VHA 2008 eHEALTH UNIVERSITY

VA Technology and Staffing Outcomes: The Impact of Implementations of CPRS and BCMA

Session 278

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July 2008

Objectives of this session

- Understand how culture affects IT implementation and improvement

- Recognize how staff view CPRS and BCMA today

- Identify needs and strategies for improvements in IT systems

- Learn how to evaluate the success of implementation and ongoing use of these systems
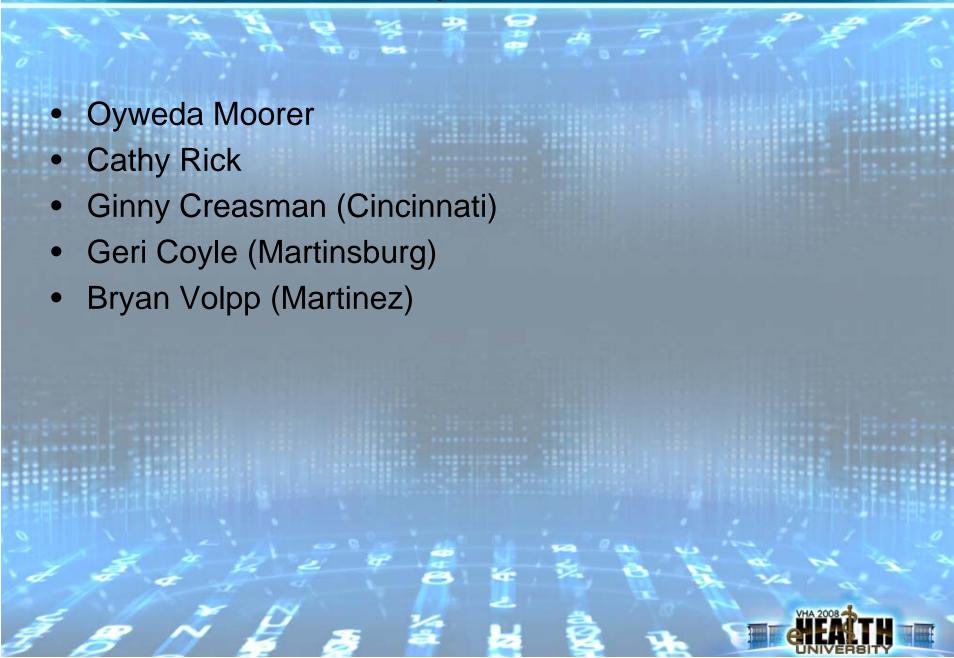
This presentation is based on a three-year study

- Quantitative and qualitative methods
- Research questions: Inpatient settings
  - Did CPRS and BCMA change the need for nursing staff?
  - Did CPRS and BCMA reduce adverse events for patients in the VHA?
  - What do staff and leaders believe are the strengths and weaknesses of CPRS and BCMA?
  - What recommendations can be made to the VA and other hospitals as they implement information systems?

- Core team
  - Joanne Spetz, UCSF
  - Ciaran Phibbs, VA HERC
  - Jim Burgess, Boston VA
  - Susan Schmidt, VA HERC
  - Melanie Chan, Dennis Keane, and Jennifer Kaiser, UCSF
- Funding
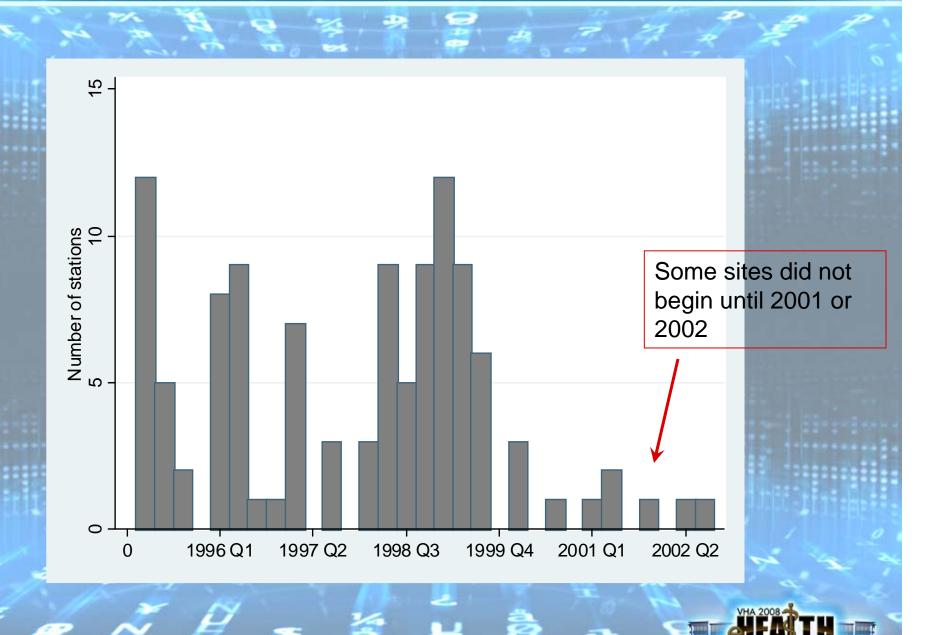 - Robert Wood Johnson Foundation
  - Gordon & Betty Moore Foundation

