Pharmacy Technicians: Improving pharmacy workflow through Technician Check Technician (TCT)

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Disclosure

I, Michelle Potter, have no financial relationship(s) to disclose

Objectives for Technicians

- Describe how the Technician Check Technician (TCT) process enhances the professional role and standards of pharmacy technicians
- Describe the qualifications needed for a technician to become a validated TCT technician at BHMC-NLR
- State two limitations of implementing TCT

Objectives for Pharmacists

- Describe how expanding the pharmacy technician roles to include TCT allows clinical pharmacists to focus more on patient care
- Describe how to fully utilize pharmacy technicians within the TCT process
- Identify the process of review and approval with the Arkansas State Board of Pharmacy and further steps to implement TCT

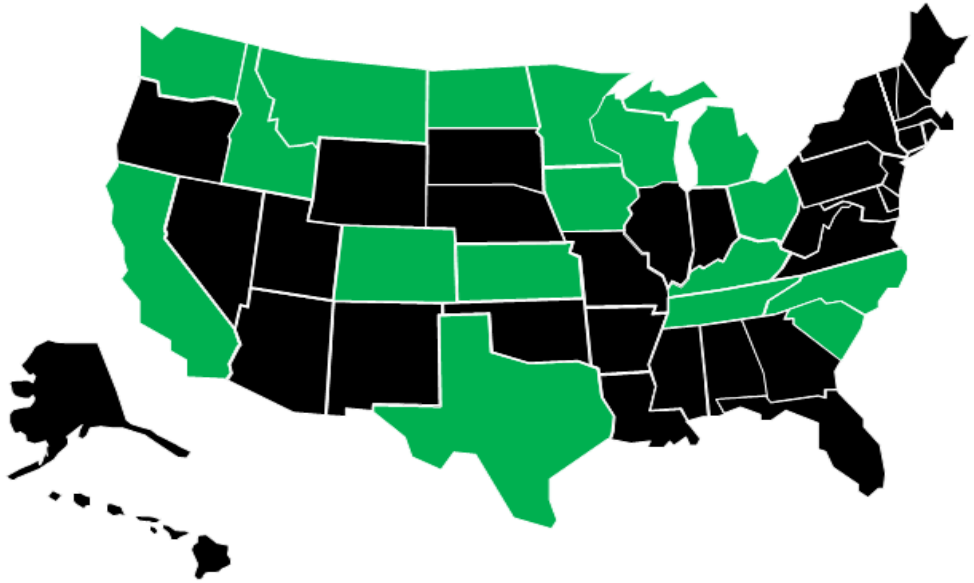
Definition of TCT

- Specially trained validated pharmacy technicians check all technician-filled manual batch medications for refill in automated dispensing cabinet

- Batch medications are unit dose medications meant for refill in ADC

History of TCT: previous studies

- Authorized in 15 states
- Comparable to pharmacists' accuracy
- Provides more time for pharmacist to perform more clinical duties



History of TCT: previous studies

- "Tech check Tech" a review of the evidence on its safety and benefits
  - Studies have shown that most medication errors occur at the prescribing and administration phases of the medication-use process, **not at the dispensing stage.**

- "Tech-check-tech": A review of the evidence on its safety and benefits
  http://www.ajhp.org/content/68/19/1824

HOW CAN PHARMACY BENEFIT FROM TCT?

- Career ladder advancement for technicians
  - Tech I, Tech II, Tech III, and Tech IV
- More time for pharmacist to perform clinical duties
  - Verify orders, phone calls, consults, codes and or making chemo
- 15 states already have TCT established

HOW CAN PHARMACY BENEFIT FROM TCT?

- ASHP National Initiative
  - PPMI goal two
  - **2.2** Pharmacy technicians will prepare and distribute medications and perform other functions that do not require a pharmacist's professional judgment

BHMC-NLR Overview: acute care hospital pharmacy practice setting

- 248 licensed beds
  - Average census 150-200 patients
- Central Pharmacy offers 24 hour distributive and clinical services
  - FTEs (non-management)
    - Pharmacists (11.3)
    - Technicians (10.5)
    - Student Interns (1.5)
    - APPE (~ 8 per month)

