

# Intrahospital Transport

## White Paper

### To Transport or Not to Transport

Intrahospital transport (IHT) is critical to the continuum of care. A transport may be for a short-term need (e.g., to obtain diagnostic imaging) or for a longer period (e.g., to transfer a patient from the emergency department to the intensive care unit). Regardless of the reason, IHT can be dangerous. Literature shows an increased risk of complications, such as cardiac arrest, arrhythmia, pneumothorax and atelectasis.<sup>1</sup> IHT can be a potential risk factor for infection, both for patients being transported and for patients exposed to a transported patient.<sup>1</sup> One study involving 521 patients on mechanical ventilation demonstrated that transport out of the ICU was independently associated with a nearly fourfold increase in the risk of ventilator-associated pneumonia.<sup>1</sup>

Severe clinical incidents occur in 2.4–7.8% of IHTs, depending on the urgency of the transport.<sup>2</sup> A study of critically ill patients found that IHTs resulted in adverse events that affected the patients 26% of the time, with major adverse events occurring in 16.8% of IHTs.<sup>3</sup>

Ultimately, the decision to transport cannot be taken lightly. As Knight et al state, “No patient should be transported for a test or procedure that is unlikely to alter care.”<sup>1</sup>

### Best Practices for Intrahospital Transport

Because of the risk involved in IHTs, patients should not be moved when a point-of-care alternative of similar clinical utility is available.<sup>1</sup> In cases in which IHT cannot be avoided, best practices should be followed, including monitoring and documenting the patient’s vital signs.

*“All critically ill patients undergoing transport receive the same level of basic physiologic monitoring during transport as they had in the intensive care unit.”<sup>4</sup> As stated in the American College of Critical Care Medicine guidelines.*

In addition, documentation of the patient’s vital signs before and during IHT is key for both clinical review and legal consideration,<sup>5</sup> as capturing vital sign data during transfer may help reduce the risk of paying damages in medical malpractice lawsuits.<sup>6,7</sup>

### Nihon Kohden Solutions

Nihon Kohden offers a robust portfolio of enterprise patient monitoring solutions, including the Life Scope® BSM-1700 Transport Monitor, specifically designed to improve IHT workflows. The Life Scope BSM-1700 is a fully featured critical care monitor that helps maintain the same standards of care during transport. Designed according to Nihon Kohden’s premium-as-standard philosophy, the Life Scope BSM-1700 is fully featured out of the box, at no additional cost. All Nihon Kohden patient monitors follow its premium-as-standard philosophy, reducing the need to transfer the patient to access additional patient monitoring capabilities.

In addition to offering fully featured monitors designed to improve workflows, Nihon Kohden partners with hospitals to meet their individual patient monitoring needs. The company offers a unique Clinical Assessment process in which its Clinical Consulting Services Team collaborates with hospital leadership to co-create patient monitoring solutions. These are customized to the facility’s needs to deliver safe, quality patient monitoring care and ensures data flow during activities such as IHT are prioritized.

### Cape Fear Case Study

Cape Fear Valley Medical Center, the preferred healthcare provider for thousands of families from Fayetteville, Fort Bragg, Cumberland County, and beyond, adopted Nihon Kohden’s recommendations put forth through its Clinical Assessment process, implementing the use of its Life Scope BSM-1700 Transport Monitor. This solution has exceeded the clinical team’s expectations and remains a standard of care for patients during transport and transfer.

Prior to the implementation of the Nihon Kohden monitors in the cardiac-surgical ICU and OR, patient data did not flow between these clinical areas or into the EMR; it was fragmented and sometimes absent, particularly during the transport of patients to and from the operating room. In case of an unfavorable patient event during transport, the relevant monitoring data were not stored and were not retrievable.

Now, pre-procedure, the patient and transport data are collected via the bedside monitor and flow into

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the OR monitors using the Nihon Kohden Life Scope BSM-1700 Transport Monitor. This allows the physician and anesthesiologist to review all historic patient parameters, including cardiac waveforms monitored prior to the patient's arrival in the OR. These data can be invaluable, as physicians can make a full assessment of the patient's baseline status prior to the procedure.

After the completion of the surgical procedure, the patient is continuously monitored while being safely transported to the recovery area and eventually to the patient's room. Upon arrival in the patient's room, the Life Scope BSM-1700 is docked back into the bedside monitor. All data collected during the operative procedure and recovery process now reside within the bedside monitor and the Life Scope Central Station. Staff and providers have full access to the data, as well.

"Using the BSM-1700 Transport Monitor is a key piece of monitoring technology that allows for the safe transport of our critically ill patients with no gaps in monitoring data," said Shondra Ray, Patient Care Manager of the Cardiac Surgery Intensive Care Unit (CSICU) at Cape Fear Valley Health.

It is common to see critically ill patients monitored via a defibrillator or other standalone cardiac monitor. While this provides some level of monitoring, it is not of the same standard of care as the ICU. Physiologic monitoring information is not archived in these standalone devices. Considering all these factors, Cape Fear Valley established processes and workflows for its critically ill patients using the Life Scope BSM-1700 Transport Monitor. Since the Life Scope BSM-1700 also functions as the bedside monitor input unit, it ensures the same level of physiologic monitoring, including arrhythmia detection, trending and full disclosure as the ICU. This provides continuity of care, ensures patient safety and allows for data flow during transport and retrieval once the patient has arrived at their destination.

"Nihon Kohden is focused on doing what is best for the customer and the patient in the long term," said Jeff Nolte, VP of Supply Chain Services.

"The Nurse Executive listened to our team members' current state, prompted thinking of and discussion of future state, and related/communicated key benefits of Nihon Kohden's monitoring solutions. This directly supports our hospital's activities around patient safety and data integrity during patient transport and transfer. We are all tasked with meeting the standards as identified through the National Patient Safety Goals and Nihon Kohden's BSM-1700 Transport Monitor is just one component of a very robust solution that supports these goals," said Debbie Marshburn, CNO at Cape Fear Valley Health.

## References

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- 4 Warren J, Fromm RE, Jr, Orr RA, Rotello, LC, Horst HM. Guidelines for the inter- and intrahospital transport of critically ill patients. *Crit Care Med.* 2004;32(1):256-262.
- 5 Kulshrestha A, Singh J. Inter-hospital and intra-hospital patient transfer: Recent concepts. *Indian J Anaesth.* 2016;60(7):451-457.
- 6 Electronic Health Record Closed Claims Study. The Doctors Company. 2017.
- 7 Otero v. United States, 428 F. Supp. 2d 34 (D.P.R. 2006).

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