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Nurse Double Checks:

Broke or Woke?

Objectives

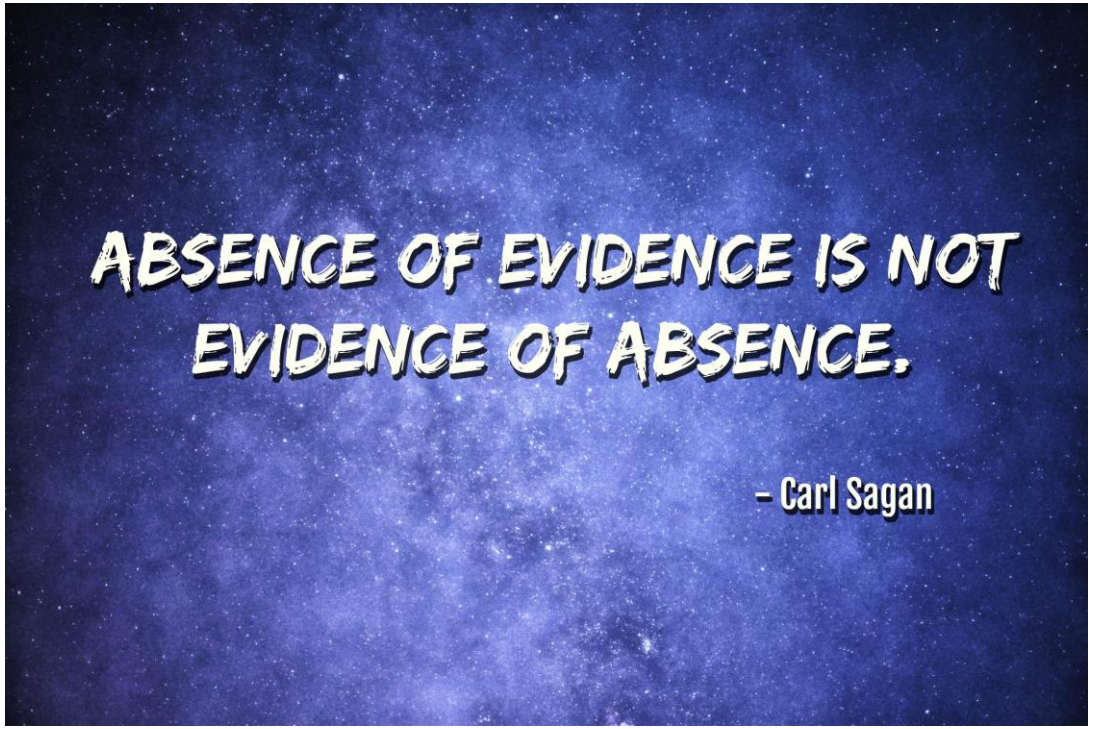
1. To understand the current state of national recommendations for the use of independent double checks at the bedside in reducing medication errors.

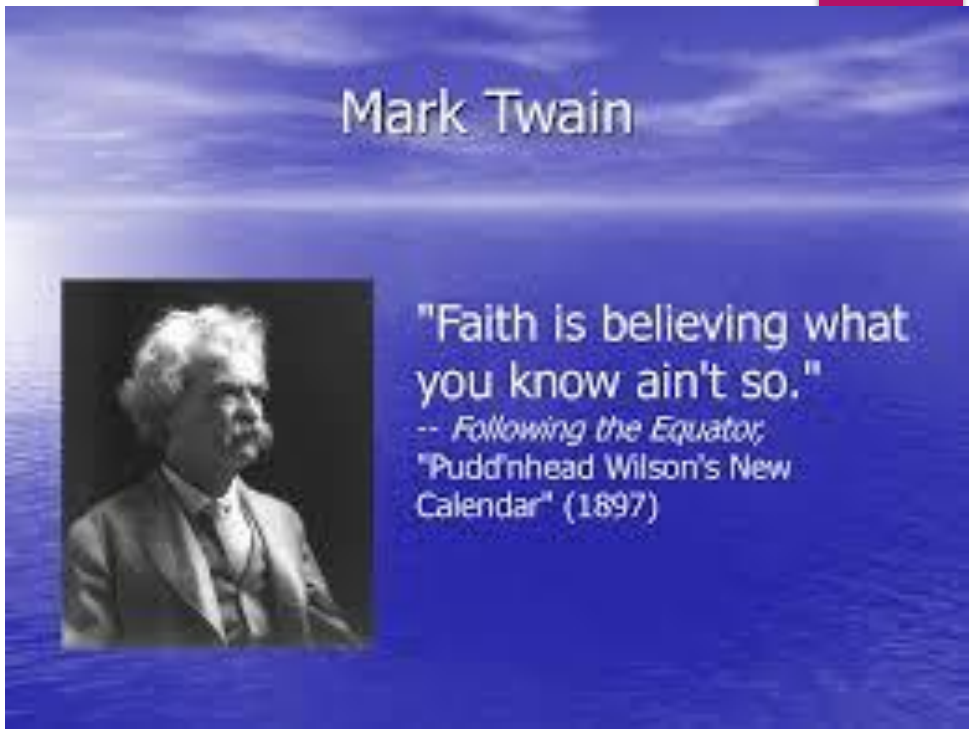
2. To understand the safety and nursing arguments *in favor* of utilizing double-checks as mitigation strategies