TECHNOLOGY AT BHMC- NLR

- Technology that applies to TCT
  - **EPIC**
    - **CPOE**
  - **Pharmacy Carousel**
    - **Inventory scanned on arrival**
    - **Inventory scanned on removal**
    - **Perpetual inventory of non narcotic meds**
  - **Scan on refill (ADC)**
    - **ADC replenishment barcodes all scanned before putting in stock**
    - **Scan on administration**
  - **Bedside barcoding**
    - **Nursing scan before administering medications**

PHARMACY CAROUSEL

Inventory of medications are stocked, ADC communicates with the carousel sending list of meds that are at or below minimum quantity in ADC

ADC batch refill automatically loads into medication carousel

Technician scans ADC batch line items out of medication carousel and places each nursing unit ADC medication in plastic bag

Pharmacist verifies ADC batch refill is correct

ADC refill batch is delivered by the technician to the correct ADC

Medication is loaded into the ADC

Medication is taken out of ADC by nurse

Medication is scanned prior to administration to patient

BEFORE STARTING TCT PROJECT

- ADC Maintenance
  - Scan medications into ADC database
  - Scan on refill implementation
- Pharmacist
  - Limited time to check batch
- Technician
  - Delivery set backs

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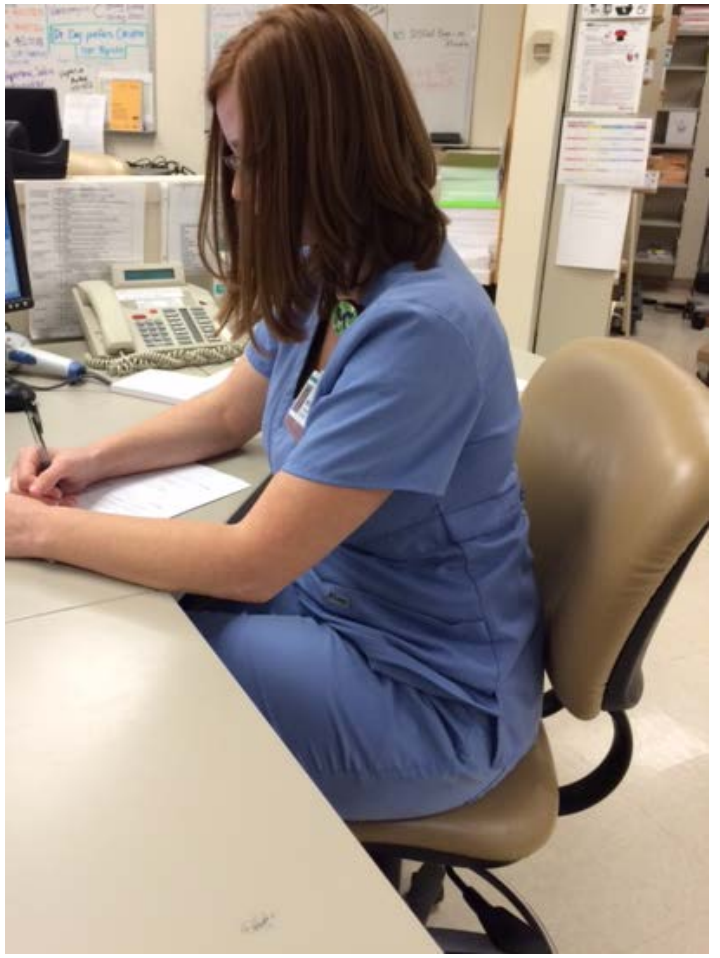
PROJECT 2014

Residency Project 2014 performed by

Jacqueline Acuña, Pharm D

BHMC-NLR TCT: PROJECT 2014

- Technician III's
  - Trained with an introductory session
    - Given study packet
  - Hands on training
    - Pharmacist taught technician what to look for while checking along side them
  - General exam
    - 90% and above passing rate
  - Validation of technique
    - Pharmacist validating kept record of technician during process



Example of material in study packet

- **Sample of study packet section based on ISMP list of look alike sound alike medications**

- **Look-alike/Sound-alike medications**

- a**MIL**oride/ amlodipine
- Cele**BREX**/ Cele **XA**
- **NIFE**dipine/ ni**CAR**dipine
- met**FORMIN**/ metro**NIDAZOLE**
- Pri**LOSEC**/ **PRO**zac
- e**PHED**rine/ **EPINEPH**rine
- lami**VUD**ine/ lamo**TRI**gine
- qui**NINE**/ qui**NID**ine
- ti**ZAN**idine/ tia**GAB**ine
- Pri**LOSEC**/ **PRO**zac
- val**GAN**ciclovir/ val**ACY**clovir
- Zyr**TEC/** Zy**PREXA**

