

# REDUCTION OF MEDICATION ERRORS

**Research with Chief Hospital Pharmacists in Republic of Ireland**

IPSOS

February 2022



# AGENDA

- 1 – HOSPITAL BACKGROUND INFORMATION
- 2 – MEDICATION ERRORS (MES) AND PREVENTABLE ADVERSE EVENTS
- 3 – INFORMATION SYSTEMS
- 4 – UNIT DOSE MEDICATION SYSTEMS
- 5 – PHARMACY INVENTORY SYSTEMS
- 6 – FUTURE
- 7 – CONCLUSIONS

# HOSPITAL BACKGROUND INFORMATION

# 1

# SAMPLE DISTRIBUTION

## COUNTRY DISTRIBUTION

Belgium	10
France	42
Germany	40
Hungary	6
<b>Ireland</b>	<b>4</b>
Italy	42
Netherlands	10
Poland	20
Portugal	36
Spain	41
Sweden	5
Switzerland	12
UK	40
*Private Hospitals (UEHP)	9
<b>TOTAL</b>	<b>317</b>

(\*) European Union of Private Hospitals (UEHP)

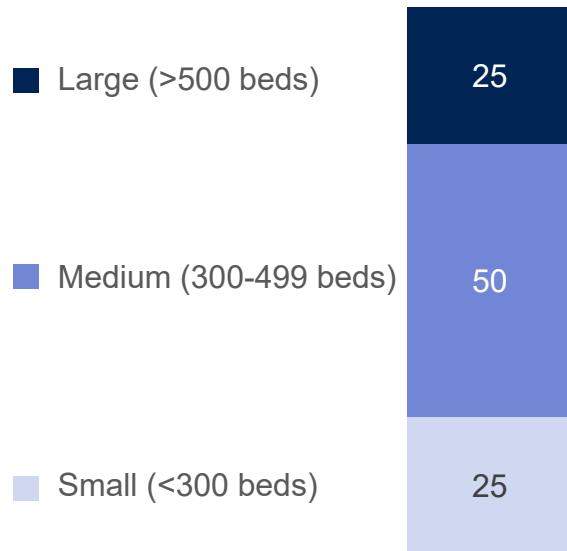
1. In what country is your hospital based? Base: Total sample (317)



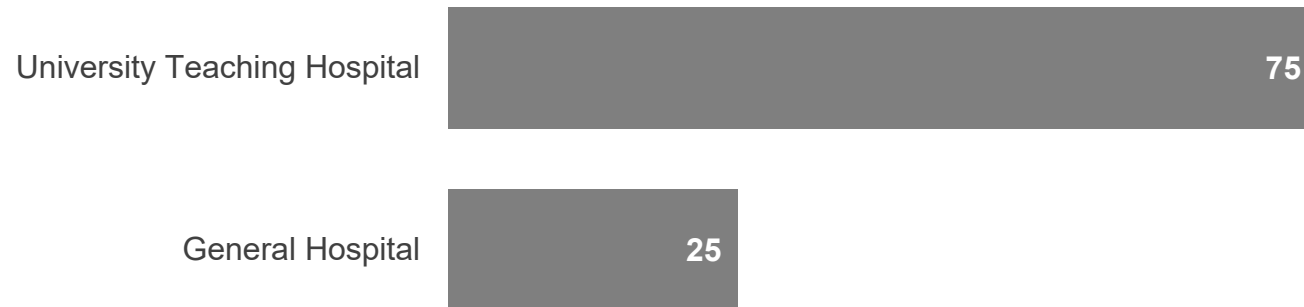
# HOSPITAL TYPE AND SIZE

- Figures expressed as a % -  
Multiple answers can be given

SIZE OF HOSPITAL (ACCORDING TO # OF BEDS)



TYPE OF HOSPITAL (Multiple answers)



2. If you were to count all of the hospital beds that come under your hospital's responsibility (include networks/buildings) what would that number approximately be? / 3. Please describe the type of hospital you work in. Please indicate more than one description if it clarifies the type of hospital.

Base: Total sample (4)

# MEDICATION ERRORS (MEs) AND PREVENTABLE ADVERSE EVENTS

# 2

Detection and monitoring

# MOST HOSPITALS ARE NOT ACCREDITED

But those that are accredited do include MEs in their accreditation process

- Figures expressed as a % -



**25%**

of hospitals  
are **accredited**



**100%**

of them **include  
medication errors** in the  
accreditation process

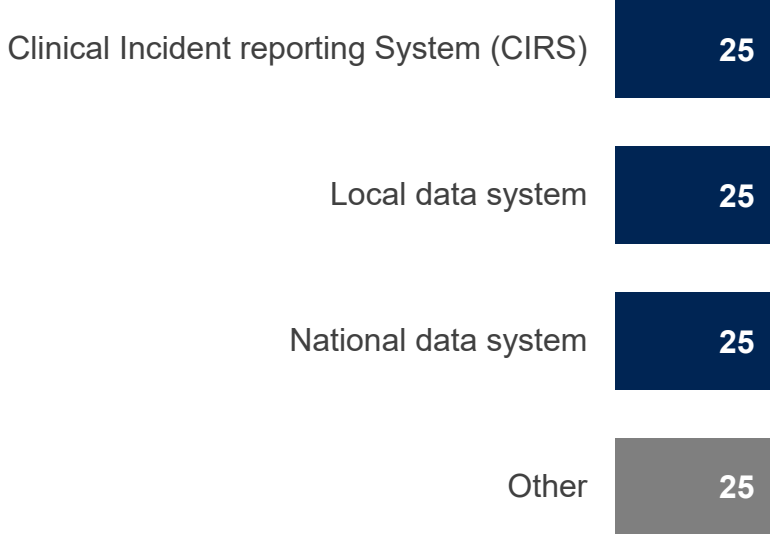
4. Is your hospital accredited (has it a quality certification or passed a recognized inspection)? Base: Total sample (4)