3. To understand the safety and nursing arguments *against* utilizing double-checks as mitigation strategies

Audience Poll

- Independent Double Checks (IDCs) by nurses before administering High-Alert Drugs are beneficial and should be in place.
  - Generally, Agree
  - Generally, Disagree
  - On The Fence





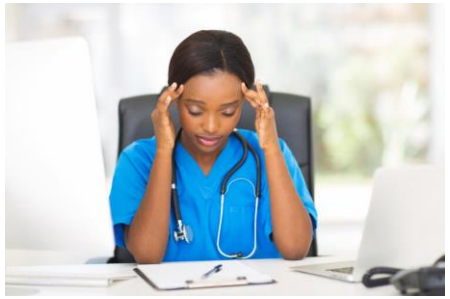
Obligatory, Thoughtful Quotes…..

Background / Issues

When conducted properly, IDCs catch about 95% of errors, leaving only a 5% chance of an error being missed. IDCs aren't foolproof, but when performed judiciously and properly, they reduce the risk of an error reaching the patient.[1,2]

Then what is the problem? Why the debate?

- For many years, independent double checks have been used as a risk-reduction strategy.
- **Disputed effectiveness**
- Its a **source of stress** for busy nurses and pharmacists who are short on time.
- Its impact on safety has been questioned by those who **rarely find mistakes** during the checking process.
- Its **inconsistent use and variability** in how the task is carried out has rendered it incapable of detecting many errors.

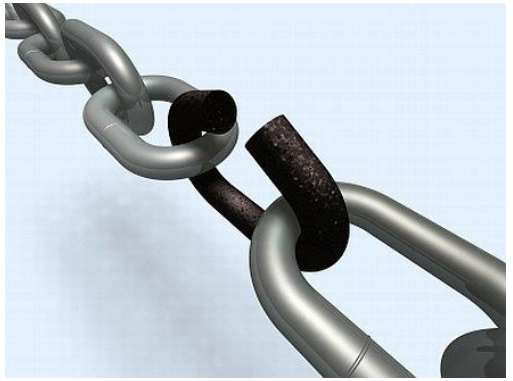


1. http://www.ismp.org/newsletters/acutecare/showarticle.asp?id=51
2. http://pharmscope.com/ptJournal/fulltext/31/9/PTJ3109492.pdf

More Issues Today

So it seems really that the devil is in the details……

- Its **overuse** for high-alert medications has been called to task
  - Weak error-reduction strategy, particularly if it is the only safeguard in place.
  - Its frequent misuse as **a quick fix for an ailing medication use system** has been the bane of managers
    - Who has investigated serious errors that have reached a patient due to a failed double-check process?



Recent Technology Issues

- EHR functionality requires a forced **hard stop.**
- Some hospitals wanted to **add** drugs, while others want to **reduce** the number of drugs on the list.
- Often the EHR prevents **hospital specific**.

