

Reducing the number of medical device alarms in pediatric ICU

at Sant Joan de Déu Barcelona Teaching Hospital

As part of a renovation project to transform Sant Joan de Déu Barcelona Teaching Hospital's Pediatric Intensive Care Unit (PICU), Ascom helped improve patient monitoring across a newly created single-patient room ward, speed up critical alarm response times by 15% and achieve a 76% reduction in non-actionable medical device alarms reaching caregiving teams.



Background

Sant Joan de Déu Barcelona Teaching Hospital is one of the most important specialist centers of pediatrics in Europe. Families travel from all over the world to receive care at this hospital, with more than 3,000 babies born and over 125,000 emergency cases treated there each year. The PICU team cares for around 1,200 children every year who have a wide variety of complex and chronic conditions.

Project challenges

Break down barriers for effective patient monitoring

In 2018, Sant Joan de Déu Barcelona Hospital began work to transform the 2,011m² PICU, with Ascom selected as the project's medical technology partner for effective patient monitoring and alarm management.

One of the most challenging parts of the transformation in this renovation project was the departure from an open ward to the creation of 24 single-patient rooms.

Single-patient rooms offer more privacy, dignity and it's more conducive to patients being able to gain the vital rest and recuperation needed during their hospital stay.

But, while these benefits of single-patient rooms are generally accepted, the challenges of effectively monitoring patients are also well known.

Reduce non-actionable medical device alarms by half

The second challenge Sant Joan de Déu Barcelona Hospital wanted to address was the issue of actionable and non-actional medical device alarms.

The department was creating 154 medical devices alarms per hour.

Medical device alarms can be sub categorized into actionable and non-actionable, the PICU clinical team wished to reduce the number of non-actionable alarms reaching the PICU caregiving team, ensuring that critical alarms were more visible.

The Ascom solution

Ascom worked closely with the Sant Joan de Déu Barcelona Hospital team to integrate its system agnostic, Clinical Monitoring & Alarm Management Solution across the PICU.

Ascom facilitated the local clinical team to categorize actionable and non-actionable medical device alarms for ventilator, infusion pumps and monitors, which means the clinical team would only have the actionable alarms surfaced to Ascom Myco smartphones and desktop monitors outside the patient's room.

Ascom implemented Medical Device Integration to connect the medical devices directly to the patient record. Then, alarm management filters were used to eliminate the specified non-actionable alarms, displaying only the actionable alarms and monitor outputs on Ascom Myco smartphones and desktop clinical dashboards in near real time.

Ascom's Alarm Management & Clinical Monitoring Solution aimed to help the PICU team better manage alarms, introduce more effective workflows for staff and direct the right alarm to the right person, making the invisible patient visible by digitizing patient monitoring data.

Achieved results



Filtering **non-critical alarms** reduced PICU alerts by **54%** per hour



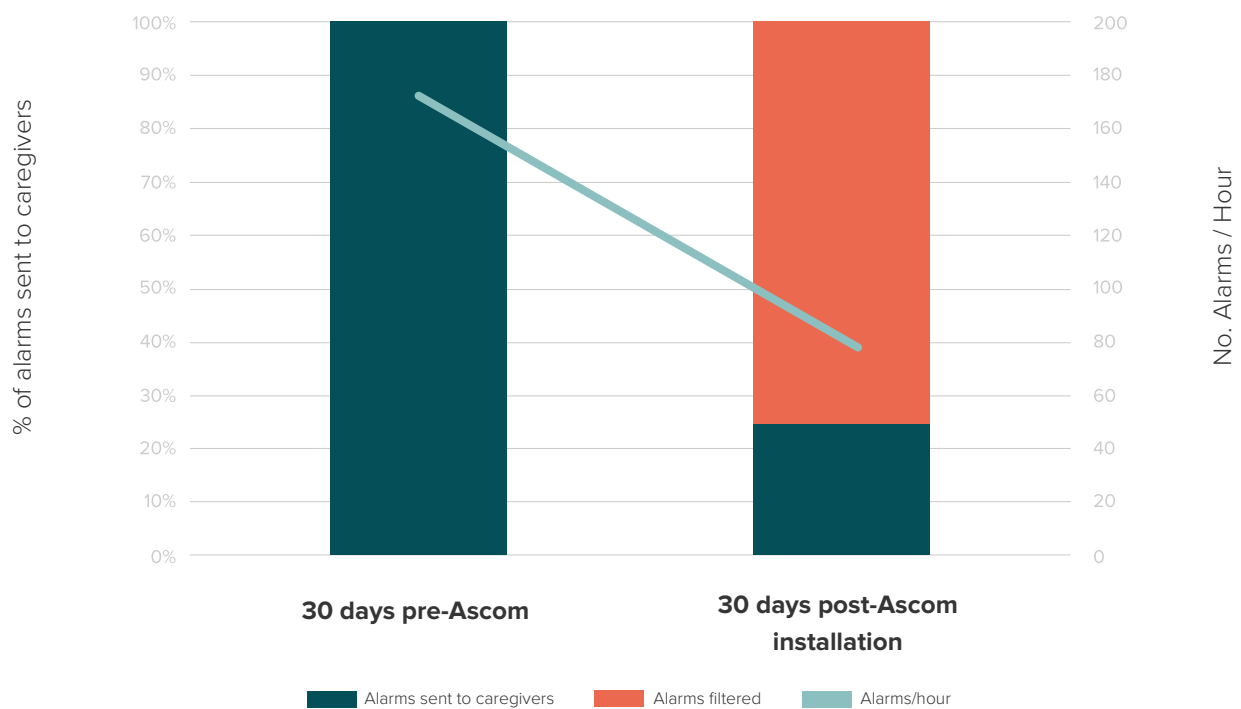
Integrating Ascom's solution cut **15%** of PICU alarm response times by **6 seconds**