Advisory Committee

- Oyweda Moorer
- Cathy Rick
- Ginny Creasman (Cincinnati)
- Geri Coyle (Martinsburg)
- Bryan Volpp (Martinez)

Methods

- Surveyed CNOs to get implementation dates for CPRS and BCMA
  - CNOs were asked to give survey to people who would know the answers
- Administrative data
  - Patient Treatment Files
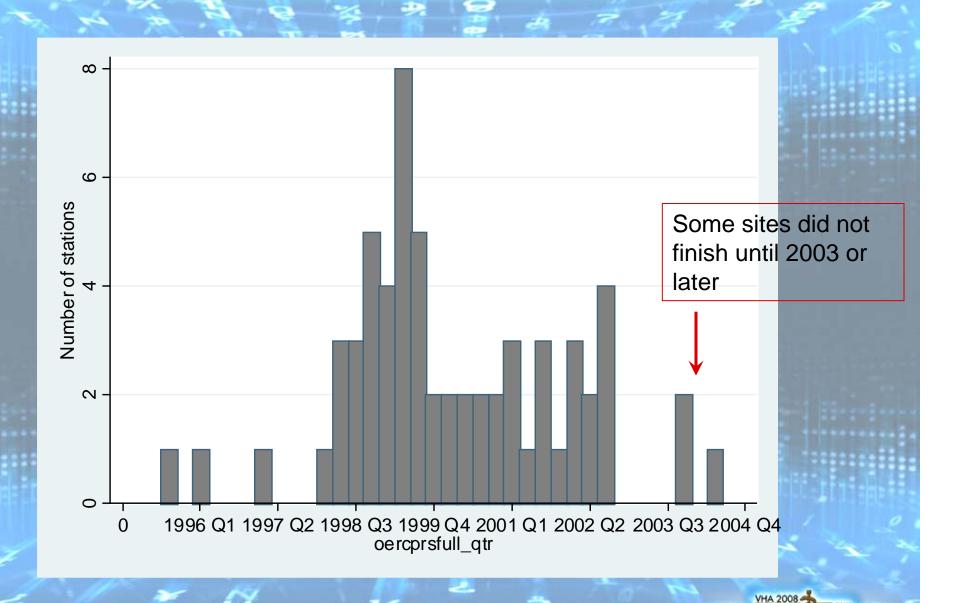 - Payroll data, other VA data on patient volumes

Methods

- Key informant interviews at 8 sites
  - Range of "early" and "late" implementers
  - Range of sites with high and low staff satisfaction
  - Range of sites with high and low turnover rates
  - Geographic diversity – west, mountain, Midwest, southeast, New England, Appalachia
- 130 interviews
  - Nursing managers and staff
  - Clinical Applications Coordinators, IT staff
  - Pharmacy leaders and staff
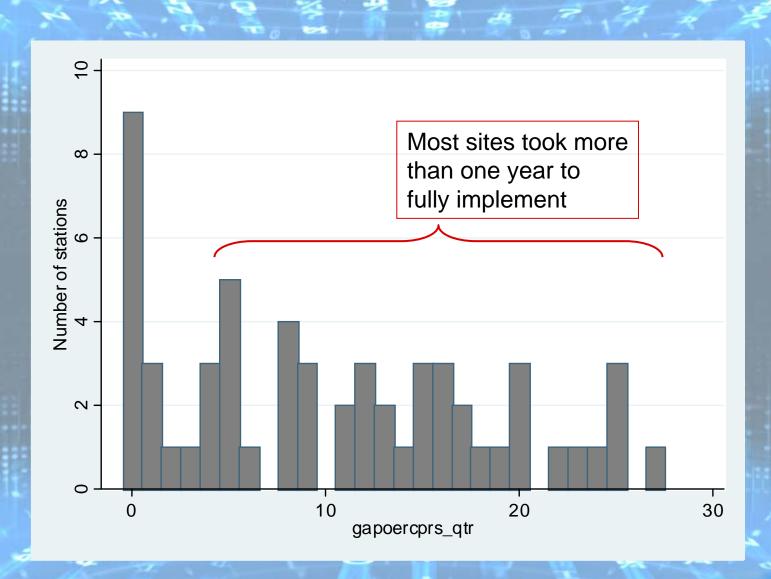 - Top VA leadership (CNO, CMO)