5. Are medication errors included in this accreditation process? Base: Hospital accredited (1)

# ALL PARTICIPANTS STATE TO RECORD MEs IN DIFFERENT SYSTEMS

All hospitals record MEs

## DATABASE FOR RECORDING MEDICATION ERRORS



- Figures expressed as a % -



6. Are medication errors recorded in a database such as:  
Base: Total sample (4)



# MEs ARE NOT AVAILABLE TO THE PUBLIC



**0%**

of hospitals make **MEs** available to the **public**

# ALL HOSPITALS HAVE DATABASES TO RECORD MEs



**100%**

of hospitals have a **ME** database

7. Are medication errors from your hospital available to the public? Base: Total sample (4)

8. Are there any local, regional and national database to record and survey medication errors in your country with the objective to share continual improvement initiatives? Base: Total sample (4)

# MEs ARE MAINLY TRACKED CENTRALLY

All MEs are mainly tracked centrally

- Figures expressed as a % -  
Multiple answers can be given

## AREAS WHERE MEDICATION ERRORS ARE TRACKED

Centrally that covers all of the hospital

100

Intensive care

25

General wards

25

9. In what areas do you track medication errors?  
Base: Total sample (4)



# MEs AND AEs DATA MONITORING IS MAINLY INVESTIGATED AND DISCUSSED AT REGULAR QUALITY MEETINGS

All hospitals do monitor MEs and AEs and 75% use them for root cause analysis

## MEDICATION ERROR AND ADVERSE EVENT DATA MONITORING

Investigated and discussed at regular quality meetings

100

Teaching initiatives and/or error prevention

75

Root cause analysis to resolve incidents

75

Performance managed with key performance indicators

25

10. How is the medication error and adverse event data monitoring used in your hospital?  
Base: Total sample (4)

- Figures expressed as a % -  
Multiple answers can be given



# THERE IS A WIDE VARIATION OF MEs REGISTERED PER YEAR WITH 25% OF HOSPITALS 100-250 AND 50% >500

25% of hospitals do not know the number of MEs

ESTIMATED NUMBER OF MEDICATION ERRORS PER YEAR

- Figures expressed as a % -



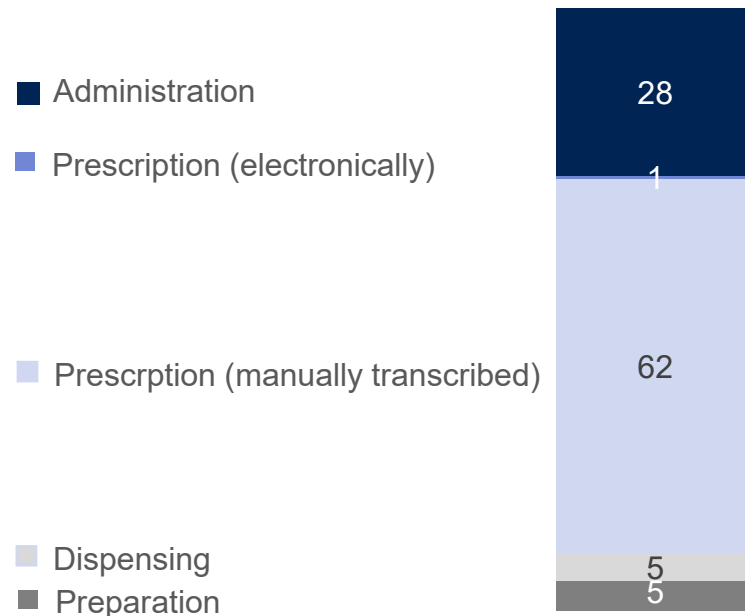
11. What is the estimated total number of medication errors per year registered and analysed in your hospital?  
Base: Total sample (4)

# MEs MAINLY OCCUR AT MANUAL PRESCRIPTION STAGE

Electronic prescriptions show the lowest frequency of MEs

- Figures expressed as a % -

## FREQUENCY OF EACH MEDICATION ERROR



12. What is the estimated frequency as a percent of medication errors, within the medication process phases listed below?

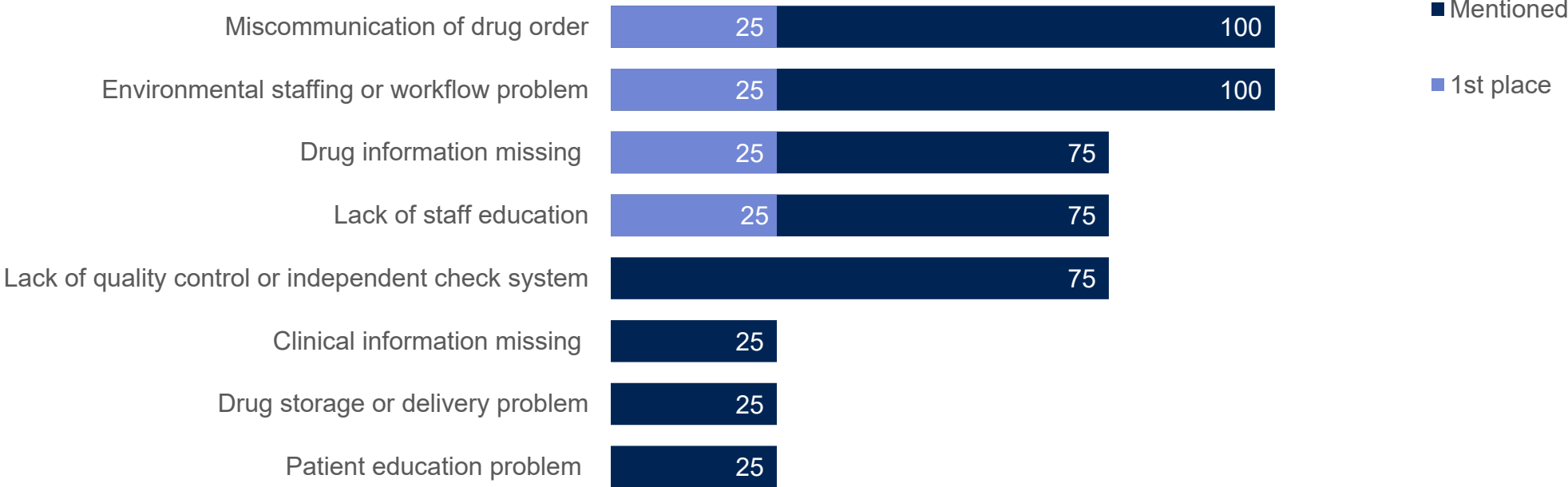
Base: Total sample (4)

