

BCMA: OPPORTUNITIES AND CHALLENGES

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Disclosure Information

BCMA: OPPORTUNITIES AND CHALLENGES

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- I have no financial relationship to disclose.

AND

- I will not discuss off label use and/or investigational use in my presentation.

Learning Objectives

At the completion of this activity, you will be able to:

- Explain the importance of BCMA
- Identify the benefits of BCMA
- Identify the impacts of workarounds on BCMA
- Describe the CCAD BCMA model

BCMA Definition

BarCoded Medication Aministration is defined as:

Barcoded Medication Administration (BCMA) is an inventory control system that uses barcodes to prevent human errors in the distribution of prescription medications at hospitals. The information encoded in barcodes allows for the comparison of the medication being administered with what was ordered for the patient.

Bar code medication administration (BCMA) systems are electronic scanning systems that intercept medication errors at the point of administration. When administering medications with BCMA, a nurse scans a bar code on the patient's wristband to confirm that the patient is the right patient. The nurse then scans a bar code on the medicine to verify that it is the right medication at the right dose, given at the right time by the right route.¹

Action Summary

Action User: [REDACTED]
Charge Status: NOT charged because pharmacy is set to charge on dispense
Patient Class: Inpatient
Admin Date and Time: 03/10/18 23:31
[Full Administration Report](#)
Comments:
Do NOT tube.
Scanned Medication
zolpidem 5 mg Tab

Barcode
M024988060360130/09/2020UDC27I18L

Package
M02-4988-06036-01

Expiration Date
30/09/2020

Lot Number
UDC27I18L

WHY BCMA?

- Patients Safety
- Inventory Control
- Finance
- Research/Medication Utilization
- Medication Recall
- Medication Incidents Investigations

WHY BCMA? (Patient Safety)

Effects of bar code-assisted medication administration (BCMA) on frequency, type and severity of medication administration errors.

- *The results of this review support the medication administration error reducing potential of BCMA technology up to 1 year after implementation without indications of increasing nursing time spent on medication administration.²*

WHY BCMA? (Patient Safety)

Bar Code Medication Administration Technology: A Systematic Review of Impact on Patient Safety When Used with Computerized Prescriber Order Entry and Automated Dispensing Devices.

- Results from the 5 studies included in this review suggest that BCMA has the potential to reduce nontiming administration errors, transcription errors, and total medication errors.³
- Additionally, BCMA has the potential to improve compliance with the requirements to check patient identity before administering medications and to chart the administration of medications on the MAR.³

WHY BCMA? (Inventory Control)

- Differentiate among different brands.
- BCMA systems also can be used for pharmacy stocking and retrieval processes to help avoid medication dispensing errors. BCMA implementation in the pharmacy has been shown to significantly reduce dispensing errors.⁴
- Same barcode used for medication administration is used for storage and dispensing Which could be tracked across all systems.

WHY BCMA? (Finance)

- A better way to drop financial charges on administration.
- Save time crediting the patients for unused medications.
- Charge on administration makes it easier for the insurance to audit the hospital but also need to make sure you have a tight control on returns.
- Increase in nursing scan rates as without the bedside scan, the hospital loses revenue, which motivates nurses to scan consistently.

WHY BCMA? Research/Medication Utilization


- BCMA reports can help in research to show multiple values such as:
- Time of administration
- NDC (Brand vs Generic)
- Lot Number
- Expiration Date
- Gap between due times vs. actual administration times
- Differentiate among certain class of medications
- Common times for medications to be administered


Action Summary

Action User: [REDACTED]
Charge Status: NOT charged because pharmacy is set to charge on dispense
Patient Class: Inpatient
Admin Date and Time: 03/10/18 23:31
[Full Administration Report](#)
Comments:
Do NOT tube.
Scanned Medication
zolpidem 5 mg Tab

Barcode
M024988060360130/09/2020UDC27I18L


Package
M02-4988-06036-01


Expiration Date
30/09/2020


Lot Number
UDC27I18L

WHY BCMA? (Medication Recall)

- Lot number is scanned along with the NDC code that is specific to certain medication. This scanning has a time stamp that helps you quickly identify a certain medication that has been recalled recently.
- More intelligence or system enhancements are needed to be able to add the NDC and reports will be populated as such.