Current Recommendations

- 2019 ISMP: **Independent Double Checks: Worth the Effort if Used Judiciously and Properly**[1]
  - ***As such, ISMP does not recommend use of an independent double check for all high-alert medications or all high-risk tasks***
- When asked to consider the number of **double-checks** at their unit, most surveyed **nurses** regarded the scheduled number of **double-checks** in their unit as good and appropriate (78%). Additional **double-checks** were favored by 17%. Only a small minority said that there should be fewer **double-checks** (5%).[2]
- Is it a **"sacred cow"?** A practice that is grounded in tradition rather than science.

1. Undervalued and Misused, March 2014- Volume 12 Issue 3https://www.ismp.org/resources/independent-double-checks-worth-effort-if-used-judiciously-and-properly

2. Schwappach DLB, Pfeiffer Y, Taxis K Medication double-checking procedures in clinical practice: a cross-sectional survey of oncology nurses' experiences *BMJ Open* 2016;**6:**e011394. doi: 10.1136/bmjopen-2016-011394

Regulatory Expectations

- Joint Commission- Sentinel Event Alert- Issue 11, November 19, 1999
  - Recommended "establish a check system whereby one nurse prepares the dose and another nurse reviews it"
- Joint Commission- Sentinel Event Alert- Issue 39, April 11, 2008- Pediatric Medications
  - Require prescribers to include calculated dose and the dosing determination to "facilitate an independent double-check of the calculation by pharmacist, nurse, or both"
- Joint Commission
  - NPSG.03.04.01 EP 5 "verify all medication or solution labels both verbally and visually. Verification is done by two individuals qualified to participate in the procedure whenever the person preparing the medication or solution is not the person who will be administering it."

Regulatory Expectations

- CMS Interpretive Guidelines 482.25 (b) (effective 2-21-20)
  - The hospital must have a process in place (sic) . . . Safe dispensing of medication must be in accordance with accepted standards of practice and includes, but is not limited to the following:
    - Implementing systems such as dose limits, pre-printed orders, special labeling, or double checks to minimize adverse drug events, especially for high alert medications
- CMS SOM, critical access hospitals (CAH); January 16, 2015
  - "For specific high alert medications designated by the CAH, having two health professions independently check doses

Setting The Debate Stage

- Double check Pro- 10 Minutes (Paul)
- Double check Against- 10 Minutes (Amanda)
- Open Comments or Questions from the Audience via Chat
  - Place your comments/questions in the chat.
    - Each speaker will be given 60 seconds to provide their response to the comments

The Case for the Double Check- Paul Milligan

Case FOR Double Checks

In health care, where small things can mean the difference between healing and injury, it would make sense that multiple people working together on a single task would provide a better outcome.

- When Neil Armstrong walked on the moon, they had a whole room of mathematicians and engineers to double check the computers and each other.
- Airlines- BUMMMFITCHH
  - Mnemonic used by pilots to double check plane before landing.
- WHO Surgery Check Lists
  - Aren't drugs dangerous too?
- Ancient History: In 2004, TJC began requiring use of two unique identifiers when administering medications.

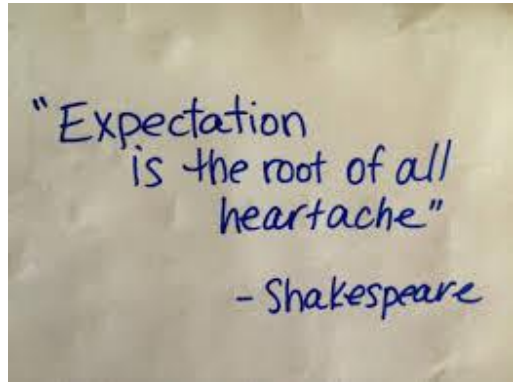
Case FOR Double Checks:
Pharmacy, Patient, and Nursing Perspective

Pharmacy Likes It! Good enough for them…

- Pharmacists were better at detecting their colleagues' errors than their own; this attributed to *confirmation bias.*[1]
- We often investigate and see the failures
  - How many times have you said to yourself, if someone would have just checked that…

Patient / Family

- Expectations
  - Wouldn't you expect that the most dangerous drugs have someone double checking
  - Name, DOB every time someone walks in the room
  - Surgery Checklist- Watch TV much?
  - Perception is reality
- **Demonstrates hospital's** Culture of Safety



