

# Voice, Messaging, and Apps: Integrating Caregiver Communications With Standards-Based Interoperability

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## Wireless Telephony in Healthcare

**Healthcare Return on Investment**

	Recovered Time per Nursing Unit
Nurse travel time to answer phone	58 minutes/day
Nurse waiting time at nurse station	88 minutes/day
<b>Total nursing time recovered</b>	<b>888 hours/year</b>
Clerical time to locate nurse	90 minutes/day
<b>Total clerical time recovered</b>	<b>548 hours/year</b>
Hold time for incoming calls	116 minutes/day
<b>Recovered hold time for callers</b>	<b>706 hours/year</b>

Source: Journal of Nursing Administration



*Freeing nursing staff from walking back and forth to wired telephones, giving them real-time access to physicians, labs, and other staff. Caregivers spend more time with patients, improving outcomes and patient satisfaction.*

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## Spectrum of Devices and Capabilities

Caregiver communication has multiple modalities:

- Voice: real-time consultation, clarification; recorded dictation and messaging; speech recognition for directory services and IVR systems
- Text messaging: patient monitoring, telemetry, nurse call, alerts, personnel paging
- Application access: APIs for thin-client devices, browsers for web-based apps, open systems for on-board apps



← VOICE DATA →

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## Healthcare Device Requirements



**Wireline voice quality**

- Critical to hear and understand conversations
- Complex terminology, variety of accents

**Privacy, security, confidentiality**

- HIPAA compliance
- Policies and protocols

**Minimal training and administration**

- Overcome resistance to new technologies and processes
- Minimize time away from patient care
- Minimize ongoing administration

**Telephone system integration**

- Common dialing plan and administration
- Consistent usage for wired and wireless devices

**Systems integration**

- Messaging and alarm systems
- Wired and wireless infrastructure

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## Comparing Wireless Voice Devices



Telephone Access	Wireless Telephone	Communication Badge	Voice-enabled PDA	Cellular Phone
Telephone Access	Equivalent to wired telephones	Best for intercom communication	Softphone dependent	Cellular network access
Cost of Ownership	Fixed cost per handset	Fixed cost per handset, simultaneous	Fixed cost per device	Cellular service plan
Best Applications	Frequent telephone communication	Frequent internal communication	Mostly data applications, some voice	Off-premises communication

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## Wireless Communication Value Proposition

*Improve efficiency and reduce cost to improve patient outcomes in the healthcare environment*

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Data Apps

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Voice Apps

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Enhanced Telephony+ Applications + POC Admin	Enhanced applications (e.g. patient safety)	
Basic Telephony + Messaging	Other messaging applications	Other messaging applications
Basic Telephony	Nurse call	Nurse call
	Voice mobility	Voice mobility
	Voice mobility	Voice mobility

Increased Patient Care

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## The Integration Problem

### Too Many Devices, Too Many Protocols



**Integration of the physical devices**

- Need to equip caregivers with the most suitable device for their primary communication needs – e.g. voice, messaging, or data applications
- Eliminate single-purpose devices by integrating voice + data
- Consider trade-offs: size, weight, cost, security, administration, etc.

**Integration of the applications**

- Leverage IHE interoperability initiatives to remove barriers to open, best-of-breed device decisions
- Interim solutions using middleware platforms

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## Demonstrating Mobile Interoperability

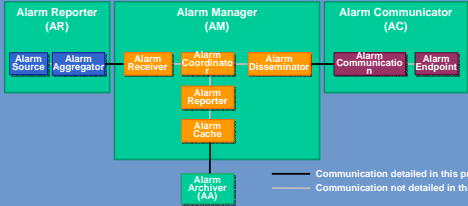
**PCD New Directions Demonstration**

Extending information to mobile clinicians

- Alarms and alerts
- Patient telemetry data

Improving the communication of patient data

Leveraging wireless infrastructure for new workflow and productivity solutions



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graph TD
    subgraph AR [Alarm Reporter AR]
        AS[Alarm Source]
        AA[Alarm Aggregator]
    end
    subgraph AM [Alarm Manager AM]
        AR1[Alarm Receiver]
        AC1[Alarm Coordinator]
        AD[Alarm Disseminator]
        AR2[Alarm Receiver]
        AC2[Alarm Cache]
    end
    subgraph AC [Alarm Communicator AC]
        AL[Alarm Communication]
        AE[Alarm Endpoint]
    end
    subgraph AA [Alarm Receiver AA]
        AR3[Alarm Receiver]
    end
    AS --> AA
    AA --> AR1
    AR1 --> AC1
    AC1 --> AD
    AD --> AL
    AL --> AE
    AR3 --> AR2
    AR2 --> AC2
    AC2 --> AR3
    
```

— Communication detailed in this profile  
 - - - - - Communication not detailed in this profile

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## Summary



**Standards-based interoperability is critical for mobile caregiver communication**

- Many sources of critical information with different modalities: voice, text, data I/O

**Unique device attributes for healthcare environment**

- Clinical application support
- Durability
- Ease of use
- Voice and data network infrastructure integration

**IHE New Directions initiative to integrate mobile devices will improve access to information and applications**

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