Variation in OERR/CPRS implementation initiation

Some sites did not begin until 2001 or 2002

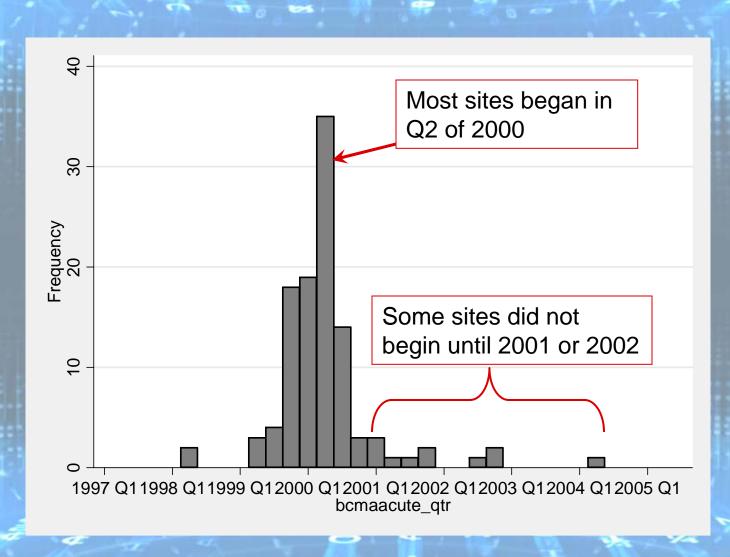# Variation in OERR/CPRS implementation completion
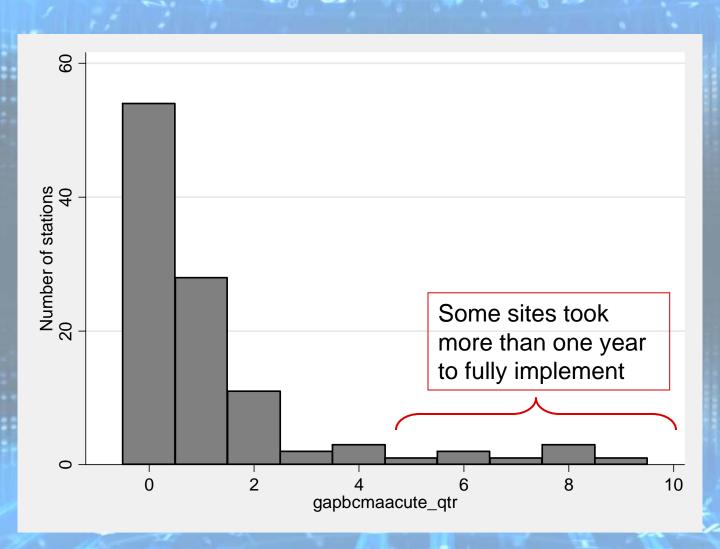
Variation in time to fully implement CPRS

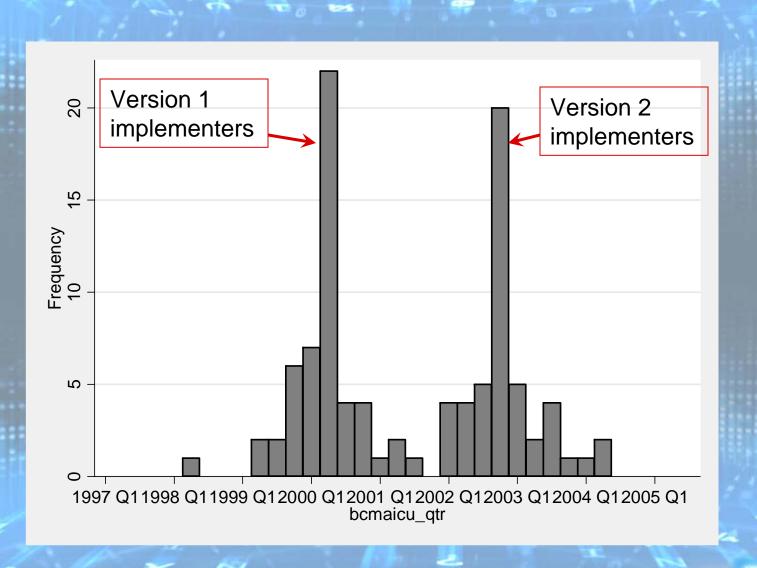# Variation in BCMA implementation initiation – acute wards

Variation in time to fully implement BCMA in acute wards

Variation in time to fully implement BCMA in ICU

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- In a "large organizational deployment, [the organization] needs [to be] very stable and fault tolerant."

