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Barriers to Medical Device Integration: CNO Survey Results

Executive Summary

In December, 2014, IatricSystems™ surveyed more than 4,000 hospital Chief Nursing Officers (CNOs) to identify barriers to Medical Device Integration (MDI). MDI is the exchange of patient data from bedside devices — vital sign monitors, smart pumps, ventilators, etc. — to Electronic Health Records (EHRs). Medical device integration is sometimes referred to as medical device connectivity.
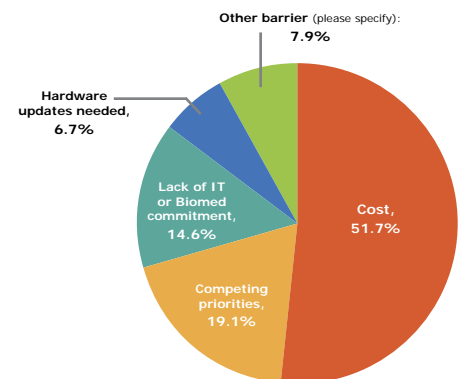
Despite the nationwide push for Meaningful Use and interoperability, MDI remains elusive for many hospitals today. Yet without it, hospitals risk documentation errors, delays in treatment, and even adverse events. According to survey results, 57 percent of CNOs reported they currently do not interface any medical devices to their EHR. And of the 43 percent that do, the vast majority send data to their EHRs primarily from vital sign monitors.

So, what are the barriers to MDI? Why aren't hospitals already connecting all of their medical devices with their EHRs? Survey results show the number one barrier is cost, indicated by 52 percent of responding CNOs. To find out how other barriers ranked, refer to the pie chart at right, and read the Survey Questions and Answers section below (question #4).

Top 4 Barriers to Medical Device Integration

- Other barrier (please specify): 7.9%
- Hardware updates needed, 6.7%
- Lack of IT or Biomed commitment, 14.6%
- Competing priorities, 19.1%
- Cost, 51.7%

CNOs surveyed also identified reducing errors and adverse events as their top goal in connecting medical devices to their EHRs. The Association for Advancement of Medical Instrumentation (AAMI) reports that between January 1, 2005, and December 31, 2009, more than 56,000 adverse events and 710 deaths associated with infusion pump devices were reported to the FDA.[1] Smart pumps — and smart pump integration with EHRs — offer huge leaps forward in patient safety. But according to KLAS research, as of July 2013, only nine organizations are live with smart pump EHR integration.[2] Despite the fact that smart pumps are interfaced to EHRs at so few hospitals today, nearly half of the responding CNOs (44 percent) said smart pumps would be their number one choice if they could integrate just one medical device type with their hospitals' EHR.

Fortunately, the outlook for the future remains positive. Decreasing adverse events and increasing staff productivity remain high priorities, and the number of hospitals connecting medical devices to their EHRs is on the rise. All signs indicate medical device connectivity will continue to accelerate, despite the barriers.
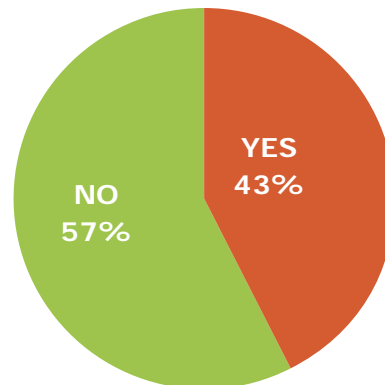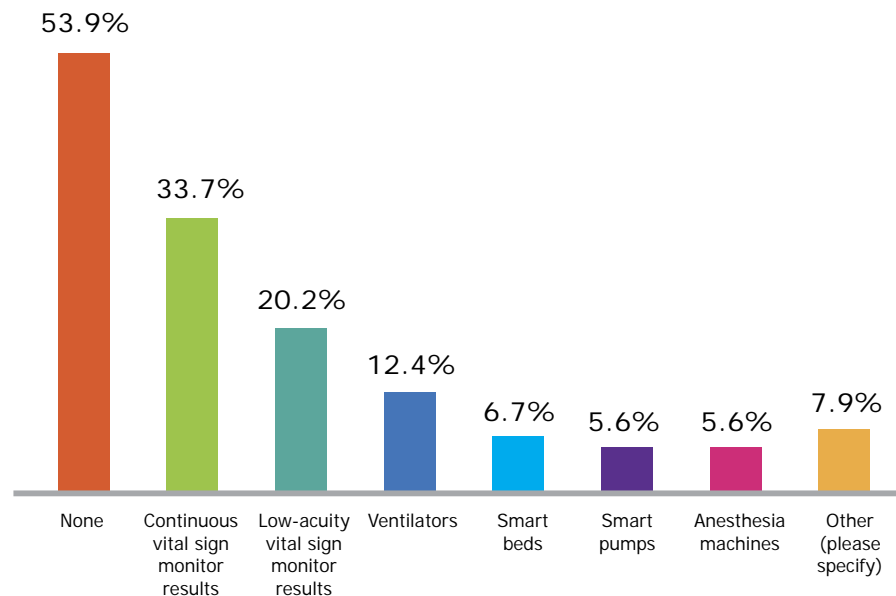
Survey Questions and Answers