QUESTION 1

- **Sample test question**

- A stock-out is received for #20 amlodipine 10 mg tablets on December 10, 2013. The technician pulls the following: #20 amlodipine tablets 10 mg Lot #1234 with an expiration date of August 2013. What is the medication error?

  a-Incorrect medication

  b-Incorrect dosage form

  c-Incorrect Strength

  d- Incorrect Expiration Date

Sample test question

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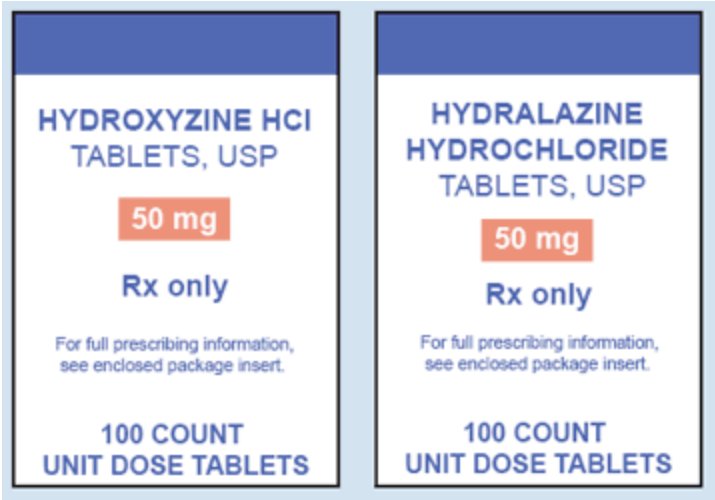
BHMC-NLR TCT: PROJECT 2014

- Errors
  - Introduced by a designated technician and/ or study coordinator
  - 100 random errors were placed into 5000 ADC batch line items (2% error rate)
  - Calculated as the number of errors per unit specific items checked

Examples of Artificial Errors Introduced

- Incorrect Medication
  - Glipizide - Glyburide
  - Labetalol - Lamisil
  - Clonidine - Clonazepam
  - Hydralazine - Hydroxyzine
  - Metoprolol – Misoprostol



Examples of Artificial Errors Introduced

- Incorrect dose form

- ASA EC 81mg vs 81 mg Chewable tablet
- Triamterene-HCTZ Capsules vs Tablets
- Ondansetron Tablet vs ODT
- Glipizide 5mg, 10mg Tab vs 5mg XL, 10mg XL

Examples of Artificial Errors Introduced

- Incorrect strength
- 0.45% NaCl - 0.9% NaCl
- D5W - D50W
- Levothyroxine 25mcg,50mcg,75mcg,88mcg, 100mcg, 112mcg,125mcg,137mcg,150mcg,175mcg, 200 mcg
- Triamterene-HCTZ 37.5/25mg - 50/25mg - 75/25 mg
- Nicotine Patch 7mg/24hr ,14mg/24hr , 21mg/24hr

Error #	Date	Error type*	Artificial error	Intended product	Error removed? (Y/N)
1	4/2	Incorrect dose	Aspirin 325 mg tablet Metoprolol tartrate 12.5 mg tablet	Aspirin 81 mg tablet Metoprolol tartrate 25 mg	**Y**
2	4/3	Incorrect medication	Nicotine Patch Glipizide 10 mg tablet	Lidocaine Patch Glyburide 10 mg tablet	**Y**
3	4/6	Incorrect dosage form	Ondansetron 8 mg ODT Glipizide 5 mg tablet	Ondansetron 8 mg tablet Glipizide XL 5 mg tablet	**Y**
4	4/14	Incorrect medication , dose	Hydralazine 50 mg tablet	Hydroxyzine 50 mg tablets	**Y**