- You "have to have good leadership to articulate the nursing position."

- CPRS implementation was "a big culture change"

How big a change was this?

- CPRS changed "how we organize, document, and communicate regarding patient care"

- With BCMA, "all touchpoints of care were changed"

Leadership matters

- Support from all top leadership was needed
  - Sites with lukewarm support from any group had more trouble
- It did not matter whether the lead came from medicine, nursing, pharmacy, or IT
- "If nurse managers are in support, you can get farther."
- Teamwork
  - "Everyone was nervous. She [the CNO] boosted staff: 'You know how we work together.'"
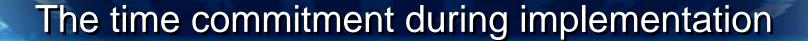
Training and support

- Training is a process, not a class
  - "'It will take time,' I was told, 'just relax.' I love it now."
- Most users said "learning while using it" was important
- Staff lauded having support available on the floor 24 / 7 during the first weeks
- Staff who could not find help when they needed it grew frustrated and distrustful

Infrastructure and equipment

- Adequate hardware and infrastructure was important
- Hardware
  - Was there a commitment to making it work from the IT department?
  - Were staff committed to using the hardware properly and respectfully?
  - Was the need for replacements recognized?
- Infrastructure
  - Trust in communicating problems required
    - For example, where did or does wireless system drop the computer?
  - Is "downtime" scheduled in a sensible way?

- During implementation, systems took more time
  - Staff had to learn the system while doing all their other work
  - Learning was slow for some staff
- Sites did not get extra budget
  - Some sites added staff and overtime to help
- A lack of adequate time and support bred distrust and resistance at some sites

Why did workarounds crop up?

- Necessity
  - Hardware/software problems interfered with work, so care providers solved the problem
- Fear
  - "It was hard to trust the machine."
  - "[I was] intimidated by the computer at first, scared you will mess it up."
- Resistance
  - Some providers did not trust the system or process, or actively flouted it
  - Some leaders tacitly supported workarounds

- Sites that recognized there would be setbacks and intentionally pushed through them did better
  - Willingness to accept and deal with problems was needed
- Trust of staff
  - Trust of leadership
- Adequate resources
  - Equipment and infrastructure
  - Time and support

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Most staff love CPRS and BCMA now

- ## Accessibility of records
  - "Can follow patients' course of treatment, flow of outpatient ot inpatient to outpatient."
  - "Everybody likes to be able to review anything about patients 24 / 7."

- ## Accuracy of records
  - "Pages of notes don't disappear, backdating does not occur, timing is accurate."

- "Now the worry is, 'What do we do if it is down?'"

Better teamwork

- "As a team you can see what everybody is doing with the patient."

- "Less confusion about orders."

- "Sharing of information is better. Pulls information to a team rather than having to run around."

- "Pharmacists can see it all, don't have to track physicians down for things."

Quality of care

- Most staff believe quality of care improved
- CPRS: quality of medical record, ease of getting information
  - "I know my patients before the come in, because our referral region is huge."
  - "Gives a wonderful background on patients… gives all information to do my job."
- BCMA: medication error rates dropped

- "Computer savvy" people think it's quicker
- CPRS: entering data takes more time, retrieving takes less
  - "Less time for me – I can type faster than I can write. This was not true at first."
  - "Computer takes more time – more and more requirements and templates that nursing has to use."
- BCMA: perspectives vary
  - "Takes less time if everything works ok"
  - "Absolutely takes more time"
  - "Takes no more time than passing meds properly"

Impact of the time commitment

- Some staff think IT takes them away from direct patient care
  - "Improved access to data, but hands-on care of the patient? No."
  - "If there are only 5-6 people on the floor and only 3 with privileges to do meds, it is difficult to do any other patient care."
  - "It does take more time… VA likes to say you'll find time somewhere, but something will get sacrificed."