Question #1:

Are any medical devices (vital sign monitors, smart pumps, etc.)
currently interfaced to your hospital's EHR?

YES
43%

NO
57%

Question #2:

Which of the following medical devices are currently interfaced to your hospital's EHR?
Select all that apply.

53.9%

33.7%

20.2%

12.4%

6.7% 5.6% 5.6% 7.9%

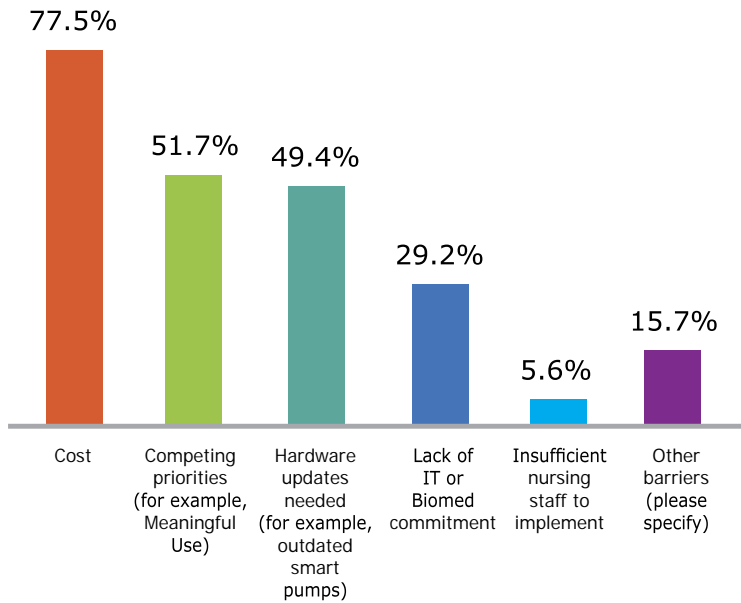| None | Continuous vital sign monitor results | Low-acuity vital sign monitor results | Ventilators | Smart beds | Smart pumps | Anesthesia machines | Other (please specify) |