ADC batch refill is pulled and randomized errors introduced

Validated Technician checks batch and errors remain

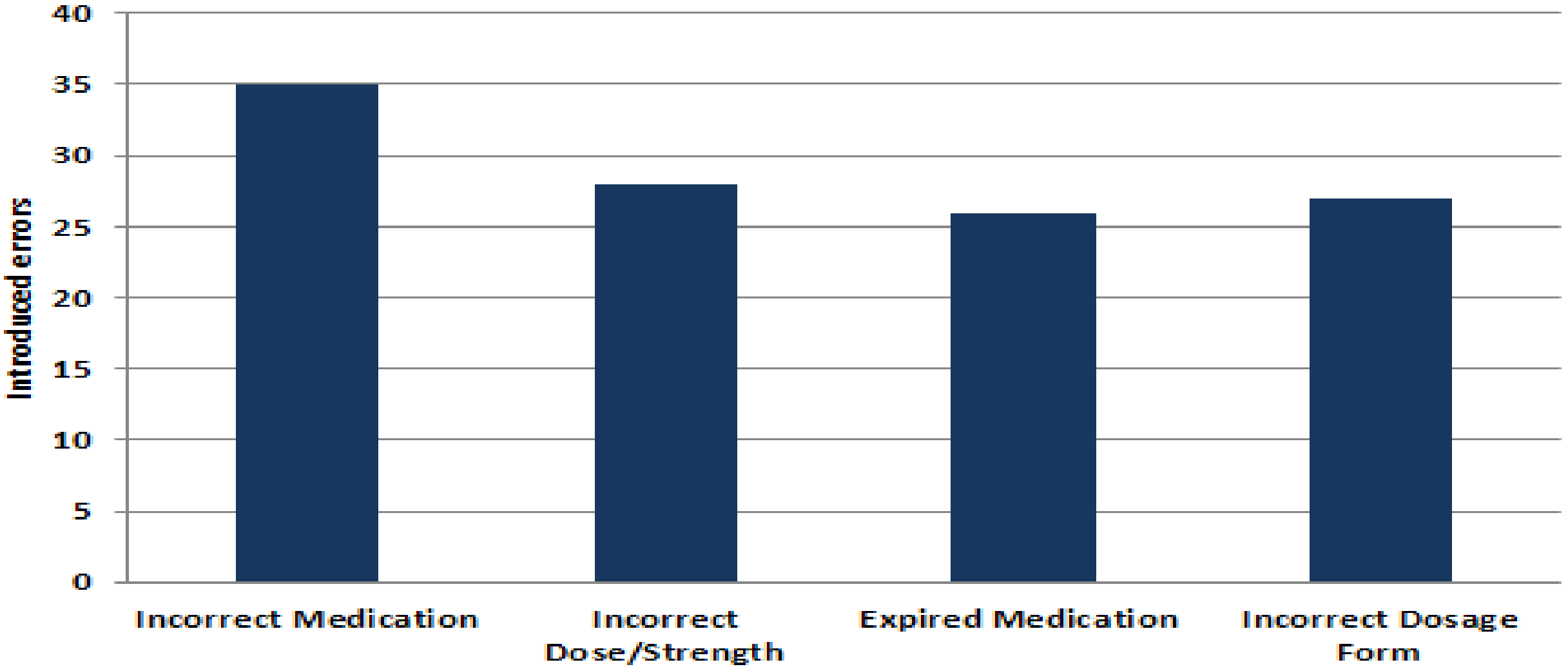
Pharmacist checks batch and errors removed

Study coordinator removes all errors remaining before ADC batch refill is delivered to the patient care units

