



PHILIPS

Healthcare

Consulting



Strategic design

creating people friendly emergency services

A hospital system in New York State, USA, was looking to acquire a smaller hospital group that was planning to renovate their emergency department (ED) in one of the facilities. This emergency department treats about 42,000 patients a year, which translates into about 115 patients a day, including high acuity, mid acuity and behavioral health patients.

Who/where

A healthcare system with multiple locations in New York State, USA, was looking to expand its enterprise by acquiring another regional hospital group.

Solution

Our healthcare consultants analyzed the market assessed patient and staff needs and evaluated the architect's plan. The outcome of the assessment was used to develop a new strategic plan and spatial design for the future facility.

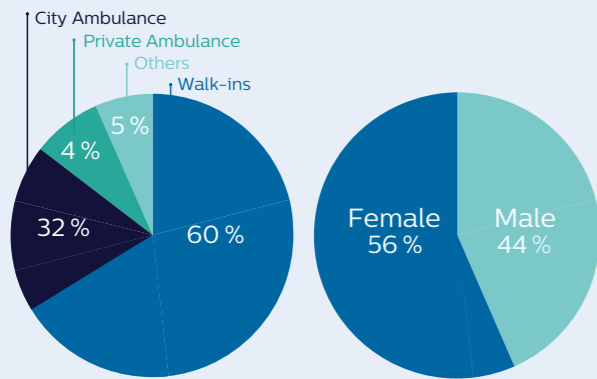
Challenge

As part of their expansion plan, the healthcare system was looking to renovate an older emergency department. Although an architect's plan existed for the renovation project, the customer wanted to make sure it fit their strategic goals of improving clinical processes and enhancing with the overall experience.

Results

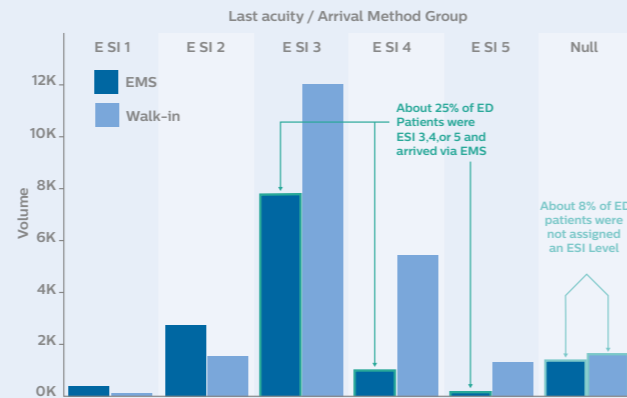
The new spatial design includes a number of calculated improvements compared to the current architect's design, such as a 42% increase in access to direct and or indirect daylight and clear staff visibility of patient rooms increased by 14%. Also the number of steps staff needs to take, to a patient room and retrieve medication, supplies and equipment from storage is reduced by 49%.

Figure 1 shows some results from data analyses carried out by Philips consultants



Arrivals by mode Arrivals by gender

Representation of arrivals by mode and by gender



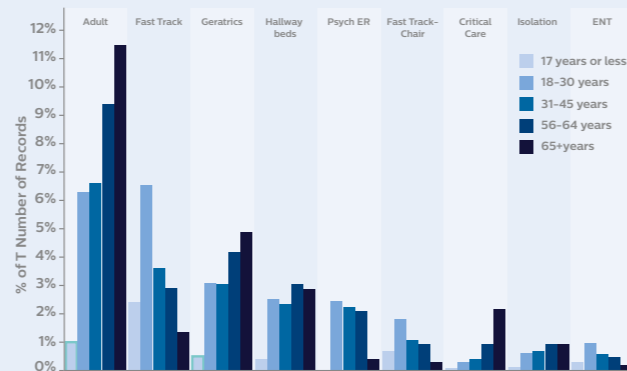
Walk-in vs. EMS by ESI

The Emergency Severity Index (ESI) is a five-level tool for use in emergency department (ED) triage. Proximity of EMS entrance to appropriate ESI rooms is essential input to the design



Patient process pathways

• Patient process pathways show a lack of standardization on the sequence of process step



Bed type utilization

• The bed type utilization per age groups suggest that all age groups are currently using all available beds irrespective of the specialized zoning per age group



Figure 2 shows a concept for using central courtyards and clerestory windows to bring daylight into the ED facility

Our consulting team had previously supported the hospital system in defining their strategy to become a preferred care provider in their region. They asked us to apply our strategic design capabilities to see if the existing architect's plans fit their short term and long term strategic plans that aim to provide an excellent care experience in an efficient and effective way.

Data analytics

To understand the ED's current challenges and user perceptions, our team began by making a thorough analysis of market demands and competitors. Qualitative and quantitative data from patient and staff through observations, shadowing and interviews was gathered and comments from different social media channels and results from a community perception study were reviewed. This data was then used to identify gaps in workflow and capacity, as well as identify and qualify improvement opportunities also to improve market position.

Figure 1 shows some of the typical data analyzed for an emergency department. These include statistics about how patients arrive and the breakdown in acuity levels for walk-in and EMS arrivals. The graph on the lower left shows that there is no standard patient process pathway, while the graph on the lower right shows the types of bed used by different patient groups.

Spatial assessment

To meet the organization's goals, the current architect's plan was assessed in terms of layout, clinical workflow and performance, based on the data collected from the patient and staff surveys and current clinical processes.

These included primary and secondary circulation paths for staff and patients, calculations of area dimensions for individual spaces, the number of staff steps required to perform certain actions, as well as the spatial design, lines of sight and daylight analysis for all areas. Our clinical experts used this comprehensive information to make recommendation for improving the workflow and staff and patient experiences.