NOTE: "Other" responses included devices such as fetal monitors, ECGs, glucometers, etc.
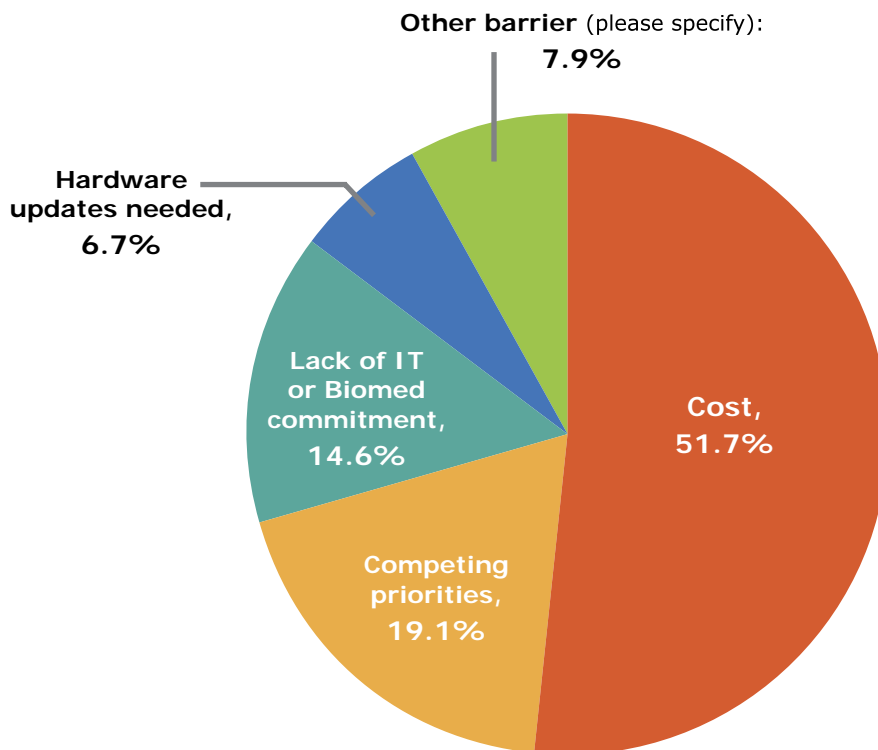
Question #3:

What barriers are preventing you from integrating other medical devices with your hospital's EHR? Select all that apply.

NOTE: In question #3, respondents were asked to select all that applied, while in question #4, below, respondents were asked to select their greatest barrier. Additionally, "other" barriers that were specified here included EHR platform limitations, and one hospital indicated no EHR in place.
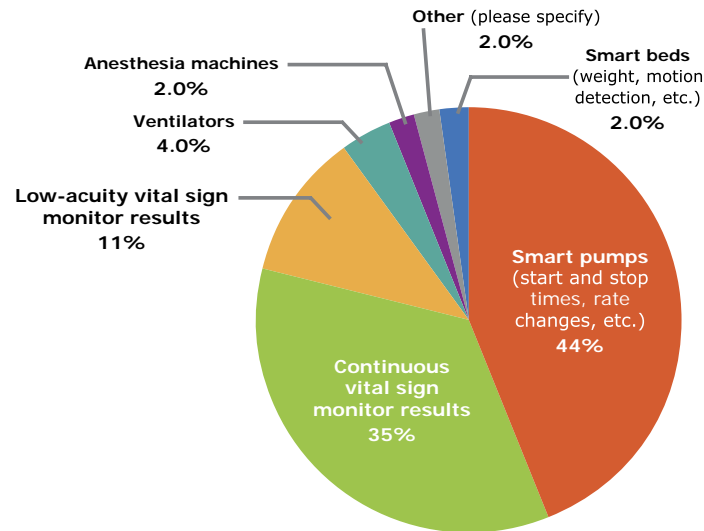
Bar chart:

- Cost: 77.5%
- Competing priorities (for example, Meaningful Use): 51.7%
- Hardware updates needed (for example, outdated smart pumps): 49.4%
- Lack of IT or Biomed commitment: 29.2%
- Insufficient nursing staff to implement: 5.6%
- Other barriers (please specify): 15.7%

Question #4:

Which barrier is the greatest obstacle? Choose only one

Pie chart:

- Cost: 51.7%
- Competing priorities: 19.1%
- Lack of IT or Biomed commitment: 14.6%
- Hardware updates needed: 6.7%
- Other barrier (please specify): 7.9%