1 Grissinger M.The virtues of independent double-checks: they really are worth your time! *Pharmacy & Therapeutics*. 2006;31(9)

Nurses Perspective

- Nurses or the "pointy end of the stick' ensuring the safe care of their patients.
- When asked to consider the number of **double-checks** at their unit, most surveyed **nurses** regarded the scheduled number of **double-checks** in their unit as good and appropriate (78%). Additional **double-checks** were favored by 17%. Only a small minority said that there should be fewer **double-checks** (5%).[1]
- We all know that mistakes happen in healthcare even when we are doing our best, because we are human, and therefore fallible.

1. Schwappach DLB, Pfeiffer Y, Taxis K Medication double-checking procedures in clinical practice: a cross-sectional survey of oncology nurses' experiences *BMJ Open* 2016;6:e011394. doi: 10.1136/bmjopen-2016-011394

Nurses Reasons **PRO** from BJC Survey

- **I don't need it for me, but I not sure about others. (x3)**
  - **Who knows nurses better than other nurses?**
- **Experience! I've caught myself and other(x3)**
- **Forces me to take a breath and check.**
- **Not for all drugs but see value in some drugs….**
- **We have a lot of new nurses, and I'd feel better if they were checked(x3)**
- **I'm not familiar enough with all the new drugs.**

For Fairness, the Cons

- Don't see the value for all of them
- Too busy (x10)
- I know the normal doses for most
- That's what guardrails are for
- Can't find a nurse or don't want to bother them(x4)

Nurses want it. Little Doubt….

- Survey examples (49 diverse BJC nurse respondents)

	Remove	Keep
Concentrated. KCL	48%	52%
Mag Sulfate	44%	56%
Abciximab	41%	59%
Chemo, Opioids, Heparin, Benzo's	~10-15%	~85-90%
Oxytocin	52%	48%
TPN	79%	21%

Studies on Impact (ISMP)

- *Numerous studies have demonstrated the ability of independent double checks to detect up to 95% of errors.* [4-10]

***"While automated double checks such as barcode scanning may yield even better results, there is enough evidence today to suggest that carrying out a manual independent double check is worth the time and effort**, particularly if technology is not available."*

  - *Whose hospital is barcoding and using smartpump libraries 100%?*

Study	Description	Error Rate (ER) or Error Detection Rate (EDR)	Comments
Kruse H, et al.[4] 1992	Compared use of 1 nurse to the use of 2 nurses to administer medications; second nurse double checked work of first nurse	ER per 1,000 doses: 1 nurse: 2.98 2 nurses: 2.12	Use of 2 nurses led to a statistically significant 29% reduction in errors reaching patients
Campbell GM, et al.[5] 1998	Use of process control charts to monitor dispensing errors and errors detected with an independent double check	EDR: 95%	An independent double check detected 95% of errors, leading to a reduction in error rate from 5% to 0.25%
Ross L, et al.[6] 2000	Compared dispensing error rate with and without a double check	ER per year: Without check: 9.8 With check: 6	Double check led to a 39% reduction of dispensing errors
Grasha T, et al.[7] 2001	Studied errors pharmacists found when they randomly checked completed prescriptions awaiting pick-up	ER per 5,700 prescriptions: 4.2%	Use of a double check identified 4.2% of errors otherwise not detected prior to dispensing; of these, 2.1% were potentially clinically significant
Grasha T, et al.[7] 2001	Introduced artificial errors into medication carts and sample pharmacy orders, and measured detection rate with an independent double check	EDR: 95%	The ability to detect and correct 95% of errors was not affected by workload or time on shift
Jensen LS, et al.[8] 2004	Reviewed drug errors detected during anesthesia with second person double check and prevention strategies	EDR: 58%	Double check was the single most effective measure in the study
Gosbee LL.[9] 2006	Usability testing to compare use of flow sheet and verbal read-back method of double checks to detect PCA infusion pump errors	EDR: 88% with no differences in methods	Use of either flow sheet or read-back led to detection of 88% of infusion pump errors; all undetected errors were drug concentration errors
White RE, et al.[10] 2010	Simulation to test ability of second nurse to detect wrong patient errors using new checklist with prompt to verify patient identifiers versus old checklist without prompt	EDR with checklist: No prompt: 15% With prompt: 80%	Use of checklist with prompts when conducting double check led to significantly higher (433% increase) detection of wrong patient errors