# MISCOMMUNICATION OF DRUG ORDER AND ENVIRONMENTAL, STAFFING OR WORKFLOW PROBLEMS ARE THE MAIN CAUSES OF MEs

With many other causes being stated

- Figures expressed as a % - Multiple answers can be given

## MAIN CAUSE OF MEDICATION ERRORS (RANKING)



13. What are the main causes of medication errors in your hospital? Please rank the 5 most important drivers of the 11 listed here. Base: Total sample (4)



# OPEN DISCUSSIONS ARE THE BEST SOLUTION TO ENSURE CONTINUAL IMPROVEMENT

## ACTIONS USED TO DRIVE IMPROVED MEDICATION SAFETY PERFORMANCE

- Figures expressed as a % -  
Multiple answers can be given

Discuss medication errors and near misses in an open way to ensure continual improvement



Targets set and medication errors measured and monitored



Inspection against hospital accreditation standards



Self declaration of policies and standards in place



Other



14. Which actions, if any, are used to drive improved medication safety performance in your hospital?  
Base: Total sample (4)



# MOST HOSPITALS HAVE A TRAINED HCP TO DETECT MEs

## Being all Hospital Pharmacists

- Figures expressed as a % -  
Multiple answers can be given

**75%**

of hospitals have trained healthcare professionals dedicated to **detect medication errors** and **enhance patient safety**

that are...

**100%**

**Hospital Pharmacists**

15. Is there a trained health care professional specifically dedicated to detect medication errors and enhance patient safety in your hospital? Base: Total sample (4)  
15a. Which healthcare professionals have been trained? Base: Medication errors available to the public (3)

# INFORMATION SYSTEMS

# 3

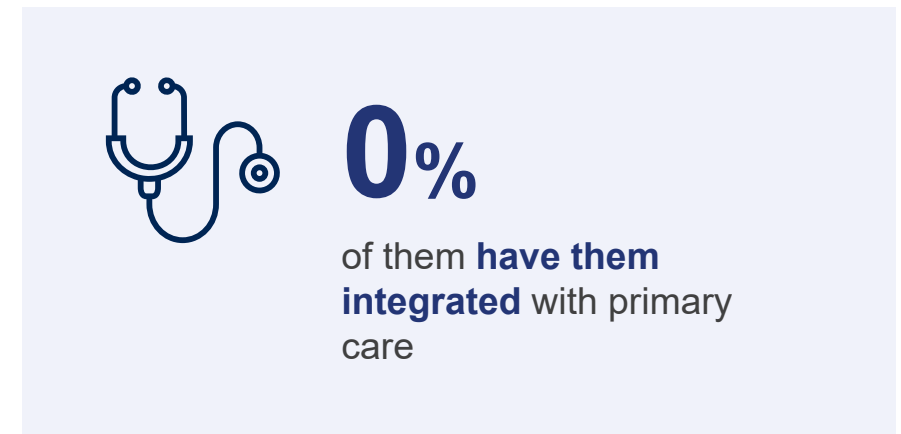
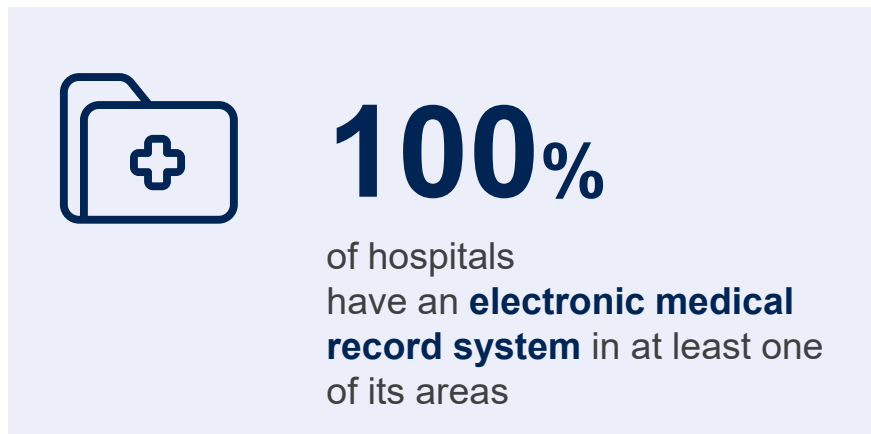
# ELECTRONIC MEDICAL RECORD

