



Leveraging analytics consulting and a performance dashboard to support operational improvement

Who/where

Beverly Hospital, part of Beth Israel Lahey Health.
Beverly, MA.

Challenge

Provide analytics consulting, tools, and training to deliver data-driven insights and support sustainable performance improvement.

Solution

Develop several Philips TransformAnalytics Performance Dashboards, customized to provide an at-a-glance view of performance metrics to staff, management, and executive leadership.

Beverly Hospital, part of Beth Israel Lahey Health, is a 221-bed community hospital providing quality, patient-centered care to communities north of Boston, MA. As part of a consulting engagement focused on increasing operational efficiency, our team provided data analytics consulting and process improvement recommendations, including an analytics performance dashboard for the emergency department.

The Philips analytics consultants developed a custom performance dashboard with multiple views to provide Beverly Hospital staff, management, and leadership with at-a-glance visibility into performance metrics. Daily reports provided high-level insight into areas of strength and weakness, with the option to drill down and view detailed data to understand the root cause behind the metrics.

Results*

↑ **Increased data availability, transparency, and cleanliness**

↓ **31% reduction in time between bed request and inpatient bed assignment**

↑ **Improved staffing alignment which avoided a \$1.3m operational expenditure**

↓ **Reduced time spent on collecting, analyzing, and sharing data and performance metrics**

Beverly Hospital began collaborating with Philips to increase process efficiency in the emergency department. Analytics support was included to deliver recommendations and decisions that were data-driven and results that would be measurable. Initial results were positive and led to additional consulting projects, including the development of custom analytics performance dashboards.



A foundation of data

As with most Philips consulting projects, our analytics consultants provided data reviews and analysis to support the increased focus on performance improvement. Analysis focused on patient arrival patterns, volume trends, payer mix, and throughput metrics such as arrival-to-provider, bed request to bed assignment, decision to depart, and length-of-stay, as well as provider performance.

The project consultant leveraged a performance dashboard to view performance metrics and provide data-driven recommendations. Performance dashboards provide meaningful insights into daily operational performance to help identify areas of concern for further process changes. They also measure results to help maintain long-term, sustainable change.

The Beverly Hospital team requested a subscription to the dashboard, with daily updates and additional custom views, so that staff and leadership could have ongoing access to the performance data and reports.

Our analytics consultants proposed a project plan and timeline, including a collaborative design workshop, team training, and will offer continuous technical and use case support.



Performance dashboard design

The analytics consultants held a workshop with key stakeholders, including the CNO, CMO, ED Director, ED Nurse Leaders, and others, to identify the key requirements and create a draft design of three custom performance dashboard views, per the below:

- **Physician Dashboard** – to track patient volume, throughput times, and acuity by provider with the ability to differentiate between physicians and advanced practice providers
- **Nursing Dashboard** – to track patient throughput times, acuity levels, and left without being seen rates by nurse
- **Outlier Dashboard** – to track patients experiencing extended throughput times and data documentation issues (i.e.: missing a provider name or acuity level)

Through the collaborative design and build process for the dashboard, our analytics consultants helped Beverly Hospital create a series of rules to auto-cleanse and map the daily data feed. This allowed staff and leadership to more quickly and easily view and report on performance with greater trust and insight. The dashboard saved countless hours of weekly data analysis and has become the 'source of truth'.

Once all data metrics were agreed, the consultants worked with the Beverly IT Team to gather the required data extractions and confirmed automated processes for the data to be fed securely to the dashboard daily.

Development and roll-out

Dashboard details were developed including functionality, connectivity and transfer processes (via site-to-site VPN, sFTP connection), stakeholder access, file delivery, and more. All dashboard views were developed using Tableau Software® and were then published to a secure web portal where users log in with an individual username and password.

The dashboards also provided automated and customized daily reporting to leadership and key stakeholders via email. These emails helped end users quickly view positive performance trends, provided an efficient method to identify areas of concern, and supported ongoing data-based decision making.