Review of 2020 systematic review that showed **no benefit**[1]

- Low quality studies and weak study design.
- **Evidence that did not show a benefit almost universally is based on studies rated poor or fair. (10/13)**
- Some based on self-reports (5/13)
- Over 50% of the studies looked at double checks for **all types of medications** administered
- **All of the studies** that tested for association (7/13), found positive correlation between IDC and reduced med errors.
- **None of the studies assessed patient harm**
- **None showed that single check resulted in fewer errors**

Koyama AK, Maddox CS, Li L, et al Effectiveness of double checking to reduce medication administration errors: a systematic review BMJ Quality & Safety 2020;29:595-603. https://qualitysafety.bmj.com/content/29/7/595

Review of 2020 systematic review that showed **no benefit**[1]

- **Of the 3 studies of GOOD quality**
  - Only 1 reported compliance rates
  - And 2 found a positive association between double checking and a decrease in medication errors;
  - One study found double checks to be more effective than the single check in detecting wrong vial errors
  - Detected more complex **weight-based** dosing errors

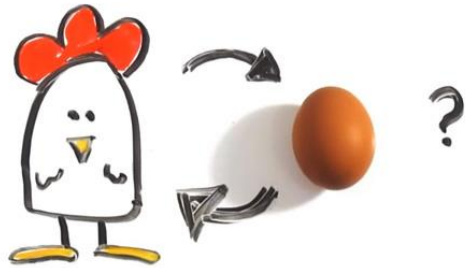
Koyama AK, Maddox CS, Li L, et al Effectiveness of double checking to reduce medication administration errors: a systematic review BMJ Quality & Safety 2020;29:595-603. https://qualitysafety.bmj.com/content/29/7/595

