Medical Device Connectivity: Ensuring a Smooth Implementation and Real Results

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Today’s Webinar

Introductions

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Agenda

• Why Connect?
• Selecting a Connectivity Vendor
• Implementation: 3 JRMC Scenarios
• Configurations
• Integration Outcomes
• Lessons Learned
• Q&A
What is Device Connectivity?

An automation process by which data from medical devices flows directly into the EMR.

An alternative to hand transcription and keying.

The essential technology to eliminate the gap between the device and the medical record.
Why Connect Devices?

Reduce documentation workloads (increase direct care and improve patient outcomes)

Solidify data chain, increase data accuracy in the EMR

Get real-time data enterprise-wide for better point-of-care decision making

Other considerations

• Growing safety concerns and documentation requirements
• Meaningful Use incentives
• Future initiatives (CDSS, alarm management)
Selecting a Connectivity Vendor

JRMC’s Wish List

- Accuracy of data delivered
- Efficiency of process
- Timeliness of data availability
- Paperless process
- Wireless capability***
Selecting a Connectivity Vendor

The Four Cs: Selection Criteria

- Coverage
  (high- and low-acuity, mobile devices, location- or patient-based)

- Compatibility
  (existing systems, device drivers)

- Confidence
  (patient-data associations, data queues)

- Costs
  (implementation costs, proprietary (single-use) hardware requirements, training time, scalability, ability to embed in current CIS)
Selecting a Connectivity Vendor

JRMC’s Connectivity Vendor Options

• GE (Aware Gateway)
• Capsule (Data Captor)
• iSirona (DeviceConX)
Selecting a Connectivity Vendor

Why iSirona Was Selected

• Embeds into the EMR
• Links devices to the patient using barcode technology
• Allows clinicians to review data prior to sending to the chart
• Most robust, flexible
• Eliminates need for wired terminal servers in rooms
• Provides wireless connectivity ***
Selecting a Connectivity Vendor

Key Wireless Attributes of iSirona

- Uses small/compact device
- Sends HL7 formatted messages
- Queues messages if wireless is unavailable
Quick Review: The Old Workflow

Typical Pitfalls

- Vitals are written on paper
- Rounding occurs for all patients
- Data is keyed into EMR much later
- Accuracy of data questionable
New Workflows: Three JRMC Scenarios

1. Dinamap Rounding Cart Integration
2. Wireless Dinamap Integration
3. Wireless Ventilator Integration
• Laptop and Dinamap connected as one device
• Laptop serves as the wireless adapter
• Ideal for mobile, rounding devices
• Barcode process for patient-device association
Dinamap Rounding Cart Integration

1. Laptop with DeviceConX software installed
2. Barcode
3. Infologix Z Cart with Dinamap integrated
Dinamap Rounding Cart Integration

1. User selects patient from patient list and goes to iSirona tab (patient context sent to iSirona)

1. User scans the barcode on the rounding cart to associate the device to the patient
Dinamap Rounding Cart Integration

3. User takes patient’s vital signs
4. User accesses the appropriate flow sheet, creates single time column and selects Auto Enter

5. User completes other activities (turn patient, etc.) then moves to next patient
Wireless Dinamap Integration

- Ideal for multiple devices in the room
- Used with ventilator or Dinamap on post-op patients
- Barcode process for patient-device association
Wireless Dinamap Integration

1 Barcode
2 Wireless adapter
3 Battery
4 Hospital-grade power supply
Wireless Dinamap Integration

1. User selects patient from list and goes to iSirona tab (patient context sent to iSirona)

2. User scans barcode on Dinamap to associate the device to the patient
Wireless Dinamap Integration

3. User takes patient’s vital signs
4. User accesses the appropriate flow sheet, creates a single time column and selects Auto Enter
Wireless Dinamap Integration

Dinamap continuously pushes data out through adapter so data can be entered into the EMR at any time

Association to the patient is maintained until:

- Manually unassociated or
- Device is associated to another patient
Wireless Ventilator Integration

1. Barcode
2. External antenna
3. Wireless adapter/battery
Wireless Ventilator Integration

1. User selects patient from list and goes to iSirona tab (patient context sent to iSirona)

2. User scans barcode on ventilator to associate the device to the patient
3 User accesses appropriate flow sheet and creates a single time column
Wireless Ventilator Integration

4. User double clicks time column and data is auto-entered

Dinamap continuously pushes data out through the adapter so data can be entered into the EMR at any time
Wireless Ventilator Integration

Interfaced Parameters

• Mode
• Rate
• Exhaled Tidal Volume
• Set Tidal Volume
• Spontaneous Tidal Volume
• Minute Volume
• FiO2%
Wireless Ventilator Integration

Interfaced Parameters

- CPAP
- Pressure Control
- Pressure Support
- PEEP
- Mean Airway Pressure
- Peak Airway Pressure
- Sensitivity
- All ventilator alarms
Configuration

SCM

- Majority was completed with Workbooks
  - Device Interface Channels
  - Device Interface Monitor Channels
  - Device Interface Bed Mapping

Objects Plus application that embedded the iSirona application
Configuration

iSirona

• Windows 2003 Server using SQL Server 2005

iSirona build

• Bed mapping
• Unit mapping
• Device mapping and association

Configure inbound ADT interfaces
Configuration
Integration Outcomes

Accuracy

- No transposing of numbers
- Exact time stamp for each vital sign
- Data associated to correct patient
- No discernment of handwritten notes
- Real time trending of data
Integration Outcomes

Efficiency

• In-house time study of 17 patients
  • Old workflow - 1 hour 31 minutes
  • New workflow - 59 minutes using cart

Timeliness

• Key information available to all clinicians
• Vital signs collected at more regular intervals
• MLMs created that alert nurse or physician to changes in data
Integration Outcomes

**Paperless**
- No lost notes or scrap paper, napkins, etc.
- No returning to nurses station to find a pen
- Patient information is secure
- Privacy maintained

**Wireless!**
The Current State of Integration

Anesthesia
Pumps
Nerve Conduction Velocity
Lessons Learned

Do time studies before implementation
Define workflow before educating
Set expectations around integration
Communicate benefits of new workflow
Lessons Learned

- Get management buy-in before implementation
- Involve biomed to assist with configuration
- Validate wireless coverage in rooms
- Configure alerts
Questions & Answers