## 3.1

# ALL HOSPITALS HAVE AN ELECTRONIC MEDICAL RECORD SYSTEM

However, it is not integrated with primary care

- Figures expressed as a % -



16. Does your hospital have an electronic medical record system for all areas: Base: Total sample (4)

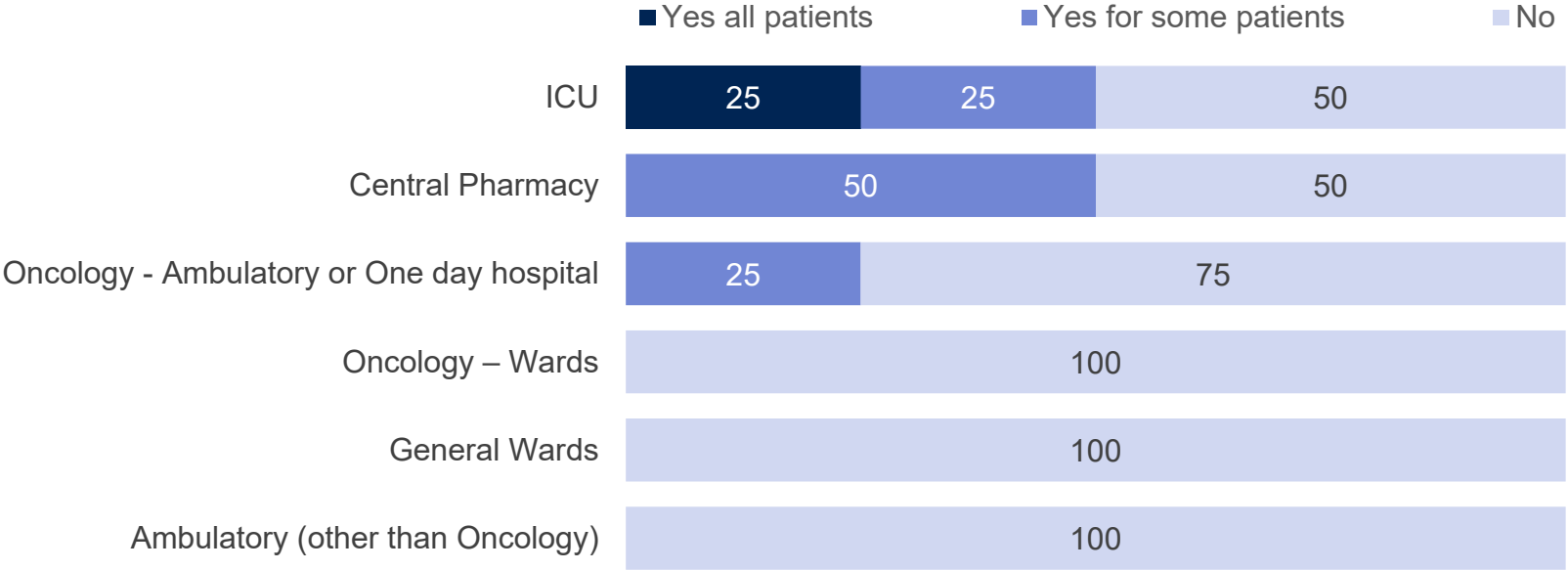
17. Is the electronic medical record integrated with primary care? Base: Hospital has electronic medical system (4)

# ELECTRONIC MEDICAL RECORD SYSTEMS ARE NOT AVAILABLE FOR MANY PATIENTS

EMR are not available in Oncology Wards, General Ward and Ambulatory other than Oncology

