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Performance Improvement in Healthcare: Integrating Gilbert's Behavior Engineering Model Within a Just Culture

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Chapter 10
Performance Improvement in Healthcare:
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EXECUTIVE SUMMARY

Healthcare leadership and department management personnel are tasked with the responsibility of ensuring safe, high-quality patient care delivered by competent and proficient staff. This responsibility often comes in the form of identification of discrepant and erroneous practices that result in subsequent employee disciplinary action process improvement discussions and implementation. This case study presents an example of a sentinel event and how Gilbert's Behavior Engineering Model (BEM) was utilized in the context of a Just Culture to ensure both processes and personnel were adequately supported to meet expected task outcomes.

EMPLOYEE BACKGROUND

Alec Trager is a phlebotomist working third shift at Saint Tomas Medical Center in Sharmaine, North Carolina. His regular shift starts at 20:00 and ends at 06:00, and he is the only phlebotomist staffed during the third shift. He works Monday through Friday and every fourth weekend. Alec's responsibilities include a collection

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of timed, scheduled, and stat patient testing for all inpatients within the hospital; this includes a collection of morning AM collections, which start at 04:00. During this time, there is only one phlebotomist collecting morning rounds, which must be completed by 07:30.

A new phlebotomist, Alec has been with Saint Tomas for ten months, and this is his first full-time job in healthcare. He graduated from a three-month phlebotomy certificate program at a local community college; he completed his clinical training at Saint Tomas and was immediately hired upon course completion. During the past 10 months, Alec's performance has slowly declined, changing from exemplary to needing improvement. The phlebotomy supervisor, Betty Murphey, has counseled Alec on several occasions regarding proper patient identification procedures and customer service skills and had extended his probationary period by 3 months, according to Betty. Alec completed his probationary period 9 months after his first day of employment.

SETTING THE STAGE

Saint Tomas Medical Center is a 72-bed critical access hospital with an emergency department that treats an average of 93 patients per day. In addition to emergent care, the facility houses a medical/surgical wing, intensive care unit, and labor and delivery with a nursery. The surgical suite includes two operating rooms and is staffed by one general surgeon and one obstetrician. On average, the facility has a census of 34 inpatients per day, with approximately 23 of those having AM labs to be collected.

The medical center is located in one of the most rural parts of North Carolina, serving an underrepresented, underserved population of patients who rely heavily on the medical expertise of the healthcare professionals. The majority of patients treated at the facility receive indigent care services and have limited knowledge of healthcare service lines and quality of care. Little to no patient engagement in healthcare-related decisions transpire between the patient and the healthcare provider, as most of the patients are ill-informed of care needs concerning their chief medical complaint and prognosis. Rarely do they ask probing questions about services rendered.

During a typical third shift rotation, Alec has a considerable amount of downtime due to the decrease in patient volume coming through the ED and the fact that timed and routine lab work is rarely ordered for collection before 4:00 am. Much of this downtime is spent assisting the testing personnel with instrument maintenance, quality control procedures, and inventory management. At approximately 2:45 am each morning, scheduled, morning patient testing labels automatically print in the phlebotomy work area; it is Alec's job to organize the labels and verify that

all ordered lab work has a corresponding collection label. This is done through reconciliation to a specimen collection log, which Alec prints from the laboratory information system (LIS).

Once Alec organizes the collection labels, he stocks his collection tray with enough supplies to ensure that all samples may be collected efficiently and effectively. A surplus of collection supplies are housed in the lab supply room, and Alec is responsible for managing all phlebotomy supplies. Alec has also been tasked with ordering phlebotomy supplies as needed and per frequency of use.

After Alec completes morning lab collections, he returns to the lab, logs in the specimens into the LIS, and begins to process the samples in preparation for testing. These tasks are generally completed by no later than 6:00 am. Alec is scheduled to clock out at 6:45 am and may not incur any overtime. Alec typically works Monday through Thursday, 10 hours per shift.

CASE DESCRIPTION

On Friday morning, Alec gathered the morning round labels, which were generated at 02:45 am and began to organize them based on his planned collection route. Alec always starts his rounds in the intensive care unit, moving to the obstetric unit, and finally wraps up his collection round in the medical/surgical unit; however, this morning, a nurse in obstetrics requested that her patients be collected first, preferably by no later than 5:00 am. Alec collected the unit as requested.

In the obstetric unit, there were only three patients: a 61-year-old in room 301, a 35-year-old in 303, and a 15-year-old in room 315. Alec did have lab orders for patients in rooms 301 and 303; there was no lab work ordered for the patient in room 315. Proceeding in order, Alec entered room 301 to collect the patient's specimen.