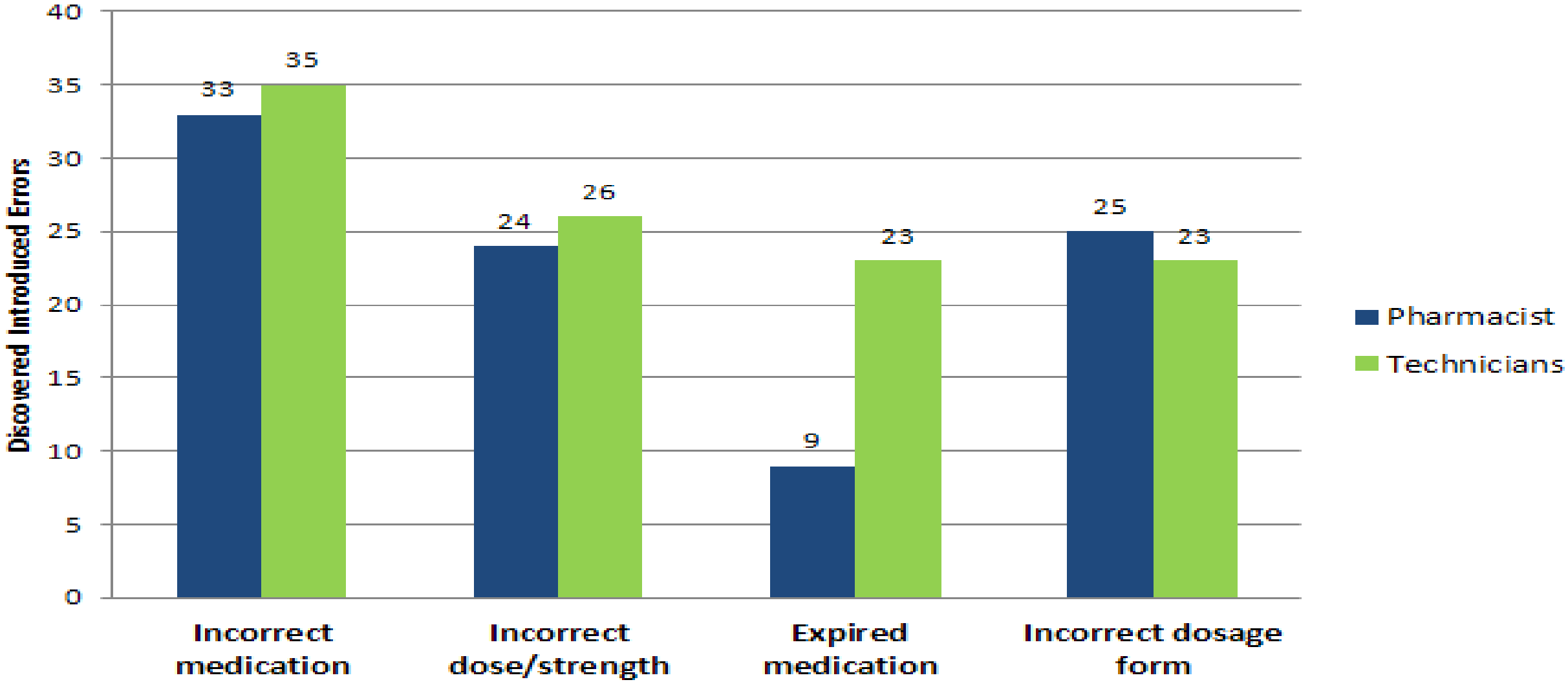
BHMC-NLR TCT: PROJECT 2014

- Study coordinator
  - Adds errors
  - Watches technician and pharmacist check
  - Documents findings

Number of randomized errors per category



Number of errors found in each arm



Limitations to BHMC-NLR study

- Data collection time of 7 days
- Specialized training and validation
- Number of technicians were limited
- Pharmacist awareness of errors
- Pharmacist education
- Hawthorn Effect

Results of TCT project 2014

- Error rates are statistically similar
- Average time saved was ~72 minutes
- Enhance tech satisfaction
- Workflow has improved

AAHP Support

- Presentation by Jackie Acuña, Pharm D on our behalf to AAHP Board of Directors
  - Data presentation
  - Letter of support
- Presentation to ABoP
  - Informal and formal board meetings
  - Presented policy and procedures if approved
- Report back at 6 months, 1 year pilot approval

QUESTION 2

The intent of the Tech-Check-Tech program is to free pharmacists from non-judgmental distributive functions so that their clinical skills can be better utilized to improve the medication outcomes in hospitalized patients.

- True
- False

Answer

The intent of the Tech-Check-Tech program is to free pharmacists from non-judgmental distributive functions so that their clinical skills can be better utilized to improve the medication outcomes in hospitalized patients.

