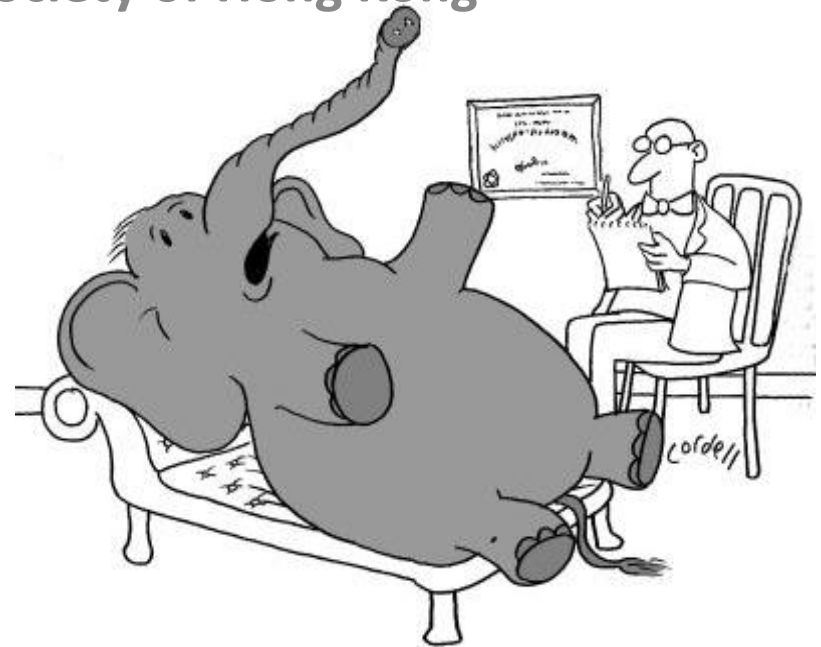
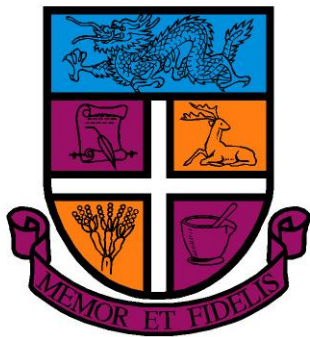