Upon entering the patient room, Alec placed his cart against the wall, reviewed the patient collection label for name and date of birth, and then proceeded to identify the patient before sample collection. After he identified the patient, he returned to his cart, grabbed the labels and collection supplies, and returned to the bedside.

During venipuncture preparation, the patient requested that Alec not collect the specimen at that time and return later that morning to complete it. Alec attempted to convince the patient to allow collection at that time; however, the patient was insistent about waiting. Alec agreed, documented that someone would return, and exited the room. He made this documentation on the top of the patient label. At that time, Alec proceeded to room 303 and successfully collected the patient sample as ordered.

Alec returned to the lab, logged in his samples, and began processing specimens for the lab techs. At 6:30 am he handed off the labels for room 301 to the day shift phlebotomist and instructed her to collect the labs as soon as possible. The

phlebotomist immediately ran down to the obstetrics unit and collected the sample in room 301. Upon collection, the patient asked why she was being stuck again. Rather than perform the venipuncture, the day shift phlebotomist contacted the lab supervisor regarding the statement and concern over the collection.

While the phlebotomist was explaining the situation to the lab supervisor, the charge nurse from OB called the lab to report concern over morning collections. The nurse stated that she was told the patient in room 303 had refused to be collected and that the phlebotomist stated he would return later to collect the samples. During morning rounds, the nurse stated that the patient in room 301 had been stuck and had not refused collection earlier. The lab supervisor immediately ran to the OB unit and performed venipunctures on both patients, returning to the lab and running tests in both collections. It was discovered that morning labels for room 301 were used to collect specimens on the patient in room 303 and that incorrect lab results were reported on the patient.

As a result of this mistake, testing personnel completed a variance report of the incident and forwarded the document to the lab supervisor. During this process, the staff amended the incorrect patient results promptly, reported the error to the primary caregiver, and thoroughly documented all steps in the correction. Unfortunately, patient care was adversely affected due to delay in the reporting of an elevated white blood cell count, and critically high potassium that was not reported to the provider promptly. The patient with the elevated lab results did not receive proper care and her condition deteriorated throughout the day. She was transferred to the medical intensive care unit where she expired 24 hours later. An investigation into this sentinel event began immediately through the lens of just culture.

PROBLEM ANALYSIS AND JUST CULTURE

Just Culture is a systematic approach to analyzing mistakes within workplace processes. This model considers both the organizational level of task execution and the task performance of the employee; however, initial assumptions, in a just culture, is that organizational processes may be the causative agent of error, not the employee. This vantage point establishes and ensures accountability of performance and support at all levels of the process and task execution (Boysen, 2013; Khatri et al., 2009; Petschonek et al., 2013).

In a just culture, problem analysis is examined in a very control, algorithmic manner that aligns with three main types of behavior associated with task performance - human error, at-risk behavior, and reckless behavior. The behavior of the caregiver is categorized according to five distinct classifications (Boysen, 2013). These include impaired judgment, malicious action, reckless action, risky action, unintentional error.

Impaired judgment warrants disciplinary action and evaluation into whether termination of caregiver is necessary. Malicious and reckless action calls for disciplinary action and verification that there are no legal ramifications associated with the caregiver's negligent behavior. Risky action requires additional coaching and for the caregiver to participate in a risk assessment to understand the consequences of their actions. Unintentional errors call for additional investigation (i.e. root cause analysis) to determine if there is a pattern associated with the occurrence of these errors.

These broad classifications serve alongside the algorithm to aid department leadership in determining problem cause and ultimately work toward problem resolution by accurately isolating the root cause of the error without placing blame for its occurrence (Boysen, 2013). This establishes equity and evidence-based determination of the cause of the error while providing the employee with the reassurance of a fair assessment of performance.

Because the nature of healthcare is rooted in the performance of individuals delivering patient care to other individuals, reason acknowledges that there are times when errant healthcare performance will negatively impact patient care (Kohn et al., 2000). Within a just culture of healthcare, employees are encouraged to report problems or potential problems, without the fear of immediate, severe repercussions; it is this occurrence reporting structure that can serve to improve patient care by mitigating mistakes and accurately and proactively addressing human performance situations. When employees operate within a safe reporting structure, near-miss events can be isolated and reported, knowing that discovery of the true cause of the problem can serve to prevent its future occurrence (Boysen, 2013; Khatri et al., 2009; Petschonek et al., 2013).

USING THE BEHAVIOR ENGINEERING MODEL TO IMPLEMENT PREVENTATIVE ACTIONS

In conjunction with a just culture, department leadership can utilize a systematic approach to analyze the error. Through the use of the Behavior Engineering Model (Gilbert, 1978), both the employee's performance and the working environment can be functionally and equitably examined, searching for potential conditions that would have contributed to the error.