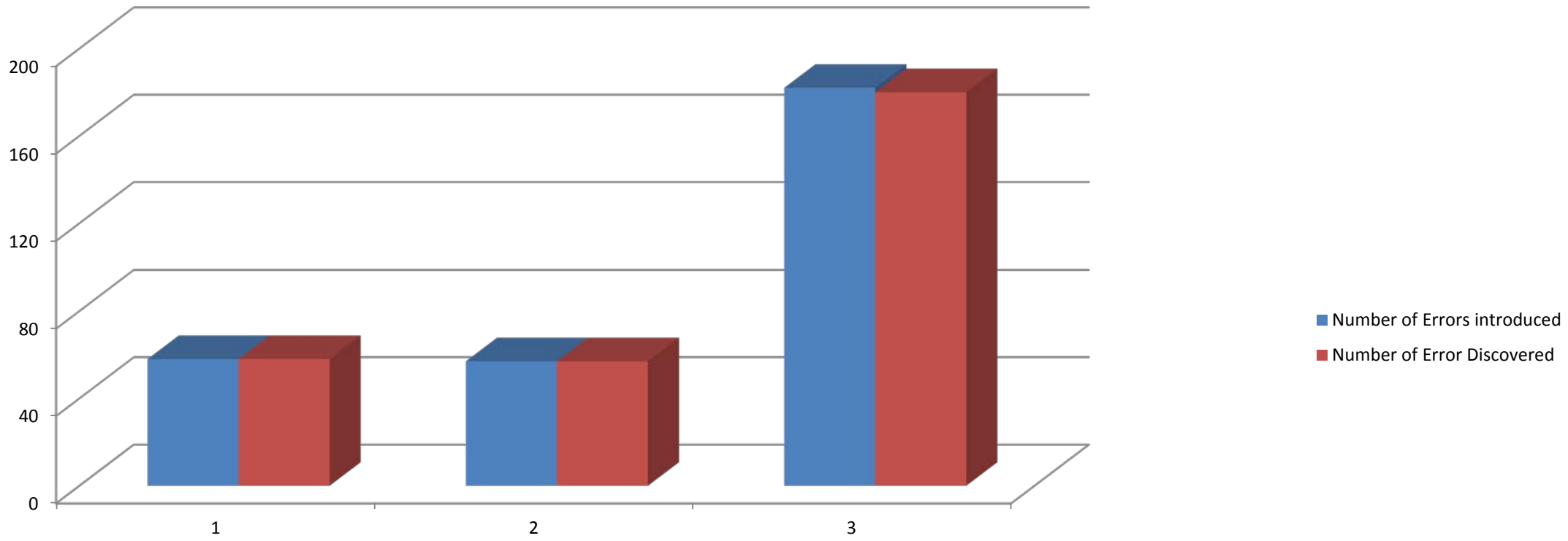
- **True**
- False

TCT PILOT 2015

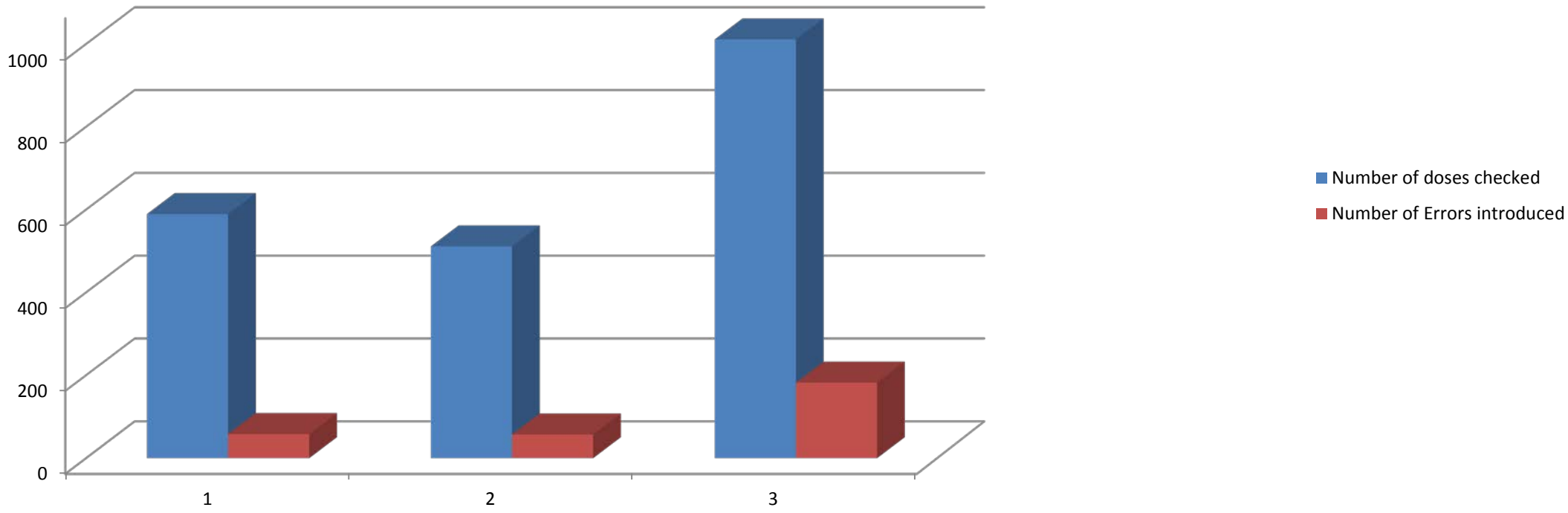
CURRENTLY IN OUR PILOT

- Pilot starting April 2015
  - Everyone is trained similar to project status
  - All policy and procedures are ready for implementation
  - Still currently in pilot stage

Accuracy Rate



Doses checked VS Errors introduced



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all our best

TCT Validation Competency Assessment Checklist

- Completed and scored >/9o% on didactic exam
- Checks the ADC batch in a thoroughly and systematic manner
- Documents ADC batch checking process appropriately
- Complete ADC checking in a timely manner
- Resolves identified ADC batching errors prior to distributing to the floors
- Capable of describing and properly identify errors when checking the ADC batch
- Candidate had been observed for 10 batch runs

RANDOM AUDIT PROCEDURE

- APPE Students check behind validated technicians
- Looking for errors and removing if found
- Blind audits
- Random audits

Tech Check Tech Pilot: Random Audits
August 2015

First, a student intern/APPE (Logan Danielson) randomly generated an order for the units that were to be checked. He randomized the list by assigning values between 0 and1, and then sorted them in ascending order. He then checked three nursing unit refills per random day. He arrived after the medications had been pulled for distribution. Prior to their delivery to the PYXIS machine he checked them to ensure continued accuracy by the filling and checking technicians. All involved in batch preparation were blinded to the auditing process and dates audits were to be conducted.

On 8/7/2015 I spot checked 3 randomly assigned units, 1R, OR, 1B. While inspecting these items I checked for proper medication, dosage, and expiration date.
1R: Checked 7 items. 0 mistakes were found
OR: Checked 5 items. 0 mistakes were found