# The Elephant in our Old Age Homes – why should we, pharmacists, care

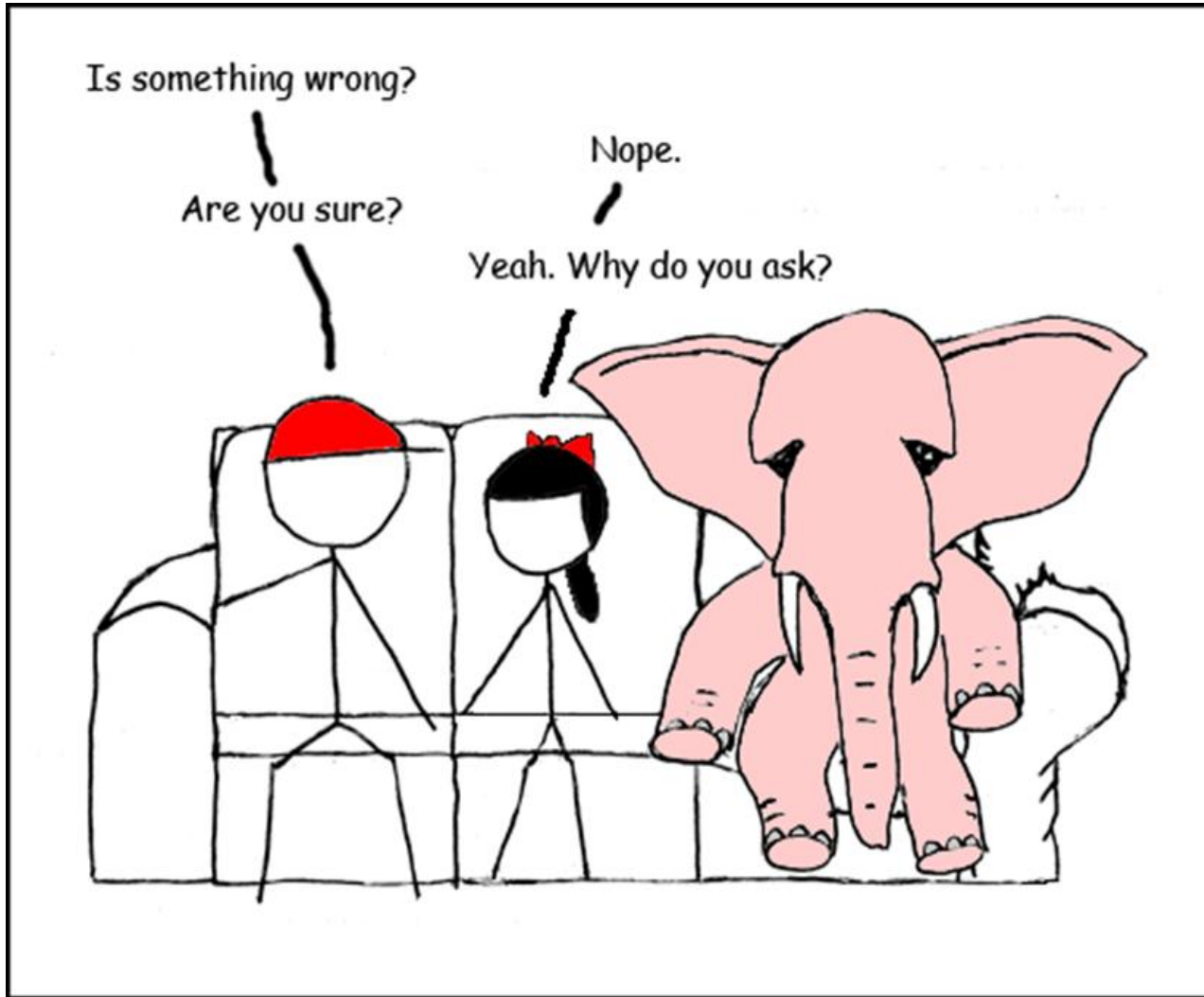
Mary Cheng

President, The Pharmaceutical Society of Hong Kong



"Whenever I walk in a room, everyone ignores me."

# Elephant in the room



"Elephant in the room" is an English metaphorical idiom for an obvious truth that is either being ignored or unaddressed. The expression also applies to an obvious problem or risk no one wants to discuss.

# Overview

- Aims and Objectives
- Introduction
- Abbreviations
- Systematic literature review
- Qualitative in-depth interviews with service providers
- Qualitative semi-structured interviews with non-service users
- Overall discussion
- Recommendations for future research
- Take home messages
- Acknowledgements
- References

# Aims and Objectives

- To identify types of pharmaceutical services provided to the elderly

**Systematic literature review**

- To identify natures of services

**Qualitative in-depth interviews with service providers**



**Overall discussion**



**Qualitative semi-structured interview with non-users**

- Discussion of services

- To explore the reasons of not subscribing to pharmaceutical services among non-users

# Introduction

- ❖ Ageing population in Hong Kong
  - ❖ Longest life expectancy: 82.1
  - ❖ Elderly dependency ratio: estimate to rise from 171/1000 in 2009 to 454/1,000 in 2039
- ❖ Polypharmacy among the elderly
  - ❖ ~40% elderly take >5 prescribed medications
  - ❖ Increased risk of experiencing adverse drug events, multiple drug interactions, non-compliance & increased drug budgets

## Five-year review report of accreditation scheme for OAHs from 2005-2010

<b>Common problems reported</b>	<b><u>Percentage of recommendations</u> among the 69 recommendations in 56 OAHs (%)</b>
<b>Drug administration procedures</b>	46.4
Drug storage procedures	26.1
Drug disposal	7.2
Special event reporting and following-up procedures	7.2
Staff education and training on drug management	4.3
Residents' self-purchased medicines and residents' discharge medication management	8.8

# Introduction

## ❖ Pharmaceutical services

### Background

- Pharmacists **have started** offering pharmaceutical services to the elderly

### Research Questions

- 1. What types of services available?
- 2. What are the strength and weakness of the services?

