping staff member in the last three months, who were not properly oriented in the infection control protocol policy and procedures.
• There were multiple complaints about the lack of proper room cleaning after a resident got off *C. diff* isolation.
• It was discovered that proper hand hygiene techniques were not followed.
• Physicians still ordered antibiotics for residents not exhibiting signs and symptoms of UTI.
• Staff members were not following proper hand washing techniques.

---

**After the team identified issues based on their RCA exercise, they decided to list the action items they wanted to work on. They planned on applying their interventions at a smaller scale in Neighborhood A which was home to 30 residents.**

---

**Action Plan Items**

The team listed all their action items. The items marked with an asterisk (*) are the action items that the team decided to prioritize.

1. Education
   a. *Educate all staff members on their responsibility to prevent *C. diff*.
   b. *Conduct competency testing for nurses and nursing assistants on proper hand washing techniques.*
   c. *Request the medical director to speak with other physician’s regarding new guidelines in antibiotic administration.*
   d. *Educate environmental services staff members on proper cleaning techniques.*
   e. Provide education to residents, family members, and significant others about ways to prevent *C. diff*.
   f. Provide education to residents, family members, and significant others about the risks of over medicating in antibiotics.

2. System Changes
   a. *Establish an Infection Prevention and Control Team. Identify an Infection Control Officer (may be the Assistant Director or Nurses or DSD).*
   b. *Have additional staff members gain access to NHSN for infection control surveillance.*
   c. Enhance communication procedures.
   d. Start a pre-shift huddle with all staff members on duty during each shift.
   e. Ensure that new employees are oriented to the proper policies and procedures.
3. Policy Changes
   a. **Start an Antibiotic Stewardship Program** (including policies and procedures).
   b. Review infection prevention and control policies and procedures to ensure that they are consistent with current guidelines.

**TIP:** Prioritize your action plans based on the items identified in the RCA. You do not have to do all the listed action items at the same time.

<table>
<thead>
<tr>
<th>Action Item</th>
<th>Person(s) Responsible</th>
<th>Start Date</th>
<th>End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educate all staff on their responsibility to prevent <em>C. diff</em></td>
<td>Infection Prevention and Control Officer, Director of Staff Development</td>
<td>May 2, 2018</td>
<td>May 12, 2018</td>
</tr>
<tr>
<td>Conduct competency testing for nurses and nursing assistants on proper hand washing techniques</td>
<td>Director of Staff Development</td>
<td>May 2, 2018</td>
<td>May 19, 2018</td>
</tr>
<tr>
<td>Request the medical director to speak with other Physician’s regarding new guidelines in antibiotic administration</td>
<td>Nursing Home Administrator</td>
<td>May 2, 2018</td>
<td>May 31, 2018</td>
</tr>
<tr>
<td>Establish an Infection Prevention and Control Team, identify an Infection Control Officer</td>
<td>Director of Nursing</td>
<td>May 2, 2018</td>
<td>May 12, 2018</td>
</tr>
<tr>
<td>Start an Antibiotic Stewardship Program (including policies and procedures)</td>
<td>Infection Control Officer, Director of Nurses, Medical Director, Nurse Home Administrator</td>
<td>May 2, 2018</td>
<td>May 31, 2018</td>
</tr>
<tr>
<td>Have additional staff members gain access and start reporting <em>C. diff</em> data to NHSN</td>
<td>Director of Nursing, Director of Staff Development, and Charge Nurse</td>
<td>May 2, 2018</td>
<td>May 31, 2018</td>
</tr>
</tbody>
</table>

**TIP:** Identifying persons responsible for each action item, including start and end dates sets definite deadlines for when each action item will be accomplished.

The team decided to start a pilot on a smaller scale and conducted the project in Neighborhood A, the unit with an increased number of *C. diff* events. They also decided to apply Plan Do Study Act (PDSA) to test out the interventions from their action plan.

**TIP:** During a PIP, attempt some changes and then see whether or not they made a difference in the area you were trying to improve using the PDSA cycle.
The Results

At the end of 6 months, the team noted a decrease in the number of residents in Neighborhood A who developed *C. diff*.

![Bar chart showing the number of residents with *C. diff* over time.](chart.png)

**TIP:** Looking at your data in graphic form helps you determine the effectiveness of your interventions.

By looking at their data, the team can see the results of the effectiveness of their interventions in Neighborhood A.

As a result, the team decided to adopt and expand the interventions to the other unit of the facility.

Since they met their initial goal, the team decided to extend the program to Neighborhood B for the next 3 months (January 2019). After effectively implementing this program to Neighborhood B, the team decided to put this project on maintenance mode by continuing their monthly meetings to evaluate the effectiveness of the program and adding or modifying action items that no longer apply.
Using QAPI allowed staff members at Happy Acres Nursing Center to identify and correct developing issues before they escalated to larger problems.

Summary of What Happy Acres Nursing Center Did:

- Trended and reviewed data
- Started a PIP
- Set a SMART goal
- Used RCA to determine the causes of the increased *C. diff* events in Neighborhood A
- Determined action items based on outcome of the RCA
- Identified staff members (DON, DSD and charge nurse) to enroll as additional NHSN users to assist with data reporting
- Implemented an antibiotic stewardship program (including policies and procedures)
- Involved patients, family, and staff members in the PIP
- Used the PDSA model to test the effectiveness of the changes
- Implemented and spread changes to Neighborhood B