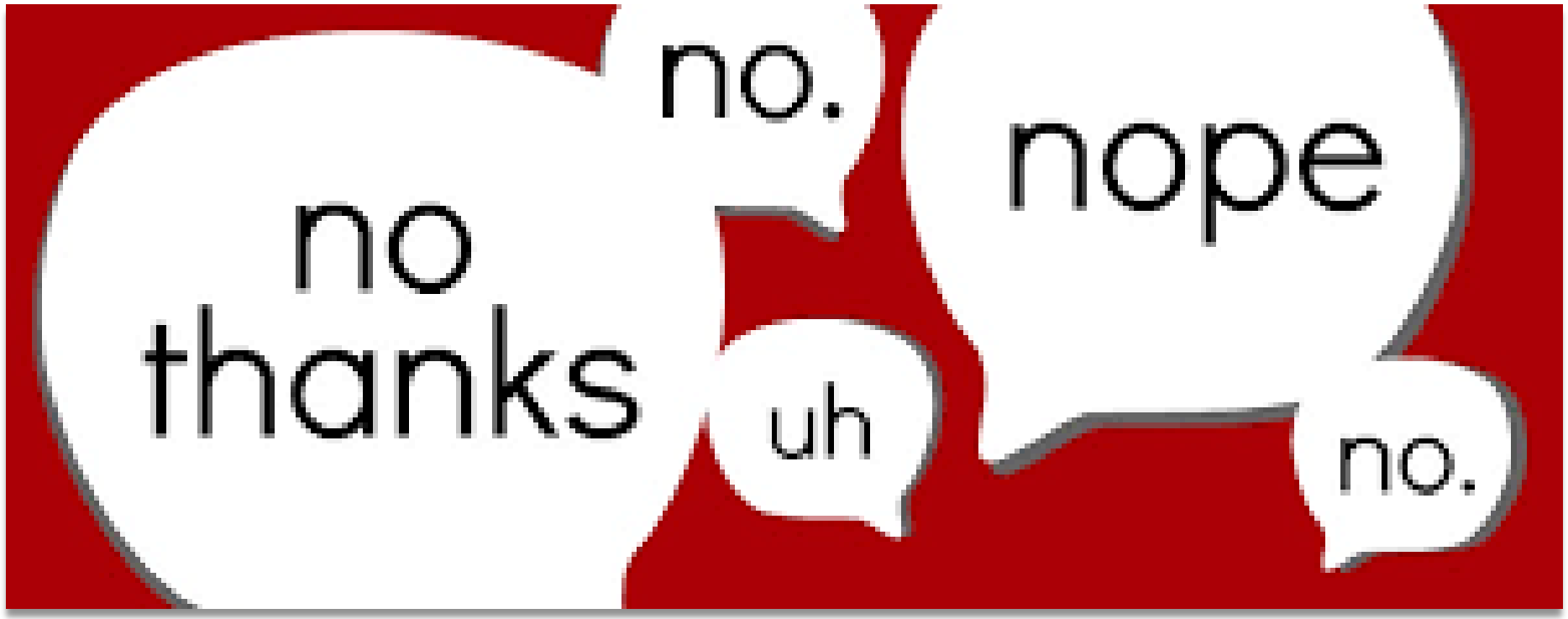
Closing Argument: PRO

- ISMP supports it.
- It is utilized in other industries with high risk
- Important enough for pharmacists, Important enough for nurses.
- Patients expect it, deserve it.
- Nurses, despite the burden, do not want it turned off…
- Scant evidence against

Lastly:

- Paul's Conundrum
  - If you require fewer alerts, will they respond with higher quality checks?
  - Are you getting better responses to provider alerts when you eliminate "nuisance" alerts?





The Case Against Double Checks- Amanda Hays

A Day In the Life of a Nurse

- Your patient in bed 1 is ringing the call light (again!) and the patient in bed 2 needs to be turned (your nurse supervisor has been after all nurses in your department to get your turns in more frequently as your pressure ulcer rates are on the rise in the unit). As you go to the med room pull meds for the patient in isolation who states he is in "10 out of 10 pain", another nurse comes to you to double check her insulin.
  - You look at the vial and the syringe and sign your initials in the ADC

The Case AGAINST Double Checks

- Where is the evidence that this works??? Double checks are a dated practice!
- Over utilization as a "fix" for nursing errors
  - Time consuming
  - Not performed correctly due to competing priorities and lack of appreciation for the role of a double check
    - Not practiced "independently"
- Pharmacy has helped supported safer practices for nursing administration
  - Limited meds are supplied and labeling has approved
  - Storage
- Technology now supports the "rights" of medication administration
  - CPOE and contemporary EMRs
  - ADC alerts
  - BCMA
  - Pump alerts and interoperability

Lack of Evidence

- Systematic review between double-check and medication administration errors by Koyama et al
  - 7 studies identified
    - 2 were good quality
    - Insufficient sample size
    - Inadequate control bias
    - Reliance on self-reporting/incident reports of medication administration errors
    - Unclear definition of "double-check" (were they independent?)
  - Zero studies linked double checked and medication harm!

Lack of Evidence

- Of the 2 studies with higher quality:
  - Douglass and colleagues- Controlled simulation trial with 43 pairs of ICU and ED RNs, randomized to perform either a double-check or single-check of a planted error
    - 33% in double check and 9% in single check identified the planted errors
  - Harkanen and colleagues- Direct observation study of 32 nurses administering 1058 doses to 122 patients
    - This study did identify double-checking as leading to fewer medication adverse events but those were not directly correlated to patient harm.

Overutilization of Double Checks

- Schwappach and colleagues surveyed nurses and found that nurses in oncology and ambulatory units reported frequent interruptions in other tasks due to the requirements to perform a double check.