In this case, it became clear that neither the current design nor the proposed renovation would support the vision the hospital system had for creating efficient and people centric emergency services. In discussions with the hospital stakeholders, it was concluded that it would not make sense to proceed with the proposed renovation without taking into account other hospital areas, so a new master plan was drafted by our consultants which included repositioning the ED footprint on the campus.

Proposed improvements

Daylight

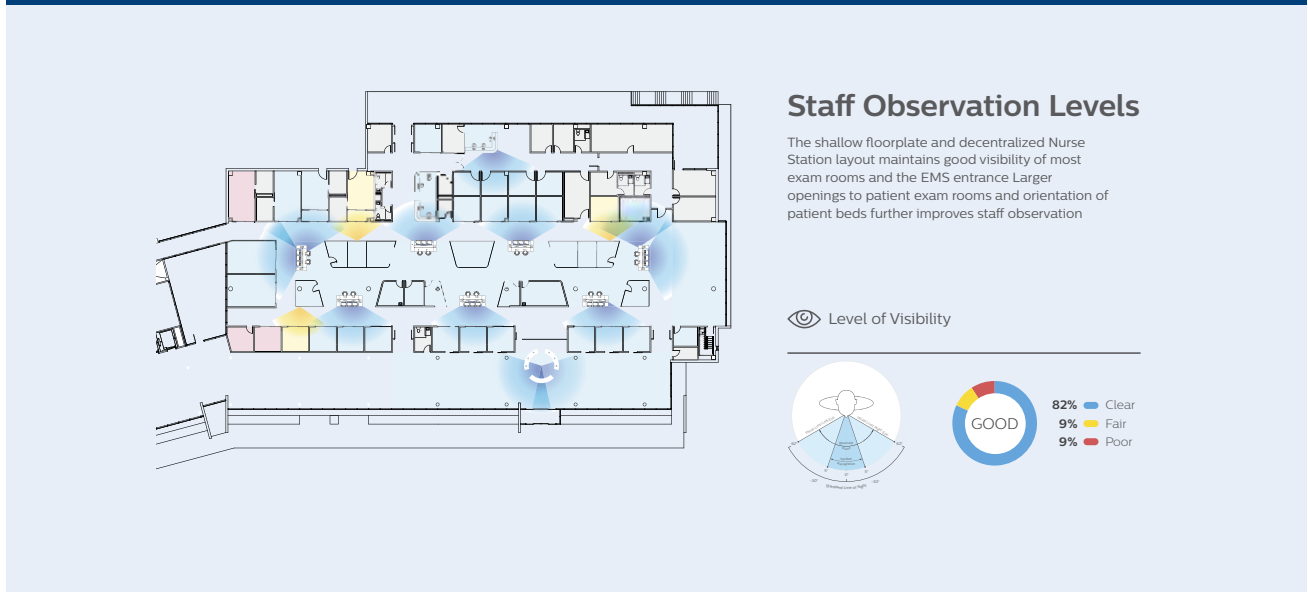
The spatial assessment had indicated that access to daylight would create a friendly atmosphere and have a positive effect on the experience of everyone using the facility: staff, patients and their families. Therefore, a great deal of effort was put into increasing the amount of direct or indirect daylight in the new ED design. In fact it has 42% more direct or indirect daylight than the original plan. Nearly all patient rooms have access to direct or indirect daylight, and central courtyards and clerestory windows provide daylight to the core of the facility.

Clear visibility

Another key factor that influences the experience for staff, patients and families is their perception of security. In busy and hectic areas it is comforting to know the nurses are keeping their eye on you. The new ED layout and

design of the nurse stations is set up so that the nurses can maintain good visibility of most exam rooms and the EMS entrance, while providing privacy for inpatient areas. The new design allows 82% clear visibility over the rooms – an increase of 14% over the initial renovation plan.

Figure 3 shows the lines of site for the different areas on the new ED design



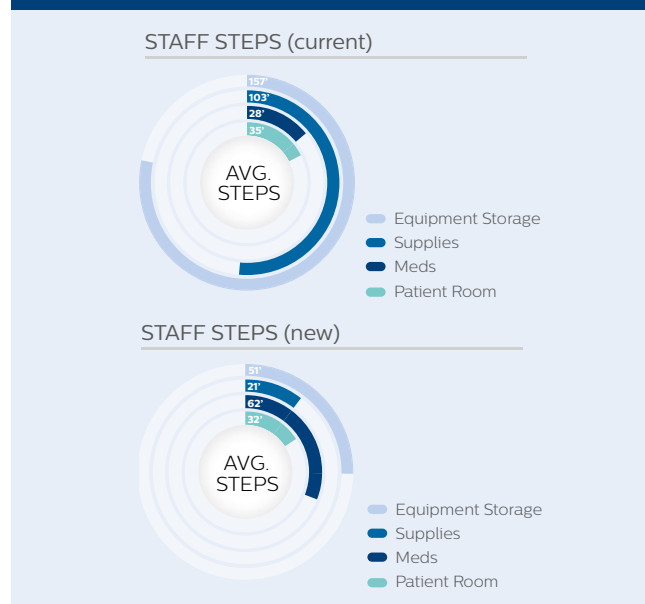
Walking distances

To improve workflow in the new ED facility, our team mapped out more efficient pathways for care givers to use on a regular shift to get equipment, medications, etc. The number of steps staff needs to make to a patient room and retrieve medication, supplies and equipment from storage is reduced by 49% in the proposed design.

Building a future

The catchment area for the emergency department is projected to grow by 9.7% over the next 30 years. However, this medical facility has lost market share in recent years to competitors. By investing in more efficient, people friendly emergency services, the facility will be well positioned to elevate the community perception.

Figure 4 shows a comparison of the average number of steps that a nurse would take in the original plan (l) and in the new ED design (r)



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