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Overarching approaches

- End users (staff) should be involved in teams to improve systems

- Managers, IT, and other technology teams must be sensitive and respectful of provider needs and concerns

- Non-punitive strategies are required to get to the root of workarounds

Continuing training needs

- New components and templates are added often
- Staff and managers were concerned that they and their staff do not receive updates to their training
  - "When there was a new patch or feature, staff was not always informed in advance."
- Differing views about whether ongoing training should be mandatory

CPRS needs

- Control template proliferation
  - "Template requirements can add up, and that can be a negative with too much to see."
  - "Templates need to be decreased by at least 50%."
  - "Standardization of templates [is needed]. Current templates, while an improvement, are still cumbersome."
  - ➔ Many people talked about nursing admission templates being particularly burdensome.

- Reduce use of copy & paste function
  - "Sometimes within the same patient record something will be copied from three years ago without editing."
  - "Cut and pasting makes it hard to find pertinent data."

CPRS needs

- **Nurses and physicians need notification when new orders are entered or other things are done**
  - "Orders can get written, RN doesn't necessarily know about them."
  - "No flagging system that order has been written."
  - "System is not sending an alert when specialist consults are done." (from an MD)

- **Flowsheets are needed**
  - And/or link ICU systems (such as Careview) to CPRS

CPRS needs

- Control alerts
  - "There are too many, so they can be ineffective. People will clear the series of alerts without reading them all carefully or thinking about them."

- Improve ability to find and integrate data
  - "Make it easy to data-mine."
  - "Can't go elsewhere in the system to look at data when writing a note."

- **Address workarounds realistically**
  - Need accepted methods and reasons for bypassing system
    - Witness and double-check?
  - Non-punitive reporting of workarounds
    - "Nurses care about patients, so we need to probe hard about workarounds."
  - Anonymous survey about workarounds
  - Place users on key taskforces

BCMA needs

- **Default times for medications**
  - Example: medication administered immediately, and then every four hours – can have doses too close together
    - Could prompt physician to check this
  - Example: pre-surgery antibiotic, ordered for 7am but patient does not arrive until 8am
  - Unusual dosing is hard to program (e.g., 36 hrs)
- **Reminders for missed medications**
  - Burdensome to generate missed medications lists

BCMA needs

- Emergent care protocols
  - Give medication first and chart later – but BCMA is not forgiving about this.
  - Crash carts not always stocked thoroughly

- PRN medications
  - Report on effectiveness in one hour is too strict
    - "The system forces you to lie."
  - "Do not give, too early" warning would be good.
  - Option to note location of pain

BCMA needs

- Reminder to remove medication patches
- Streamline verification for insulin and heparin
- Expand to other treatments
- Protocol for patients with resistant infections (on isolation)

System downtime & contingency plans

- "When [CPRS] shuts down or when it's slow you feel disabled."

- "CPRS crashed a few years ago and it almost was a disaster."

- "Biggest issues are downtime. We need a good contingency system in place, do downtime practice."

- BCMA downtime causes "a sense of panic."

- Staff & leaders are eagerly awaiting a national contingency plan.

Logins and passwords

- "Too many passwords."

- "Logs out too fast… if you forget to save when you run off to deal with a patient and it logs you out, you lose everything."

- "Takes forever to log in the morning. Can't you have a single log in?"

Hardware & infrastructure

- Wireless networks need upgrades
  - "We get interference at times of the day that affects the computer hooking into the network."
- Computers
  - "Four computers were down on a night shift…"
  - "There aren't enough computers, computers do not work all the time."
  - "Each RN needs to have their own laptop, on a cart, with extended battery capacity."
- Carts
  - Varying preferences for smaller vs. larger (sturdier) carts, workstations in rooms vs. carts.

IT support

- IT reorganization raises concerns
  - "Centralization of IT staff may be a problem."
  - "Will we be able to relate well over time?"
- IT needs to be more available
  - "Tech support needed 24 hours."
  - "Hotlines don't mean the support is here."

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- Surveys
  - Several good surveys can be adapted from textbooks & other research
    - 5 -7 point scales with "strong disagree" to "strongly agree" or "almost never" to "almost always"
    - "How frequently do you find it necessary to bypass…"
    - "How frequently do you feel like hitting the terminal?"
  - Anonymous surveys are required
- Focus groups
  - Outside moderator might be needed
- Staff as technology experts and coaches
- Labor-management team efforts

- Decide on our outcomes measures before implementation, and begin collection early
  - What data will be measured better after implementation?
  - How can you get comparable data before implementation?
- Stagger implementations (when practical)
  - Control group vs. implementation group
- Get your research department involved

Course corrections

- Examine data after implementation
  - Check on staff satisfaction and acceptance
  - Check on whether the metrics are improving
- Determine problem areas
  - Is it a technology problem?
  - Is it a user problem?
- Leverage a team to solve problems
  - Interdisciplinary team including end users