- American Nurse (ANA)- Medication errors: Best Practices
  - "Simple redundancies, such as using an independent double-check system when giving high-alert drugs , can catch and correct errors before they reach patients"

Problems with Double Checks

- Armitage 2008
  - Deference to authority - "she's been her a long time so I know she did this correct"
  - Reduction of responsibility- "someone else will check it"
  - Auto-processing- "read and nod"
  - Lack of time
- Schwappach- reasons for poor double check quality
  - Busy
  - Fatigue
  - Interruptions
  - Overcrowded rooms
  - Difficulty finding a "partner"
  - Distractions, noise, poor lighting

Pharmacy Support

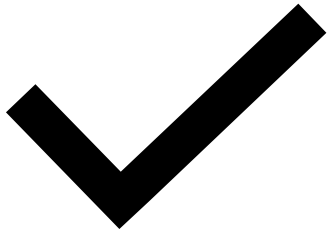
- Labeling- tall man, coloring, size, concentration descriptions
- LASA- physicial storage, alerts, evaluation of new products for potential risks
- High-alert storage- concentrated electrolytes, single concentrations, signs, alerts
- Single concentration storage when possible

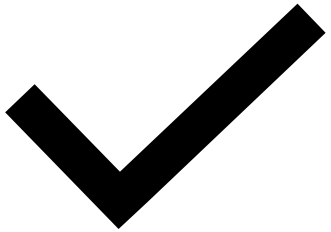
Med-Use Process Technology Support

Prescribing	• Clinical decision support (weight, allergy checking, drug -drug interaction, dose checking), CPOE
Transcribing and Documenting	• CPOE, eMAR, problem list/diagnosis/indications
Dispensing	• LASA, high alert medications, ADCs, bar-code technology, robotics,
Administering	• BCMA, clinical decision support, integrated labs/vitals, smart pumps
Monitoring	• Clinical decision support, integrated monitors

BCMA Eliminates Up to 93% of Med Admin Errors

Drug	Right Drug
Right	Right Patient
Route	Right Route
Right	Right Time/Frequency
Dose	Right Dose
Right	Right Docmentation





Open Debate

PUT YOUR COMMENTS/QUESTIONS IN THE CHAT

Questions

- What percent compliance with Smart Pump drug libraries and bar-coding would make you change your mind?
- How many drugs are currently on your IDC policy?
- Should drugs not on your high alert list need a double check?
- Would you let your own family get a medication without a double check?

Audience Poll- Repeating

- Independent Double Checks (IDCs) by nurses before administering High-Alert Drugs are beneficial and should be in place.
  - Generally, Agree
  - Generally, Disagree
  - On The Fence

Final Thoughts

COVID Forces A Compromise

- **At BJC**, on 04/09/2020 a decision was implemented to eliminate IV rate change reminders in Epic for high-risk medications
- Goals of change:
  - Reduce staff exposure to COVID-19
  - Conserve personal protective equipment (PPE).

Compromise: Background / Risk Assessment

- Care for COVID-19 patients requires a significant increase in the acuity of care and the PPE required.
  - Time in PPE is taxing on staff- turning out to be biggest driver
- **Risk Assessment**
  - Review of SEMS reports from 2016-2018 revealed that >80% of pump programming events occurred at initiation or bag changes.
  - All smart pumps provide a pathway for provision of safe dose limits and systemwide use is improving.
  - Processes for adding (non-EPIC-prompted) double checks to medications that are not on the high-risk med list have been implemented successfully

Compromise: Results, so far….

- More than 140,000 IDC prompts on rate changes eliminated.
  - 51 wrong rate or dose of high-alert drugs
    - 40 occurred at initiation
    - 11 occurred at rate change
      - 4 would have triggered an IDC
      - 7 order was not followed or changed w/o order (IDC would not have fired)
  - Events ranged from MERRP C-D(required monitoring)
- Reimplementation Plan
  - Downward trend – 7 consecutive days AND adequate PPE availability to support change
  - Approved by incident command

Culture Is Crucial

- Establishing double checks shouldn't be a "whack-a-mole" approach to a medication error
- If your culture doesn't support "safe to speak up" will you really fix the hierarchical challenges/deference to expertise of double checks?
- Establishing clear expectations
- Developing a culture (and staffing model) to allow the necessary time to do the task

Take Home Points

- Double checks can be “woke” but not if you don’t address the “broke”
- Take a look at your list and determine where there really is value add to double check
  - Stop the non-value added
  - Re-education may be needed to set expectations
- Spend time on a nursing unit
  - Do they really have the time to do this correctly and are they supported in stopping the line if necessary

References

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- Centers for Medicaid and Medicare Services
- Leapfrog, BCMA Best Practices
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