- Figures expressed as a % -

## ELECTRONIC MEDICAL RECORD SYSTEM AVAILABILITY



16. Does your hospital have an electronic medical record system for all areas:  
Base: Total sample (4)




# **ELECTRONIC PRESCRIBING SYSTEM**

# **3.2**

# HALF OF HOSPITALS HAVE AN ELECTRONIC PRESCRIBING SYSTEM AVAILABLE

And 50% of hospitals have it integrated with a clinical decision support system

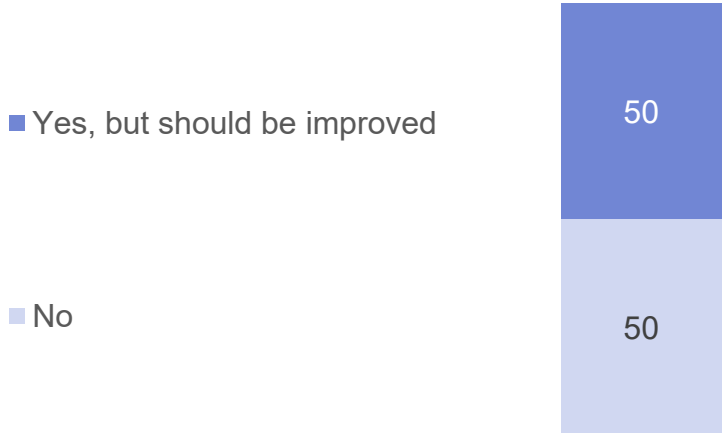
- Figures expressed as a % -



**50%**  
of hospitals have an **electronic prescribing system** in at least one of its areas



## ELECTRONIC PRESCRIBING INTEGRATION WITH A CLINICAL DECISION SUPPORT SYSTEM



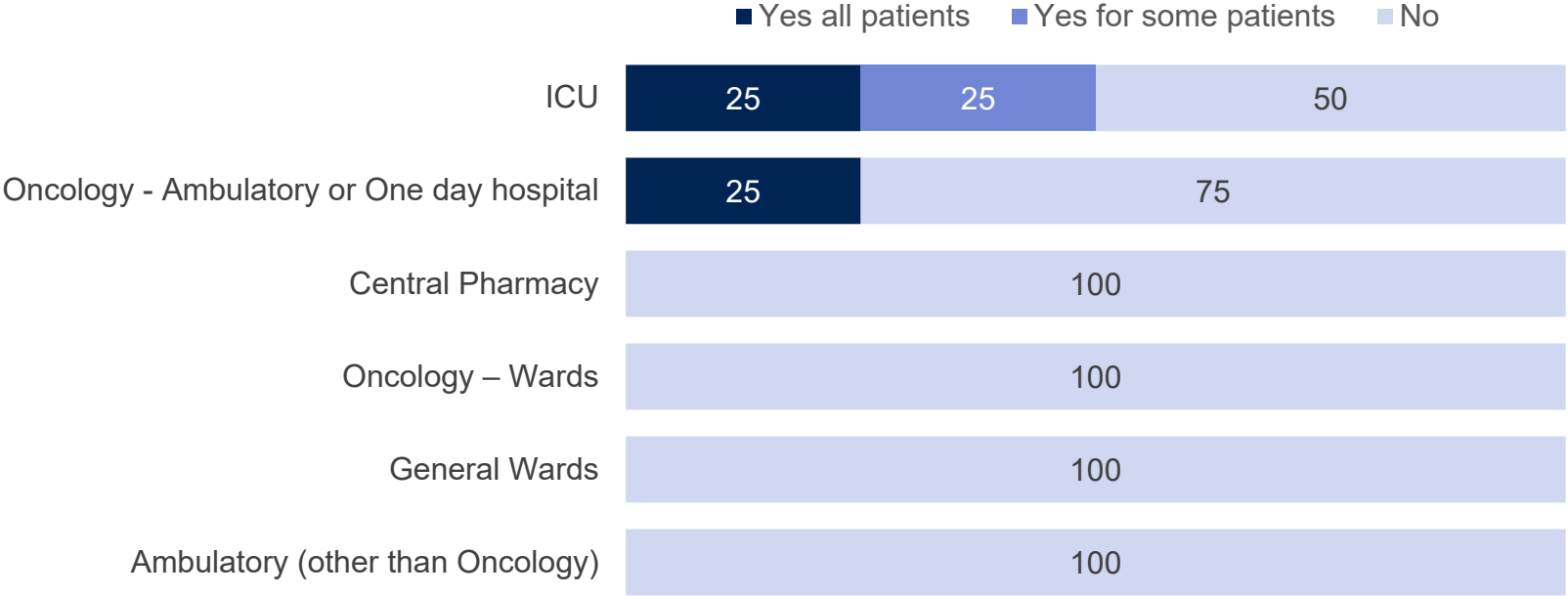
18. Does your hospital have an electronic prescribing system for the following areas? Base: Total sample (4)

19a. Is your electronic prescribing system integrated with a clinical decision support system? Base: Hospital has electronic medical system (2)

# MOST HOSPITAL AREAS THOUGH DO NOT HAVE ELECTRONIC PRESCRIBING SYSTEMS

- Figures expressed as a % -

## ELECTRONIC PRESCRIBING SYSTEM AVAILABILITY



18. Does your hospital have an electronic prescribing system for the following areas?

Base: Total sample (4)



# HOSPITALS DO NOT HAVE **ELECTRONIC PRESCRIBING SYSTEMS**

**0%**

Of the hospitals have  
**electronic prescriptions**

*19b. Are your electronic prescriptions validated by a pharmacist before dispensing and administration? Base: Hospital has electronic medical system (2)*

*20. Is the electronic prescribing system integrated with:*

*Base: Hospital has electronic medical system (2)*

# ELECTRONIC DRUG DISPENSING SYSTEM

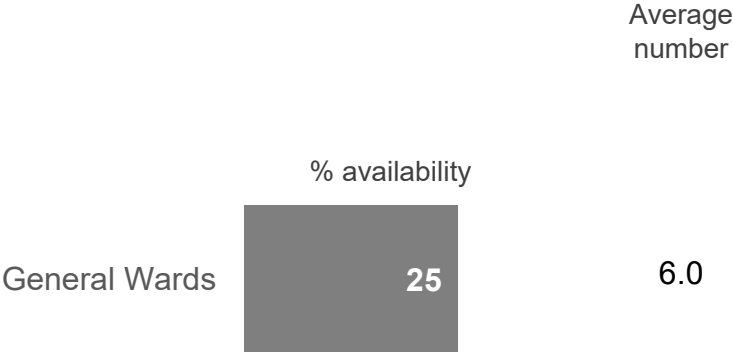
## 3.3

# 1 IN 4 HOSPITALS HAVE AUTOMATED DRUG CABINETS AVAILABLE IN GENERAL WARDS

Bar coding to verify drug selection is only partially available for 50% of hospitals

- Figures expressed as a % -

## AUTOMATED DRUG CABINETS



21. Are automated drug cabinets available? Base: total sample / 21a. How many automated drug cabinets are available? Base: automated drug cabinets available

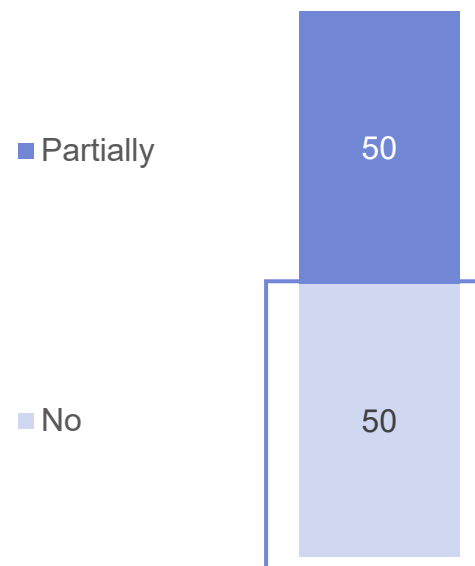


# BAR CODING TO VERIFY DRUG SELECTION PRIOR TO DISPENSING OR REFILLING AUTOMATED CABINETS IS LOW

Bar coding to verify drug selection is only partially available for 50% of hospitals