Action Summary

Action User: [REDACTED]
Charge Status: Not charged because pharmacy is set to charge on dispense
Patient Class: Inpatient
Admin Date and Time: 03/10/18 23:31
[Full Administration Report](#)
Comments:
Do NOT tube.
Scanned Medication
zolpidem 5 mg Tab

Barcode
M024988060360130/09/2020UDC27118L

Package
M02-4988-06036-01

Expiration Date
30/09/2020

Lot Number
UDC27118L

WHY BCMA? (Medication Incidents/Investigation)

- See what the barcode scanned before medication was physically administered to the patient.
- Investigation of what was the actual drug given.
- Time stamps are very helpful.
- BCMA has all the elements that investigators will be looking at while doing an RCA.

Action Summary

Action User: [REDACTED]
Charge Status: Not charged because pharmacy is set to charge on dispense
Patient Class: Inpatient
Admin Date and Time: 10/10/18 08:15 (Edited)

[Full Administration Report](#)

Scanned Medication	Barcode	Package	Expiration Date	Lot Number
folic acid 5 mg Tab	H212006024500230/09/2019UD23I18R	H21-2006-02450-02	30/09/2019	UD23I18R

Review Actions

Date/Time in Queue for Review	Date/Time Reviewed	Review Context	Reviewed By	Review Action
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Action Summary

Action User: [REDACTED]
Charge Status: Not charged because pharmacy is set to charge on dispense
Patient Class: Inpatient
Admin Date and Time: 03/10/18 23:31

[Full Administration Report](#)

Comments:
Do NOT tube.

Scanned Medication	Barcode	Package	Expiration Date	Lot Number
zolpidem 5 mg Tab	M024988060360130/09/2020UDC27I18L	M02-4988-06036-01	30/09/2020	UDC27I18L

BCMA CHALLENGES

Most Frequent Reason Why Medications Not Scanned Prior to Administration⁵

- No bar code on dose
 - *Split dose.*
 - *Liquid medication in syringe.*
 - *Bar code on outer box/wrapper discarded with first use (ointment, eye drops, inhalers).*
 - *Patient's own medication; no bar code.*
- Bar code damaged
 - *Bar code torn when unit dose peeled open.*
 - *Bar code on ointment "crimped" with successive administrations.*
 - *Smudged bar code labels*
- Bar code hard to read with the scanner.
- Patient off nursing unit; bar code administration system not available.
- Patient registration not complete; emergency medication needed.
- Lack of updating of bar codes with a new pharmacy inventory.
- Wireless networks may not be sufficient to handle the increase in wireless traffic.

BCMA CHALLENGES

- 98.7% of hospitals that reported to the 2017 Leapfrog Hospital Survey indicated they have implemented a BCMA system in at least one inpatient unit. However, some hospitals have not adopted BCMA or are not using it in all units.
- BCMA adoption requires significant efforts to redefine caregiver responsibilities and workflows, which must all be communicated to staff through trainings and demonstrations.
- Cultural obstacles may inhibit BCMA implementation. For example, some nurses resist utilizing BCMA as it introduces additional steps into their already-hectic care schedules.⁶
- Poon and others⁷ concluded that implementation of BCMA should not be regarded as a single event, but rather an ongoing process that requires training and education, along with improvements and modifications.
- Therefore, we encourage institutions that have adopted this technology to share their experiences.³
- We also encourage the authors of studies using direct-observation methodology to perform follow-up analyses to determine whether the benefits of BCMA are sustained over time.³

BCMA CHALLENGES

- The cost of implementing and operating BCMA including electronic pharmacy management and drug repackaging over 5 years is \$40,000 (range: \$35,600 to \$54,600) per BCMA-enabled bed and \$2000 (range: \$1800 to \$2600) per harmful error prevented.
- Conclusions: BCMA can be an effective and potentially cost-saving tool for preventing the harm and costs associated with medication errors.⁸