Gilbert's Behavior Engineering Model (BEM) examines three components of both the worker's performance and the working environment. Table 1 explains the model. Two broad categories, Environment and Individual, specifically assess the factors of where and when the error happened and the performance of the individuals associated with the error. Using this model, from a just culture perspective, problem analysis

can be completed fairly and systematically with clearly defined parameters with associated documentation and evidence. Aligned with a just culture, true causation for error can be placed upon either the construction of the process, procedure, and protocol or task execution of the individual (Boysen, 2013; Gilbert, 1978).

Common to both the environment and the individual are the three categories of information, instrumentation, and motivation. Viewing these categories as a check and balance system, employee performance can be directly aligned with the education and resources provided to accurately and reliably complete the work.

Table 1. Gilbert's behavior engineering model

	Information	**Instrumentation**	**Motivation**
Environment	*Data* Frequent feedback to the individual about performance. Clear directions and expectations of performance. Adequate performance support systems.	*Resources* Tools, resources, time materials provided to the individual that will facilitate expected performance.	*Incentives* Adequate monetary compensation for performance. Nonmonetary benefits and compensation. Career development opportunity Consequences for poor performance.
Individual	*Knowledge* Systematically designed training that aligns with performance expectations. Correct placement of training following expected performance outcomes.	*Capacity* Scheduling of performance to meet peak capacity. Visual aids and support devices to help achieve performance. Adaptation and flexibility to workplace needs and change	*Motives* Recruitment of people, placed in the correct positions. Assessment of workplace motives.

Furthermore, the Behavioral Engineering Model provides a mechanism for healthcare managers to identify factors that may have contributed to the caregiver's behavior. As a manager conducts a risk assessment and determines the type of training or level of coaching needed for remediation of the caregiver. The Behavioral Engineering Model helps the healthcare team examine the situation from the environmental level as well as the caregiver level. By examining these two levels, they can ensure that the appropriate infrastructure is in place to support a caregiver in their role and responsibilities.

Using this model, the lab supervisor can construct a series of questions used to investigate the incident before deciding on the cause of the problem and subsequent resolution steps. After construction of the questions, the investigative tool should be reviewed with another department manager for clarity, equity, and thoroughness. Table 2 provides an example of the tool constructed from the BEM, specific to the current case.

Table 2. Investigation tool created using Gilbert's BEM

Investigation Tool
1. What training is available that fully instructs the employee performing the task? 2. How has the employee received feedback on work performance, specifically for the task associated with the error? 3. What resources were required to complete the task, and were they readily available for the employee's use? 4. How did the employee demonstrate competency in utilizing the resources? 5. What benefits does the employee receive for satisfactory work performance? 6. How is the employee engaging in career development?
7. What documented evidence proves that the employee was adequately trained to perform the task and associated tasks? 8. Is the employee executing the task as instructed? 9. During the time the error was performed, was there sufficient staffing to cover the tasks required to be completed? 10. What task-specific performance support systems were available to the employee at the time of the error?

USING THE INVESTIGATION TOOL

The lab supervisor called a meeting with Alec, explaining that she wanted to discuss the situation and gather more relevant information. She told Alec that this discussion was in no way a punitive meeting or contained disciplinary action. Before the meeting, the lab supervisor took the time to use the created tool to examine the working environment and assess if potential causes for the error may have existed.

What training is available that fully instructs the employee performing the task?

The training that exists is a minimally structured cognitive apprenticeship that could last from 3 days to 3 weeks. New phlebotomists are paired with another employee and both perform collection rounds together. This takes place for as long as the new employee desires, up to 3 weeks. There is no instructional material associated with the training; however, there is a competency assessment and performance checklist completed at the end of the training period. The new employee is responsible for the completion of these documents.

How has the employee received feedback on work performance, specifically for the task associated with the error?

Alec did receive feedback on performance throughout his training; however, it was not immediate and not complete. Feedback was provided by the employees tasked to work with him and deliver his training.

What resources were required to complete the task, and were they readily available for the employee's use?

It was discovered that there were sufficient supplies, readily available the morning of the error. Alec had access to all equipment and resources required to accurately collect the samples.

How did the employee demonstrate competency in utilizing the resources?

Alec was observed collecting 10 patient samples before being deemed competent to work alone. This competency assessment was conducted during a weekday, day shift hours. There were no problems noted on Alec's competency assessment.

What benefits does the employee receive for satisfactory work performance?

