PHILIPS

Clinical Decision Support tools

Closing the nursing experience-complexity gap using powerful Clinical Decision Support tools

In 1982, Dr. Patricia Benner developed the Nursing Theory of Novice-to-Expert. This theory explains how nurses acquire skills and knowledge over time. On average, nurses take three years to become what's called "competent" in their practice. Unfortunately, the average bedside nurse tenure today is less than three years. As more experienced nurses leave the profession, it leaves a gap between newer and experienced nurses at the bedside. The Nursing Executive Center calls this challenge the experience-complexity gap.

Several factors contribute to the experience-complexity gap. The American Association College of Nurses (AACN) cites an increasing aging population (leading to higher medical acuity) as one. As newer nurses begin to care for these patients, they're faced with a steep learning curve. Rather than having "easier" cases to learn from, they're managing complex patients suffering from comorbidities and advanced problems. New nurses need to learn and act quickly to care for these patients, without a lot of time to reflect. Another factor is the staffing challenge – exacerbated by the pandemic – which has created a lack of expert nurses who can mentor new nurses, resulting in fewer opportunities for new nurses to gain critical knowledge about managing complex patients.

The problems with staffing have no easy solution in sight; nursing school enrollment isn't keeping up with the projected demand. According to 2023 data from the AACN, the number of students in entry-level baccalaureate nursing programs decreased by 1.4% last year, and there have also been declines in nursing master's and PhD programs.

Taking all of this into account, it's not surprising that, according to a recent survey of 273 hospitals, recruiting and retaining quality staff remains the top healthcare issue. The survey found that nurse turnover is at 22.5% (with the average cost of turnover for a bedside nurse at $52,350) and that the nurse vacancy rate remains critical at 15.7% nationally.[1]

Technology as part of a recruitment and retention strategy

Nursing leaders looking for ways to support new nurses as part of their recruitment and retention strategies can turn to technology for help.

Data from the Future Health Index 2023 report shows that to effectively reduce the impact of workforce shortages, 39% of healthcare leaders are using or planning to use critical decision support technology, indicating an opportunity to flatten the learning curve for bedside nurses.[2] The report found that healthcare leaders are investing in Artificial Intelligence (AI) to alleviate pressure on staff and to ultimately empower them with more predictive insights. Compared to the findings from the Future Health Index 2021 report, planned investments in AI over the next three years show the biggest increase for clinical decision support (from 24% in 2021 to 39% in 2023), including early warning scores to help clinicians know when a patient's condition is worsening, and intervention is needed.[3]

While clinical decision support tools can't replace the mentoring and training benefits that come with close interaction between novice and experienced nurses – or resolve the staff shortage crisis – they can make an impact on newer nurses. These tools can help simplify workflows and empower them to provide quality patient care which, in turn, could improve job satisfaction and retention.

Tools to help offset the inexperience of newer nurses in a complex care environment

Philips offers a suite of clinical decision support tools that are designed to give newer nurses easy-to-digest, at-a-glance patient information and that alerts them about potentially dangerous situations, so they can make informed decisions about which patients to prioritize and when to intervene – before a situation becomes critical. These tools have the ability to integrate data from various sources, such as electronic health records, laboratory results and other manufacturer's devices, into a single platform. This integration allows nurses to have a comprehensive view of a patient's health status. Nurses can access vital information quickly, reducing the time spent searching for data across different systems.

Below are four capabilities enabled by Philips clinical decision support tools that can benefit less experienced nurses by:

- Enabling them to see easily recognizable visual cues about a patient's health
- Empowering them to provide personalized care by customizing settings
- Helping them identify worrisome and non-worrisome changes in a patient's status
- Prompting them to act when it's relevant

Four capabilities enabled by clinical decision support tools

1. Spot deviations in vitals at a glance

It can be challenging to easily interpret changes in physiologic data in order to anticipate potential problems – and act – before alarms indicate that a patient is in distress. Philips Horizon Trends makes changes from target goal values instantly clear. Nurses can:

See easy-to-understand bars and trend arrows showing a patient's status in relation to a target goal value.

Customize monitoring parameters for each patient and screen displays.

Identify potentially less severe, non-actionable changes.

Act before an alarm goes off to help combat alarm fatigue.

2. Quickly see ST changes and their location in the heart

Having to analyze numerics to see how a patient is trending can be time-consuming and be a heavy mental burden. ST Map is a practical technique for continuous non-invasive monitoring of ischemic episodes and gives nurses a visual representation of the findings. Nurses can:

See a graphical representation of a patient's ST values and trended values.