BCMA: CCAD Model

In May 2016, BCMA Scanning rate was 95.3%

- Project started to achieve a target of 98% and higher through a collaboration between Inpatient pharmacy team, pharmacy safety & quality, pharmacy automation & informatics, and nursing department across the hospital through the Medication Management Council.
- Data is presented on monthly basis to identify scan failures/overrides by:
 1. Top 20 Medications
 2. Top 20 Users
 3. Top 3 Reasons
 4. Top 10 Departments (Taken into account workload)

BCMA: CCAD Model

Problem	Solution
Big bottle of chlorhexidine (Multi-use)	Converted to unit dose
Insulin barcode smudged by condensation	1. Extra label provided 2. Placed in ADS
Broken scanners not reported	IT Team
NDC changes	Immediate action by inpatient team

BCMA: CCAD Model

- Nurse managers and assistant nurse managers to provide feedback on BCMA scanning behaviors from their department on monthly basis on issues reported/faced by their teams.
- Speak with nurses who have low BCMA scanning rates to see how we can improve.
- Today, If you scan at a rate less than 98%, you are failing the system.
- **October 2018, there were over 170,000 scans across the hospital.**

BCMA: CCAD Model

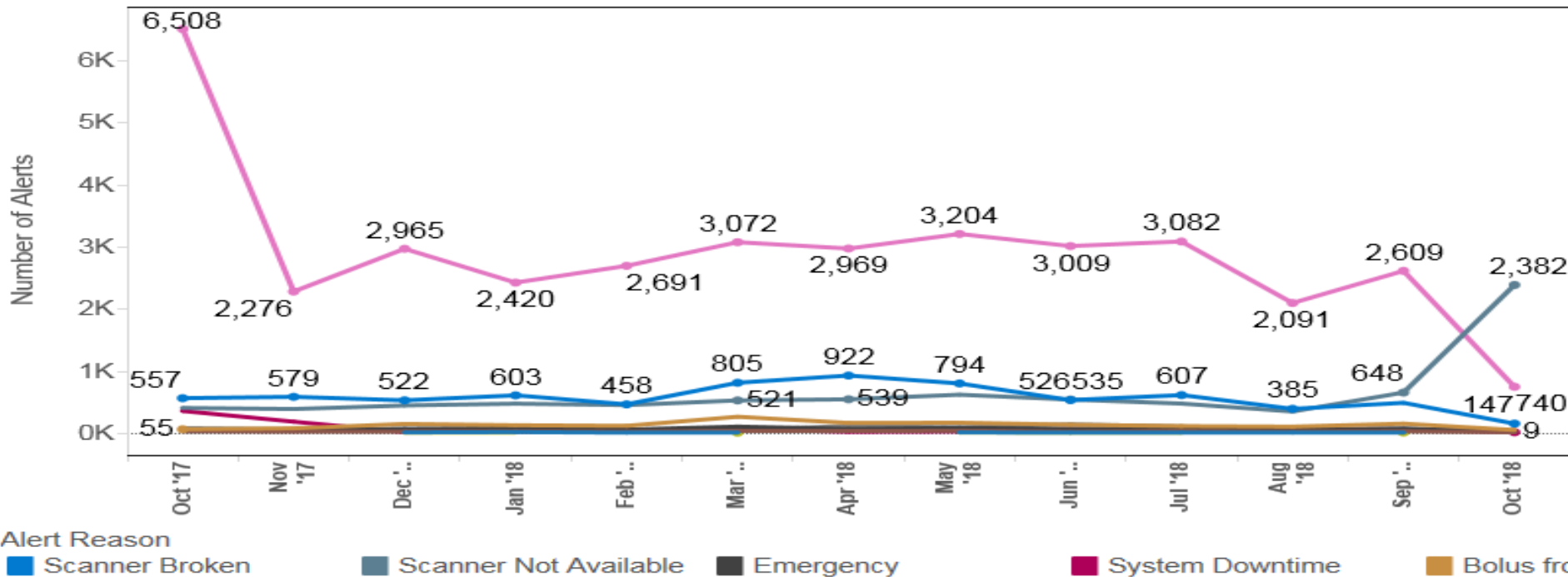


BCMA Medication Compliance

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Date Refreshed: 10/10/2018



Select BCMA Type
 Patient Compliance
 Medication Compliance

Select Date Level
 Months

Taken Date
 Last 13 months

Date
 1/10/2017 31/10/2018

Patient Class
 (All)

Department
 (All)

Alert Reason
 (All)

Provider
 (All)

Medication Compliance

Month	Compliance %
Oct '17	94.4%
Nov '17	97.5%

Alert Reason Percentage

Alert Reason	Oct '17	Nov '17	Dec '17	Jan '18	Feb '18	Mar '18	Apr '18	May '18	Jun '18	Jul '18	Aug '18	Sep '18	Oct '18
Scanner Broken	7%	16%	12%	16%	12%	16%	19%	16%	12%	14%	12%	12%	4%

BCMA: CCAD Model

BCMA Compliance by Provider

BCMA Compliance



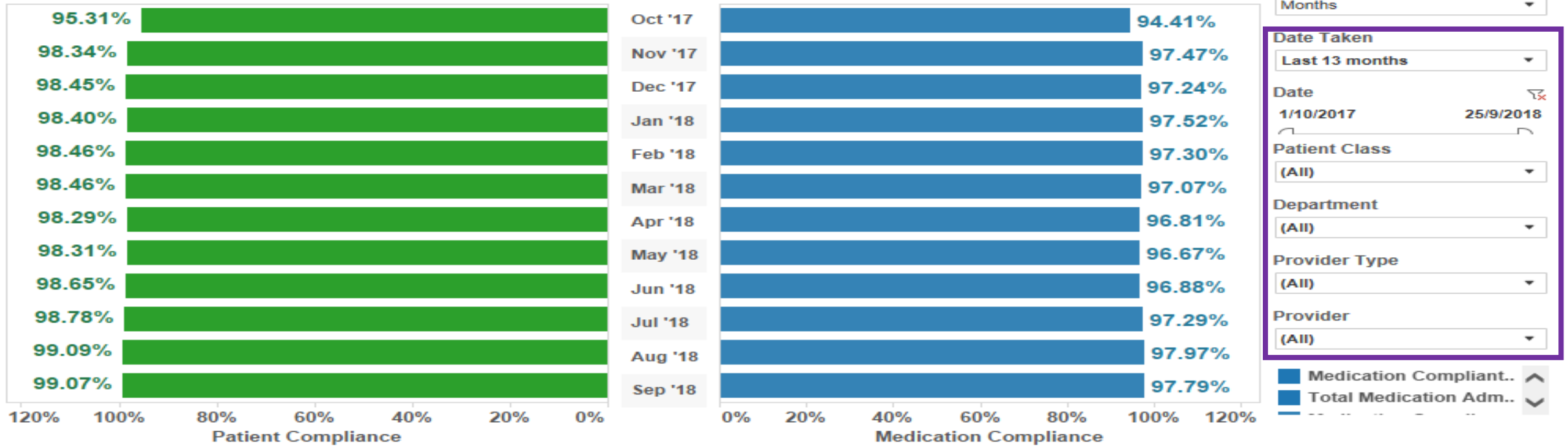
BCMA Compliance by Provider

Date Refreshed: 10/10/2018



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Compliance by Provider - (Click Provider's Name to Filter on the above)