- Figures expressed as a % -

**BAR CODING TO VERIFY DRUG SELECTION  
PRIOR TO DISPENSING ON AUTOMATED DRUG CABINETS**



21. Are automated drug cabinets available? Base: total sample / 21a. How many automated drug cabinets are available? Base: automated drug cabinets available

22. Is bar coding used to verify drug selection prior to dispensing drugs and / or to refill the automated dispensing cabinets? Base: Total sample (4)

# ELECTRONIC DRUG COMPOUNDING SYSTEM

## 3.4

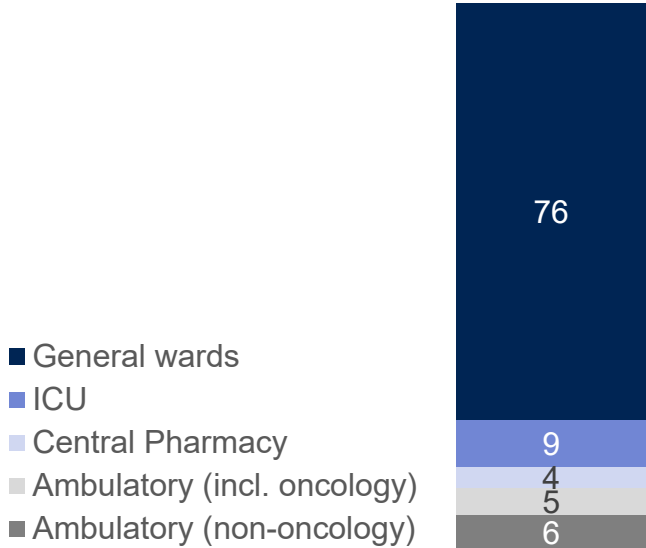
# CENTRAL PHARMACY ONLY PREPARES 4% OF THE INFUSION MEDICATIONS

Electronic preparation systems are only partially available in Central Pharmacy

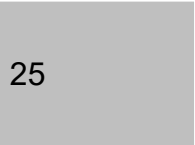
- Figures expressed as a % -

INFUSION MEDICATIONS PREPARATION (MEAN)

ELECTRONIC PREPARATION/COMPOUNDING SYSTEM AVAILABILITY



Central Pharmacy



23. What is the percentage of infusion medications prepared by? / 24. For the medications prepared in the following areas, is there an electronic preparation/compounding software-based system?

Base: Total sample (4)



# HOSPITALS DO NOT IMPLEMENT NURSING STANDARD OPERATING PROCEDURES



**0%**

of hospitals have **pharmacists involved with implementing nursing standard operating procedures for aseptic or injectable preparation on the wards**

*25. Are pharmacists involved with implementing nursing standard operating procedures on aseptic or injectable preparation on the wards to ensure governance of this “out of pharmacy” activity and thus minimize risk? Base: Total sample (4)*



# ELECTRONIC MEDICATION ADMINISTRATION SYSTEM

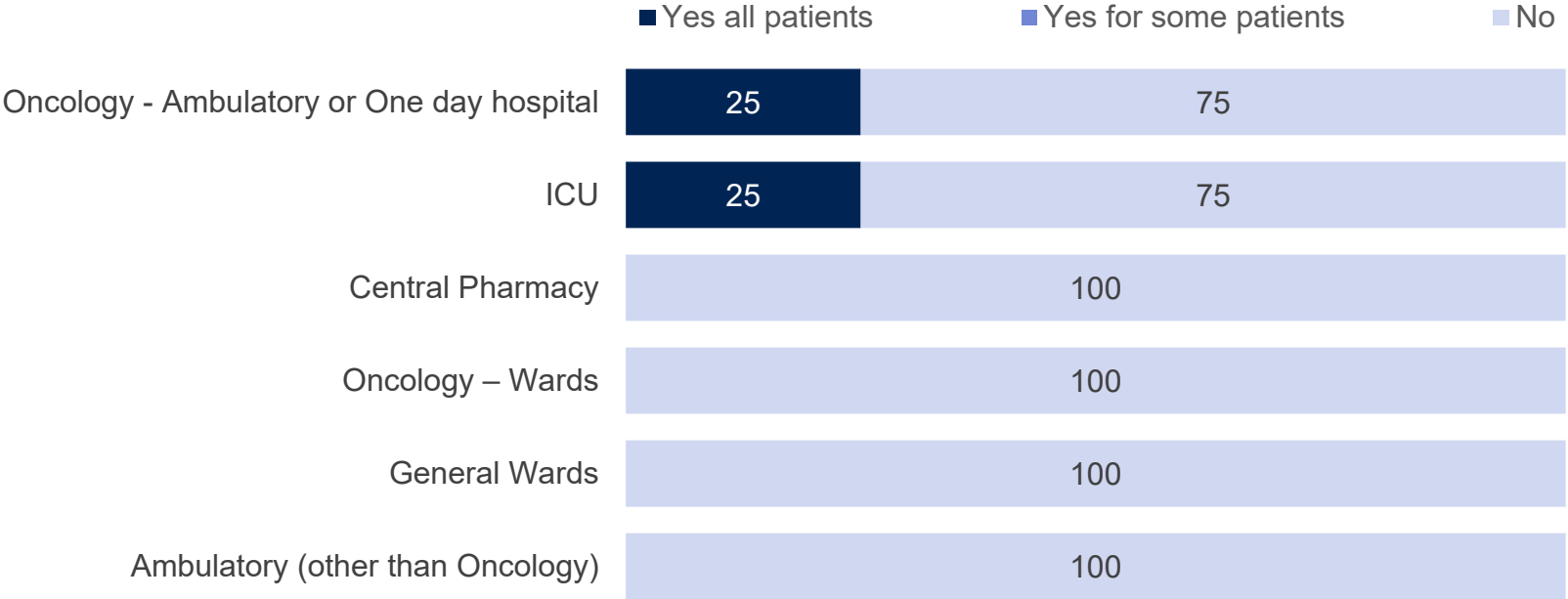
# 3.5

# MOST HOSPITALS DO NOT HAVE AN ELECTRONIC SYSTEM FOR MONITORING ADMINISTRATION

The electronic system is partially available in Oncology- Ambulatory or One day hospital and ICU

