Title:
Using Staffing Analytics to Support Optimal Clinical Resource Scheduling Across a Safety Net Hospital System

Noreen Bridget Brennan, PhD¹
Eileen Raftery O'Donnell, MBA/MIS²
Kerry Small Abbott, MSN³
Shawn Jennie-Elin Semedalas, BSN³
(1)New York Health + Hospitals: Metropolitan, NY, NY, USA
(2)New York City Health + Hospitals, New York, NY, USA
(3)The Nash Group, Oak Lawn, IL, USA

Session Title:
Research Poster Session 1
Slot (superslotted):
RSC PST 1: Friday, 28 July 2017: 10:00 AM-10:45 AM
Slot (superslotted):
RSC PST 1: Friday, 28 July 2017: 12:00 PM-1:30 PM

Keywords:
Nursing Leadership, Safety Net Health Systems and Staffing Analytics

References:


**Abstract Summary:**
Utilization of staffing analytics for planning, forecasting and scheduling in healthcare is subject matter that Nursing Leaders need to be adept at describing, understanding, translating, and creating. Once created, resultant measurable outcomes of staffing and scheduling can be researched along with quality metrics, staff engagement, forecasting, and financial models.

**Learning Activity:**

<table>
<thead>
<tr>
<th>LEARNING OBJECTIVES</th>
<th>EXPANDED CONTENT OUTLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify components of optimal clinical resource scheduling through the use of analytics.</td>
<td>Nursing Leadership responsibilities a. Planning b. Forecasting c. Safety and Quality d. Recruitment and Retention</td>
</tr>
<tr>
<td>Describe analytical and forecasting methods utilized in scheduling of resources.</td>
<td>a. Definition of Safety net hospitals b. Large data sets c. Research on Nurse Staffing</td>
</tr>
<tr>
<td>Compare measures of staffing across safety net hospitals.</td>
<td>a. Planning b. Forecasting c. Safety and Quality d. Recruitment and Retention</td>
</tr>
</tbody>
</table>

**Abstract Text:**

During the past couple of years, many hospitals have closed or decreased their inpatient footprint. Additionally, many hospitals have become part of or formed networks or systems to ensure viability through consolidation of resources (Faller & Gogek, 2016). Scheduling and staffing of nurses is a dynamic process that can have significant financial implications for healthcare organizations. A numeric value of nursing care has always been difficult to quantify. However, researchers have demonstrated findings that show increases in nursing and skill mix are associated with improved quality through a decrease in adverse effects (Martsolf, Auerbach, Benevent, Stocks, Jiang, Pearson, et al., 2014); patient experience and satisfaction are better with increased nurse staffing and positive work environments (Kutney-Lee et al., 2009); and greater numbers of core rather than contingent (i.e. agency) nurses per bed increased patient satisfaction (Hockenberry et al., 2016). Nursing leaders are challenged, as never before, with maintaining and improving quality outcomes with an ever changing and at times shrinking labor force. They are rarely schooled in how to receive and interpret data to support the increasingly regulated and fluctuating staffing needs on the unit and at divisional level. Safe nurse staffing is not just a numbers game, it is a commitment and part of the organizations mission to serve our patients. Data is critical but just one tool in the arsenal needed by nursing leadership. The purpose of this presentation is to describe the development and utilization of analytical tools in supporting nursing leaders in forecasting and planning distribution of nursing resources in a large safety net healthcare system. A safety network describes healthcare providers in hospitals and outpatient clinics who provide care to patients with minimal financial and insurance resources (Moore, Fischer, & Havranek, 2016). New York City Health and Hospitals is made up of 11 Acute Care Facilities; 5 Long Term Care Facilities; and 6 Diagnostic and Treatment Centers that provide health care services to the residents of New York City. The mission of New York City Health and Hospitals is to provide competent, culturally sensitive quality care to our patients with dignity and compassion, regardless of ethnicity, nationality, religion or ability to pay, in a safe environment. The overall program objectives were: determining workloads and
building staff plans; allocating activity and determining labor resources; creating schedules that meet operations and clinical needs; correcting staff counts to reduce premium pay and lessen staff deficits; stabilizing and projecting labor costs; forecasting needs; and maintaining a patient and clinician safe environment. Overall, creation of the staffing analytics tool have aided in standardizing language across the system; has provided numerical justification for replacing resources; establishing benchmarks; projecting overtime, agency, and sitter costs; and model scheduling based on historical data. In conclusion, the purpose is to describe the development and utilization of analytical tools in supporting nursing leaders in forecasting, and planning distribution of nursing resources and lessons learned along the way in a safety net health care organization.

**Purpose:** The purpose is to describe the development and utilization of analytical tools in supporting Nursing leaders in forecasting and planning distribution of nursing resources and lessons learned along the way in a safety net health care organization.

**Methods:** Development of staffing analytical tools that are utilized acrossed a safety net healthcare system in New York City. New York Health and Hospitals is made up of 11 Acute Care Facilities; 5 Long Term Care Facilities; and 6 Diagnostic and Treatment Centers that provide health care services to the residents of New York City.

**Results:** Standarization of data collection resulted in determining workloads and building staffing plans; allocating activity and determining labor resources; creating schedules that meet operations and clinical needs; correcting staff counts to reduce premium pay and lessen staff deficits; stabilizing and projecting labor costs; forecasting needs; and maintaining a patient and clinician safe environment.

**Conclusion:** Overall, the creation of the staffing analytics tool have aided in standardizing language across the system; has provided numerical justification for replacing resources; establishing benchmarks; projecting overtime, agency, and sitter costs; and predictive model scheduling based on historical data.