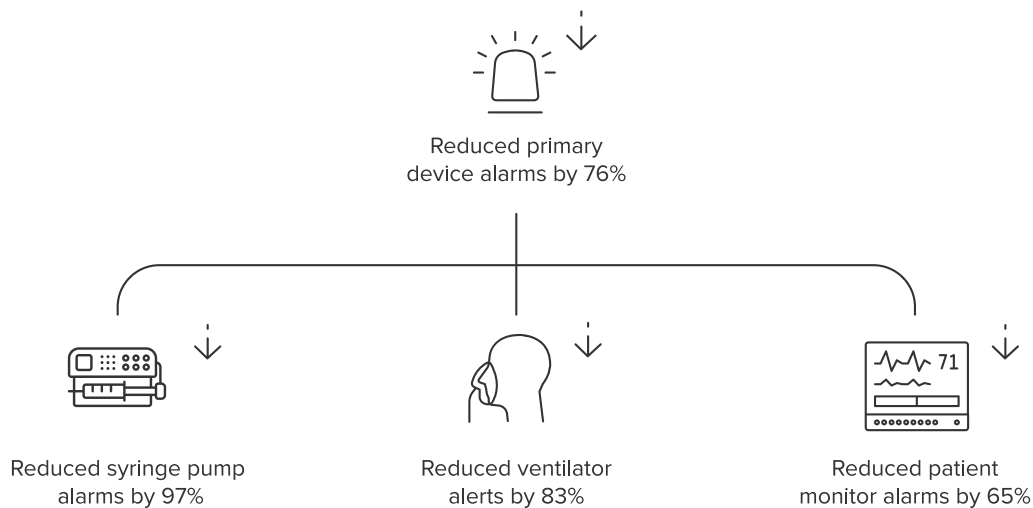
Ascom's alarm filtering reduced primary device alarms by **76%**

The automatic filtering of non-actionable alarms away from PICU caregiving team means the number of alarms they need to respond to has been reduced on average by 54% per hour. Actionable alarms are now responded to 6 seconds faster on average, representing a 15% improvement in response time.

Stacked bar chart showing alarm reduction pre vs. post project



The number of actionable vs. non-actionable alarms is variable by medical device.
The results noted below are at a medical device level.



For the PICU team the introduction of Ascom Alarm Management & Clinical Monitoring solution has helped improve response time to critical patient events, created more effective workflows for staff, reduced the risk of critical patient alerts being missed and ensured vital signs data is more quickly available across clinical systems.

The benefits of creating a digitally ‘open’ ward

Digitizing the process of patient monitoring helps to address specific clinical concerns when in a single-occupancy room, with doors closed, during family visits and when understaffed. The need for entering and exiting patient rooms to check alerts and alarms is reduced.

“All the data coming from monitors and medical devices is automatically integrated to a smart central unit. We record physiological parameters coming from monitors, data from ventilations and also all the data coming from dialysis machines. This technology solution has improved the communication with medical staff. Medical staff and nurses know how the patient is all the time.”

Dr. Aida Felipe Villalobos,

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About Ascom

Our vision is a world where the right information moves people forward. Our mission is to put the right information in the right hands at the right time so that people can make the best possible decisions.

We are a global provider of communication and collaboration solutions for the acute care, long-term care and enterprise sectors. Our solutions are based on intelligent integrations with software and hardware that are open source and compatible with third party solutions. Every single second, our systems generate large amounts of data, which we then turn into useful and actionable information. This helps us to bring data to life for people in the toughest operational environments, ensuring smooth, complete, and efficient workflows.

Ascom is headquartered in Baar (Switzerland), has operating businesses in 19 countries and employs around 1,400 people worldwide. Ascom registered shares (ASCN) are listed on the SIX Swiss Exchange in Zurich.