- Figures expressed as a % -

## AVAILABILITY OF ELECTRONIC SYSTEM FOR MONITORING ADMINISTRATION



26. Is there an electronic system for monitoring administration in the following areas?

Base: Total sample (4)



# THOSE NOT USING AN ELECTRONIC CHECKING SYSTEM FOR ADMINISTRATION HAVE IN PLACE A DOUBLE NURSE CHECK

- Figures expressed as a % -

PRACTICE WHEN ELECTRONIC SYSTEM FOR MONITORING ADMINISTRATION IS NOT AVAILABLE



29. What is the current practice if you do not use an electronic checking system for administration?  
Base: Electronic system for monitoring in the area not available (4)

# UNIT DOSE MEDICATION SYSTEMS

# 4

# HOSPITALS DO NOT HAVE AUTOMATED UNIT DOSE MEDICATION SYSTEMS

## AVAILABILITY OF UNIT DOSE MEDICATION PROCESSES



**100%**

of hospitals do not have unit dose medication processes

*(\*) Recontacted Q32 (2)*

*32. Do you have unit dose medication processes in your hospital? Base: Total sample (4)*

*33. Who is mainly in charge of preparing the unit doses? Base: Unit dose medication processes available in their hospital (0)*

*34. Are you planning to have a unit dose medication in the future in your hospital and or region? Base: Unit dose medication processes not available in their hospital (4)*

# PHARMACY INVENTORY SYSTEMS

# 5

# MANUAL SHELVES AND COUNTS IN PHARMACY, PHARMACY INFORMATION SYSTEM AND MANUAL COUNTS ON THE WARDS ARE MOSTLY USED TO MANAGE PHARMACY INVENTORY

## SYSTEMS USED TO MANAGE PHARMACY INVENTORY

- Figures expressed as a % -  
Multiple answers can be given

Manual shelves and counts in pharmacy



Pharmacy Information System



Manual counts on the wards



Ward automated dispensing cabinets



35. What systems are used to manage pharmacy inventory?  
Base: Total sample (4)

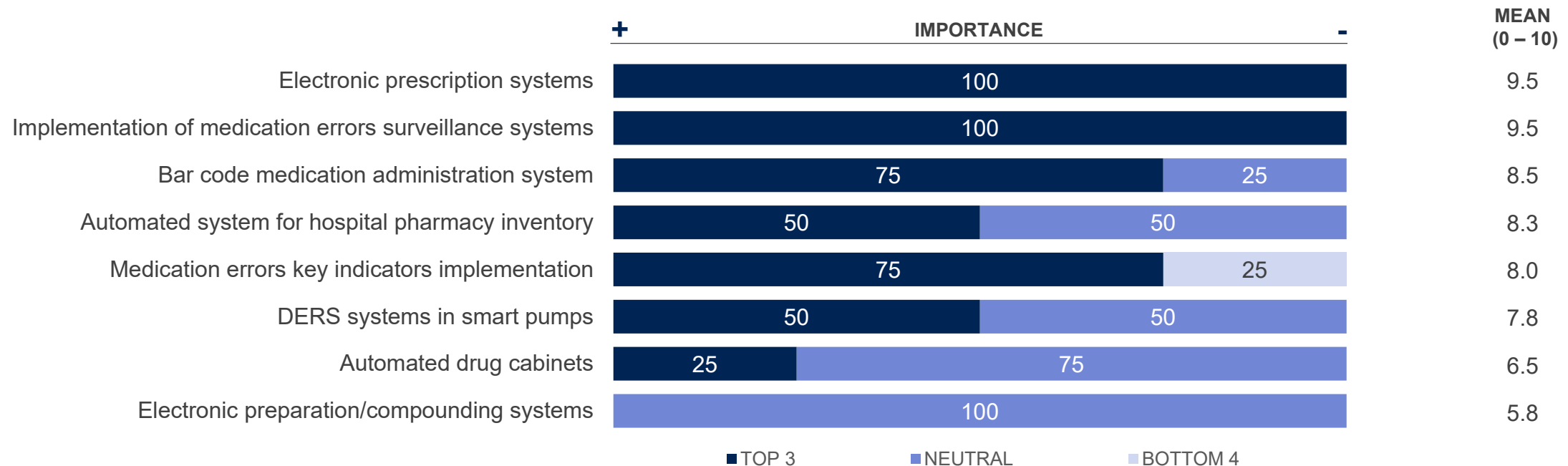
**FUTURE**

**6**

# FUTURE PLANS INCLUDE MANY AREAS THAT REQUIRE IMPROVEMENT TO REDUCE MEDICATION ERRORS

- Figures expressed as a % -

## FUTURE PLANS



36. In your opinion, to what extent do you think it is important to improve these areas in order to reduce medication errors in your hospital?