Customize by setting a reference baseline to see whether an intervention is having the desired effect.

Identify subtle imbalances in both ST elevation and depression to detect ischemic episodes in one glance.[4]

Act based on trending data to provide the best possible care before a patient's condition worsens.

3. Get alerts of changes in a patient's condition – only when relevant

Excessive alarms can lead to alarm fatigue, which can contribute to medical errors, staff burnout, increased clinical workload and interference with patient recovery.[5] Advanced Event Surveillance assists in confident decision making by identifying events (pre-defined clinical parameters). An "event" is triggered when multiple parameters violate their trigger condition, prompting the nurse by either a notification or an alarm. Reducing the number of clinically irrelevant alarms can support your goals in reducing alarm fatigue for the nursing staff. Nurses can:

See a contextualized display of multi-parameter alarming and related trends based on customized data points.

Customize smart alarms and notifications based on configurations to capture events in all time domains. (retrospective, near real-time, prospective). Events are automatically stored for review.

Identify worrisome patterns when an event is activated after multiple parameters violate their trigger conditions.

Act when prompted by notifications sent only when it's clinically relevant for that patient, supporting a low false-positive alarm rate.[6]

4. Reach sicker patients quickly

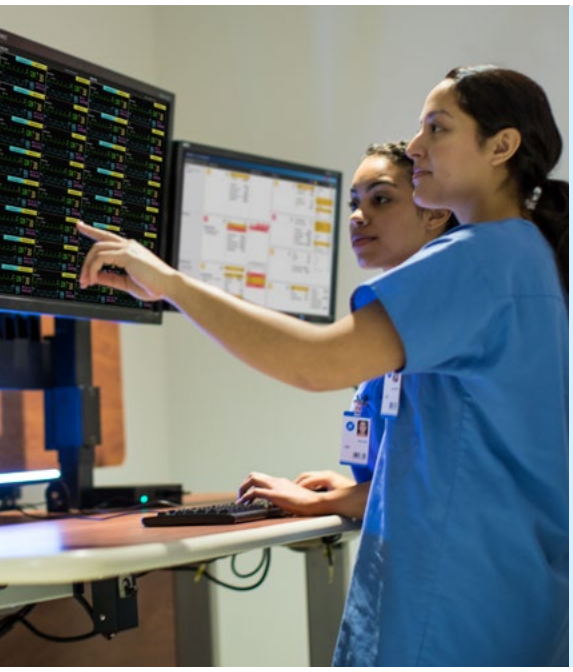
It can be hard for new nurses to predict which patients to watch most closely and know when to get help from a rapid response team. Philips (EWS) Early Warning Scoring system uses algorithms to assess a patient's vital signs and clinical parameters to identify subtle signs that can indicate a deterioration. Nurses can:

See a single composite score based on the physiologic assessment of multiple vital signs.

Customize the system using the hospital's own scores to match established escalation protocols or use Philips recommended scores.

Identify subtle signs of a deterioration that can indicate a potential serious problem.

Act early to prevent adverse events before they happen.[7]



The future of clinical decision support

Data from the Future Health Index report 2023 supports the notion that newer nurses are eager to adopt technologies like these. Being at the forefront of AI in healthcare, has emerged as a top selected consideration for younger healthcare professionals in choosing a hospital or practice to work at (49%).[2] This suggests that digital innovation can be a powerful tool in attracting and retaining younger talent.

As Philips expands its patient monitoring ecosystem, nurses will be able to leverage next-generation capabilities, including sharing virtually gap-free patient data across units and using mobile phones to help manage patients from anywhere in the hospital. These innovations will ideally further improve confident, informed clinical decision-making, and help to reduce the experience gap.

Read more about **Philips clinical decision support solutions**.

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2. Future Health Index 2023. "Taking healthcare everywhere. Addressing staff shortages and patient needs with new care delivery models" global report, Philips Healthcare 2023.
3. Future Health Index 2021. "Healthcare leaders look beyond the crisis" global report, Philips Healthcare 2021.
4. Sangkachand P, et al. Continuous ST-Segment Monitoring: Nurses' Attitudes, Practices, and Quality of Patient Care. *Am J Crit Care*. 2011;20(3):226-238
5. Albanowski K, Burdick KJ, Bonafide CP, Kleinpell R, Schlesinger JJ. Ten Years Later, Alarm Fatigue Is Still a Safety Concern. *AACN Adv Crit Care*. 2023 Sep 15;34(3):189-197. doi: 10.4037/aacnacc2023662. PMID: 37644627.
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