Question #5:
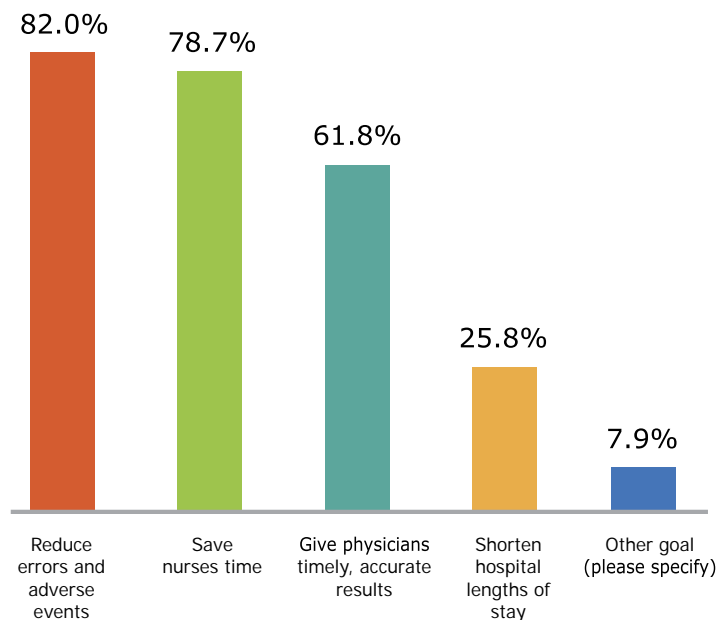
If you could integrate more of your medical devices with your EHR today, which device type would be your top priority? Choose only one.

Other (please specify) 2.0%

Smart beds (weight, motion detection, etc.) 2.0%

Anesthesia machines 2.0%

Ventilators 4.0%

Low-acuity vital sign monitor results 11%

Smart pumps (start and stop times, rate changes, etc.) 44%

Continuous vital sign monitor results 35%

NOTE: Although not technically a device type, patient alerts were specified under "other."

Question #6:
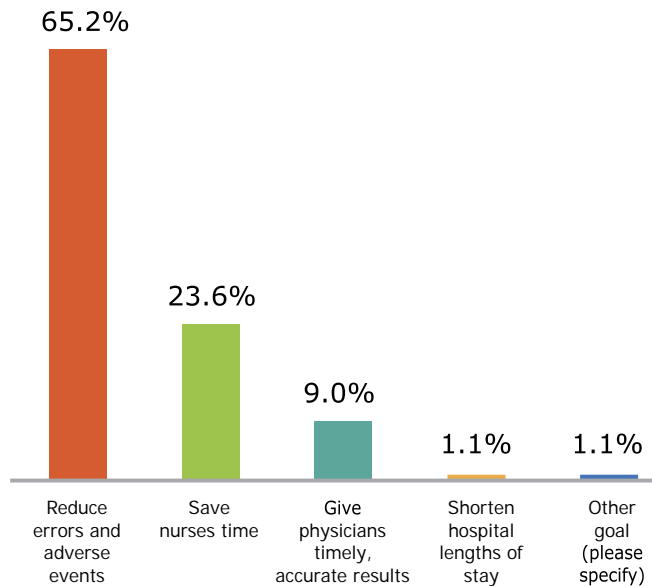
What are the goals you would like to achieve by integrating medical devices with your EHR? Select all that apply.

- 82.0% — Reduce errors and adverse events
- 78.7% — Save nurses time
- 61.8% — Give physicians timely, accurate results
- 25.8% — Shorten hospital lengths of stay
- 7.9% — Other goal (please specify)

NOTE: In question #6, respondents were asked to select all goals that applied, while in question #7, below, respondents were asked to select their top priority. Additionally, "other" goals here included increased nurse and physician satisfaction, improved charge capture, bi-directional communication (vents responding to monitors, pumps responding to vents or monitors, etc.)

Question #7:

Which goal is your top priority? Choose only one.

"Other" top priorities included improved charge capture and complete documentation.

iatricSystems is pleased to offer your hospital a free MDI Assessment. Our MDI Assessments are customized to each organization's unique needs, and contain:

- An outline (including visual diagram) of your hospital's current medical device and EHR environment

- Key information, based on our staff's extensive knowledge and experience, about each medical device type and manufacturer in use at your organization

- Recommendations, including which medical devices to integrate with your EHR and when, so you can form a realistic, cost-effective path to complete medical device connectivity

To learn more about medical device connectivity or obtain a free MDI Assessment, please contact us today using the information at the bottom of this page.

References:

1. Association for the Advancement of Medical Instrumentation (AAMI):
   Infusing Patients Safely. 2010.
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2. Smart Pump/EMR Integration Harder Than Expected, but Worth It. July, 2013.
   © 2013 KLAS Enterprises, LLC. All rights reserved.
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