Alec is a full-time employee of the lab with full benefits such as paid time off, healthcare insurance, and retirement. Additionally, Alec is on a consistent third shift schedule that rarely changes.

How is the employee engaging in career development?

On Monday, Wednesday, and Friday Alec has classes at the local community college where he is studying to be a nurse. His first class starts at 9:00 am and the last class ends at 1:00 pm. He is in his third semester of the program and anticipates being able to begin his clinical rotation next semester. Alec has plans to become a Registered Nurse and work in a Level 1 trauma center Emergency Department.

What documented evidence proves that the employee was adequately trained to perform the task and associated tasks?

The lab supervisor was able to locate Alec's initial competency assessment but did not locate the 6-month assessment. Since Alec is in his tenth month of employment, this document should have been completed at the end of his probationary period.

After an initial investigation into the work environment and general training information, the lab supervisory met with Alec and completed the investigation. This meeting lasted about 30-minutes, and Alec was very concerned about the patient care that was delivered, expressing contrition for the error.

Is the employee executing the task as instructed?

Alec was asked to explain his process for completing early morning lab collections. The lab supervisor asked him to begin from the point where specimen labels printed in the lab. Alec provided the following outline of his daily process.

1. Obtain the labels from the lab printer.
2. Separate patient labels from each other and place the patient label in the respective nursing unit stacks.
3. Restock the phlebotomy cart with ample supplies and place the labels on the cart in the order of anticipated collection. All patient labels are on top of the cart.
4. Starting with the Intensive Care Unit (ICU), he collects his patients, placing collected samples in the completed sample rack when finished.
5. To identify the patients, Alec stated that he memorizes the patient's name and date of birth before taking the collection supplies to the bedside.
6. At the bedside, he looks at the patient's armband to ensure the individual is the correct patient.
7. After the collection of the patient's samples, he moves to the next patient on the list.
8. Alec finishes up his morning by collecting the OB unit then the Med-Surg unit.
9. After collections are completed, he returns to the lab and delivers the samples to testing personnel.

During the time the error was performed, was there sufficient staffing to cover the tasks required to be completed?

The morning the error was made, Alec stated that he had been called to the Emergency Department four times during his morning rounds. This caused him to continually be pulled from the nursing floors and forced to regroup when he returned to the inpatient collection rounds. Due to the 07:30 completion time, Alec stated he felt rushed to complete on time.

What task-specific performance support systems were available to the employee at the time of the error?

The available support systems available to Alec would have been the testing personnel and an extra phlebotomist who generally reports for duty by 05:30. This particular morning, one of the two testing personnel and the other phlebotomist had called out sick, leaving Alec the only individual collecting the morning rounds, with only one employee in the lab to complete patient testing.

ANALYSIS OF INVESTIGATION IN A JUST CULTURE

After the lab supervisor completed her investigation of the environment and employee performance, she determined that multiple issues resulted in the errant performance of the employee: (1) unstructured new employee training program for phlebotomists, (2) lack of sufficient performance feedback, (3) employee work-school schedule, (4) incomplete competency assessment at 6-month mark, (5) workflow process, and (6) hospital staffing. Most of these issues are beyond the employee's control only one of these can be fully controlled by Alec, workflow process. In light of these issues, the lab supervisor decided that the error was not caused by at-risk behavior or impaired judgment but by unintentional error.

Due to the inadequate training and competency assessment program, low hospital staffing levels, and the employee's class schedule, it is apparent that these factors significantly contributed to the errors during the collection of the sample. Additionally, how Alec set up his collection labels and his performance of patient identification did, indeed, contribute to the error; however, without documentation of proper and full training, education on proper performance and technique cannot be ruled out as having been accurately completed. The decision was made to not place Alec on a disciplinary action plan. Instead, the lab supervisor decided to take a deeper look at the failed processes from this event and to include Alec in this project. Not only did this serve to improve performance for the entire lab but it empowered Alec to own and lead the change preventing this error moving forward.

CONCLUSION

Gilbert's Behavioral Engineering Model, systematically executed within a just culture of work, can serve to isolate opportunities for performance improvement amid human error. By purposefully examining how the employee performed the work and the environment in which the work was performed, the benefits are two-fold: employee performance can be enhanced and improved in alignment with the standard of work expected and a culture of continuous quality improvement can be created and maintained.

This framework allows for caregivers and healthcare managers to identify any discrepancies between the infrastructure (environment) and the caregiver related to information, instrumentation, and motivation. If this model is used to support risk assessments related to errors that occur within the healthcare system, managers will be better positioned to identify patterns of behavior and strategize initiatives to mitigate patient risk.

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