Medication
Compliant
Admins

Total
Medication
Admins

Medication
Compliance

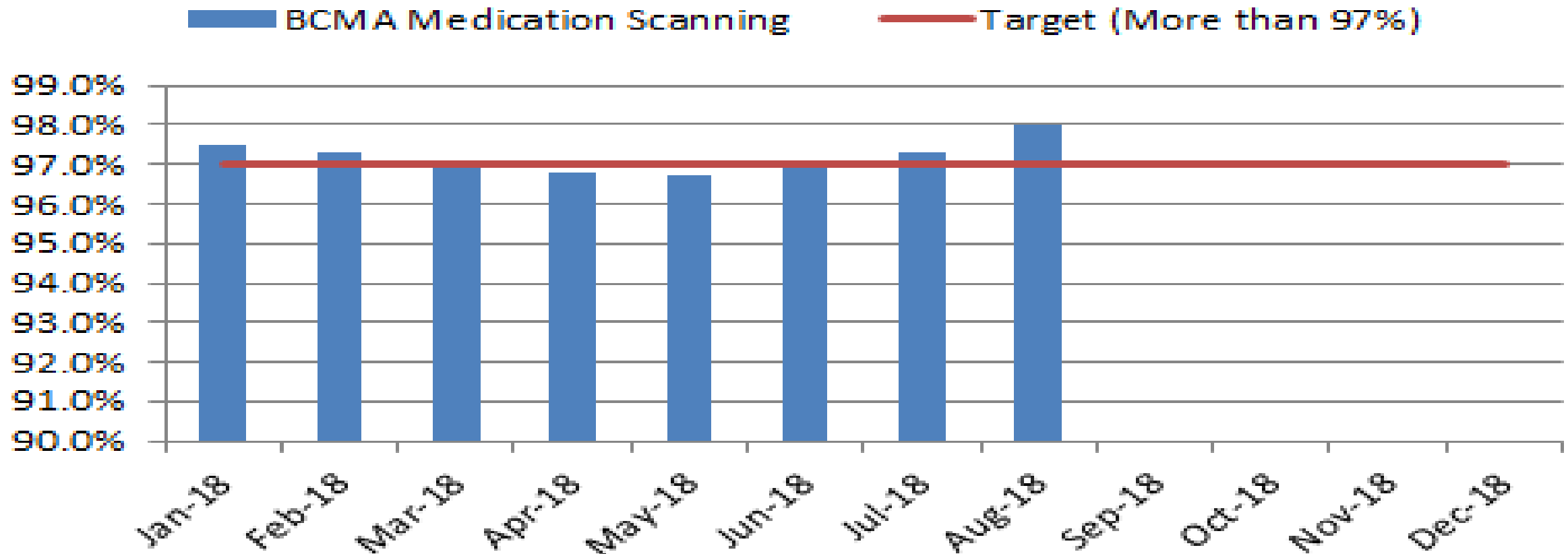
Patient
Compliant
Admins

Total Patient
Admins

Patient
Compliance

BCMA: CCAD Model

BCMA Medication Scanning



Assessment Questions

What is an acceptable rate for BCMA in many References/Standards?

- 85%
- 99%
- 90%
- 95%

Assessment Questions

What is an acceptable rate for BCMA in many References/Standards?

- 85%
- 99%
- 90%
- **95%**

Assessment Questions

BCMA Implementation challenges:

- No Barcode From the Manufacturer
- Workaround by users
- Cost
- All of the Above

Assessment Questions

BCMA Implementation challenges:

- No Barcode From the Manufacturer
- Workaround by users
- Cost
- **All of the Above**

Assessment Questions

BCMA can:

- Reduce Medication Errors
- Has no impact on the time needed to administer medications
- Increases Patient Safety
- All of the Above

Assessment Questions

BCMA can:

- Reduce Medication Errors
- Has no impact on the time needed to administer medications
- Increases Patient Safety
- **All of the Above**

Additional Literature/References

1. www.leapfroggroup.org/survey Factsheet: Bar Code Medication Administration Last Revision: 4/1/18
2. *Effects of bar code-assisted medication administration (BCMA) on frequency, type and severity of medication administration errors: A review of the literature. European Journal of Hospital Pharmacy 2012;19 489–494. doi:10.1136/ejhpharm-2012-000058*
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**THANK
YOU**