The dashboard delivered increased transparency into patient trends, ED provider performance, and more. Metrics on patient volume as well as median and average throughput times at the provider level, for both physicians and advanced practice providers, were reviewed closely.

Due to data insight from the dashboard, the Beverly ED leaders and Philips consultants increased focus on reducing the time between bed request to patient depart. Process changes were implemented and they achieved a **31% decrease, from 204 minutes to 141 minutes (January - June 2019)**.

The dashboard also provided the Chair of Emergency Medicine at Beverly with the data needed to help confirm volume trends when providers advised they were experiencing increased patient arrivals. Insights gained from the dashboard and physician staffing tool enabled Beverly Hospital to improve alignment of staffing to patient demand and **avoid \$1.3m in unnecessary additional staffing**.

Long-term sustainability

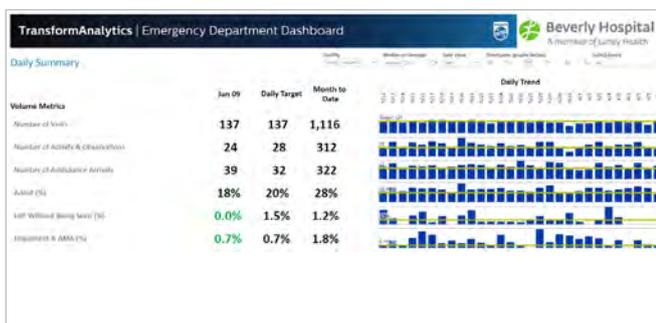
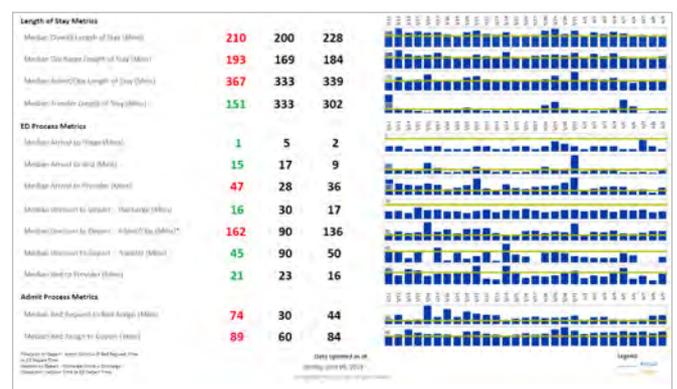
The consultants developed a training program to educate each group on the dashboard access, functionality, and components which are most relevant to their role. An in-person training session was held and a comprehensive user guide was provided to all end users. A second training webinar was held after the key stakeholders had been using the dashboard for a couple of months to provide ongoing support and discuss use cases.

Philips analytics consultants also supported the key stakeholders via email and phone as more detailed questions arose. Some adjustments were made to refine the data collection and cleansing processes.

The training, user guide, and ongoing support all contributed in helping the Beverly team to be self-sufficient with the dashboards for the long term.

“Philips worked with our leadership, staff, and IT teams to create a performance dashboard, customized for our needs. The daily updates provide a quick look at our performance without each team running multiple reports and the teams can dig into their department data as needed.”

Kimberly Perryman, MMHC, RN
VP, Patient Care Services & Chief Nursing Officer
Beverly Hospital, part of Beth Israel Lahey Health





Results*

The analytics consulting and dashboard has provided Beverly staff and leadership with additional insight into their daily performance and patient trends. Additionally, the dashboard provided insight into data documentation issues which has helped to increase documentation consistency throughout the ED.

Beverly Hospital's ED has achieved these performance improvements*, supported by the analytics consulting and dashboard:



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↓ **31% reduction in time between bed request to patient depart**



↑ **Improved staffing alignment which avoided a \$1.3m operational expenditure**



↓ **Reduced time spent on collecting, analyzing, and sharing data and performance metrics**

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