1B: Checked 10 items. 0 mistakes were found
On 8/10/2015 I spot checked the next 4 randomly assigned units 2B, 1T, 2C, and Cath Lab. While inspecting these items I checked for proper medication, dosage, and expiration date.
2B: Checked 5 items. 0 mistakes were found
1T: Checked 6 items. 0 mistakes were found
2C: No items were being delivered to 2C.
Cath Lab: Check 1 item. 0 mistakes were found.

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Next steps for BHMC-NLR

- Present to the ABoP in October 2015 6 month of data
- Anticipate requesting continuation of pilot
- If possible further regulation changes

Summary

- Validated technician as accurate as pharmacist in checking batch refills

- Increases direct patient care time for the pharmacist

ACKNOWLEDGEMENTS

- I want to thank Jackie Acuña, Pharm D who chose for her residency project to take on TCT and set forth all the actions needed so we could start working to this goal and achieving it.

- She has presented this at residency seminars and the AAHP, with her poster presentation, which gained us a letter of support for the board. She then presented our project to the ABoP all on our behalf.

- She has also continued to keep it going after she was hired here at Baptist Health.

- **There is no way we would have gotten this far without her help.**

References

- Joint Commission of Pharmacy Practitioners. Future vision of pharmacy practice. http://www.accp.com/docs/positions/misc/JCPPVisionStatement.pdf (accessed 2014 November 21)

- NORTH CAROLINA–ASHP Advocacy Letter Opposing Legislation to Nullify Tech Check Tech Rule http://www.ashp.org/DocLibrary/Advocacy/GAD/ASHP-Opposes-NC-Bill-to-Nullify-Tech-Check-Tech-Rule.aspx

- "Tech-check-tech": A review of the evidence on its safety and benefits http://www.ajhp.org/content/68/19/1824

- Information adapted from Jackie Acuna, Pharm D manuscript