Base: Total sample (4)

# ALL PHARMACISTS BELIEVE THERE ARE IMPORTANT AREAS TO IMPROVE IN ORDER TO REDUCE MEs



**100%**

Of pharmacists believe there are important **areas to improve** in order to **reduce medication errors** in their hospital



Medication reconciliation by pharmacists at admission and discharge; Direct Oral Anti-coagulant prescribing; Pharmacist review of MPARs on a regular basis

- Transcription processes
- Med rec on admission
- Electronic prescriptions

Statements from Hospital Chief Pharmacists from Ireland

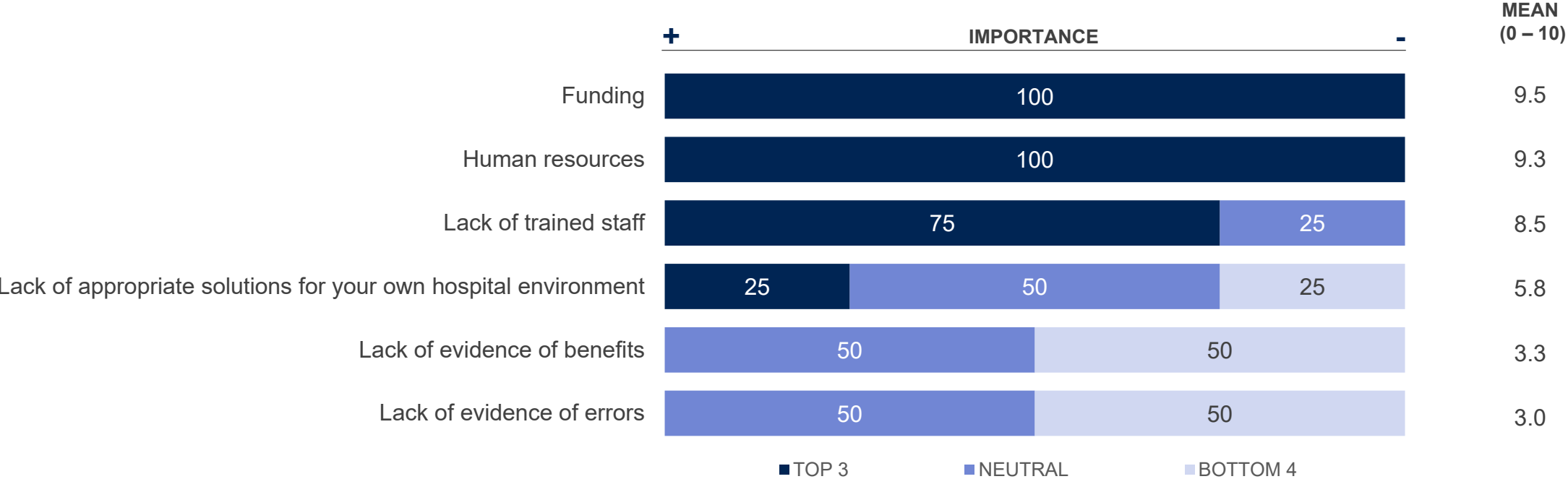
36a. Are there any important areas to improve in order to reduce medication errors in your hospital? Base: Total sample (4)

36b. More specifically, to what extent do you think it is important to improve these areas in order to reduce medication errors in your hospital? Base: There are important areas to improve in order to reduce medication errors (4)

# FUNDING, HUMAN RESOURCES AND LACK OF TRAINED STAFF ARE THE MAIN BARRIERS FOR IMPLEMENTING THESE IMPROVEMENTS

- Figures expressed as a % -

## OBSTACLES TO IMPLEMENT TECHNOLOGIES TO ENHANCE MEDICATION MANAGEMENT



37. On a scale from 0 to 10, where 0 is “not at all important” and 10 is “extremely important”, what following criteria are obstacles to implementing technologies to enhance your medication management?

Base: Total sample (4)



# CONCLUSIONS

# 7

# EXECUTIVE SUMMARY - IRELAND

## MEDICATION ERRORS



**Most hospitals are not accredited but where they are MEs are included. All hospitals record MEs and use different systems but are not available to the public. There is a wide variation of MEs registered per year with 25% of hospitals 100-250 and 50% >500**

MEs are mainly tracked centrally. MEs and AEs data monitoring is mainly investigated and discussed at regular quality meetings with 75% using them for root cause analysis. MEs mainly occur at manual prescription stage. Miscommunication of drug order and environmental, staffing or workflow problems are the main cause of MEs. Open discussions are the best solution for continual improvement. 75% of hospitals have a trained HCP to detect MEs and enhance patient safety.

## INFORMATION SYSTEMS



**All hospitals have an electronic medical record (EMR) system although not available for many patients, and they are not integrated with primary care**

50% of hospitals have an electronic prescribing system available with 50% integrated with a clinical decision support system. However, most hospital areas do not have electronic prescribing systems. 1 in 4 centers have automated drug cabinets available in general wards. None of the hospitals implement nursing standard operating procedures for aseptic or injectable preparation on the wards. Central pharmacy only prepares 4% of the infusion medications.

## TECHNOLOGY



**Most hospitals do not have an electronic system for monitoring administration. Bar coding to verify drug selection prior to dispensing or refilling automated cabinets is low.**

Those not using an electronic checking system for administration have in place a double nurse check. No availability of near-miss infusion medication errors tracked via DERS. No automated unit dose medication processes. Manual shelves and counts in pharmacy, pharmacy information system and manual counts on the wards are mostly used to manage pharmacy inventory.

## FUTURE



**Electronic prescription, ME surveillance bar code medication administration systems are the most important areas to reduce MEs.**

All pharmacists believe there are important areas to improve in order to reduce MEs (e.g. Medication reconciliation by pharmacists at admission and discharge; Direct oral Anti-coagulant prescribing; pharmacist review of MPARs on a regular basis, transcription processes, med rec on admission, electronic prescriptions). Funding, human resources and lack of trained staff are the main barriers for implementing these improvements

**BE  
SURE.  
GO  
FURTHER.**

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