### Research study

- The Pharmaceutical Society of Hong Kong commissioned the University of Hong Kong to conduct this project

# Abbreviations Used

- HA: Hospital Authority
- HCA: Healthcare Assistant
- ID: Identification
- IT: Information Technology
- MAR: Medication Administration Record
- MDS: Monitored Dosage System
- OAH: Old Aged Home
- PPIs: Proton Pump Inhibitors
- VPS: Visiting Pharmacist Service



# **Part 1: Systematic literature review**

To identify types of pharmaceutical services provided to elderly in HK

# Method

The following databases were searched:

❖ Embase	1946 – July 2012
❖ Pubmed	1946 – July 2012
❖ Google Scholar	1946 – July 2012
❖ International Pharmaceutical Abstract	1946 – July 2012
❖ Hong Kong Journals Online <sup>^</sup>	1946 – July 2012

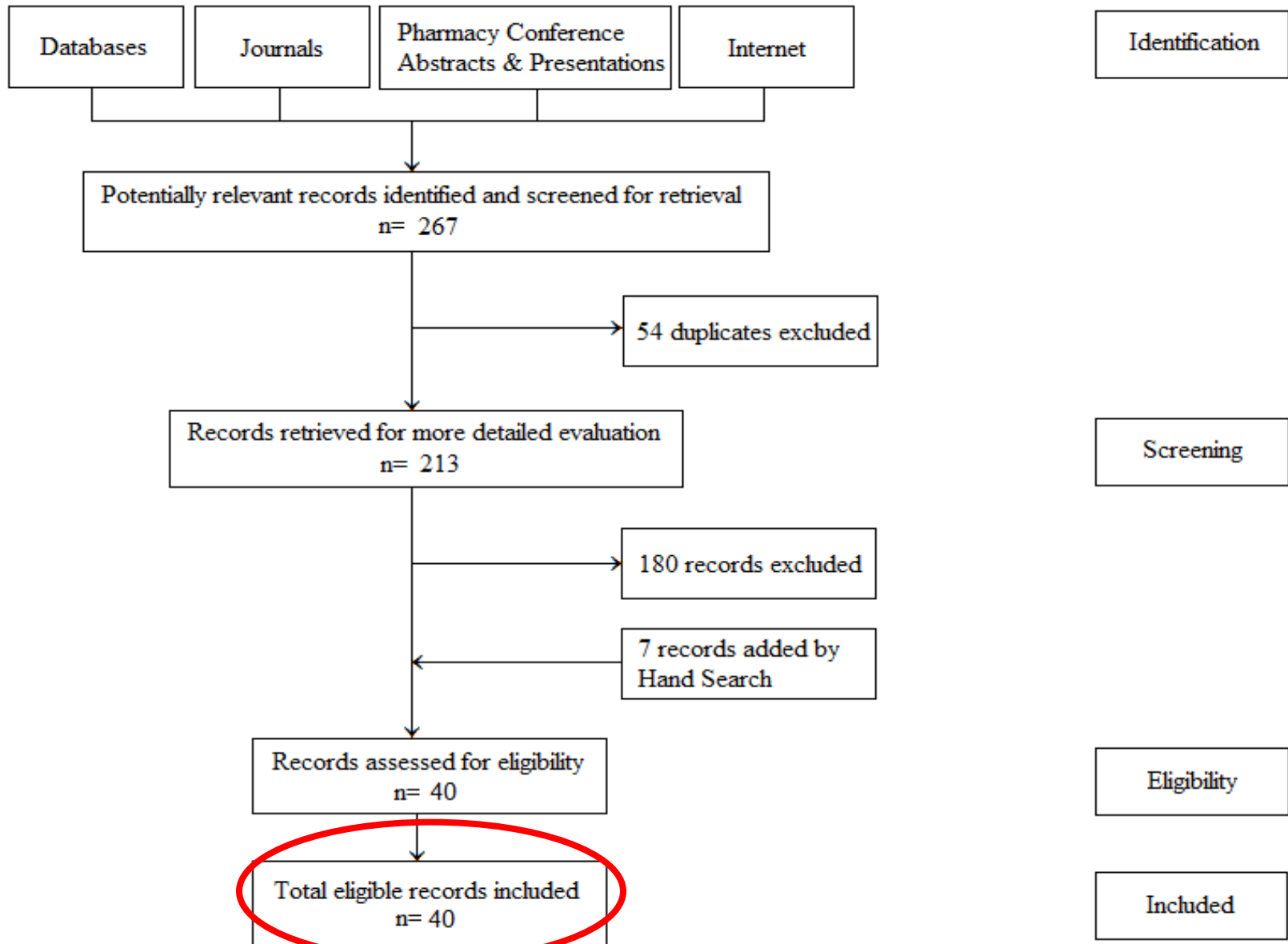
<sup>^</sup> - *accessed via University of Hong Kong Library*  
[\(<http://sunzi.lib.hku.hk/hkjo/browse.jsp>\)](http://sunzi.lib.hku.hk/hkjo/browse.jsp)

❖ Keywords:

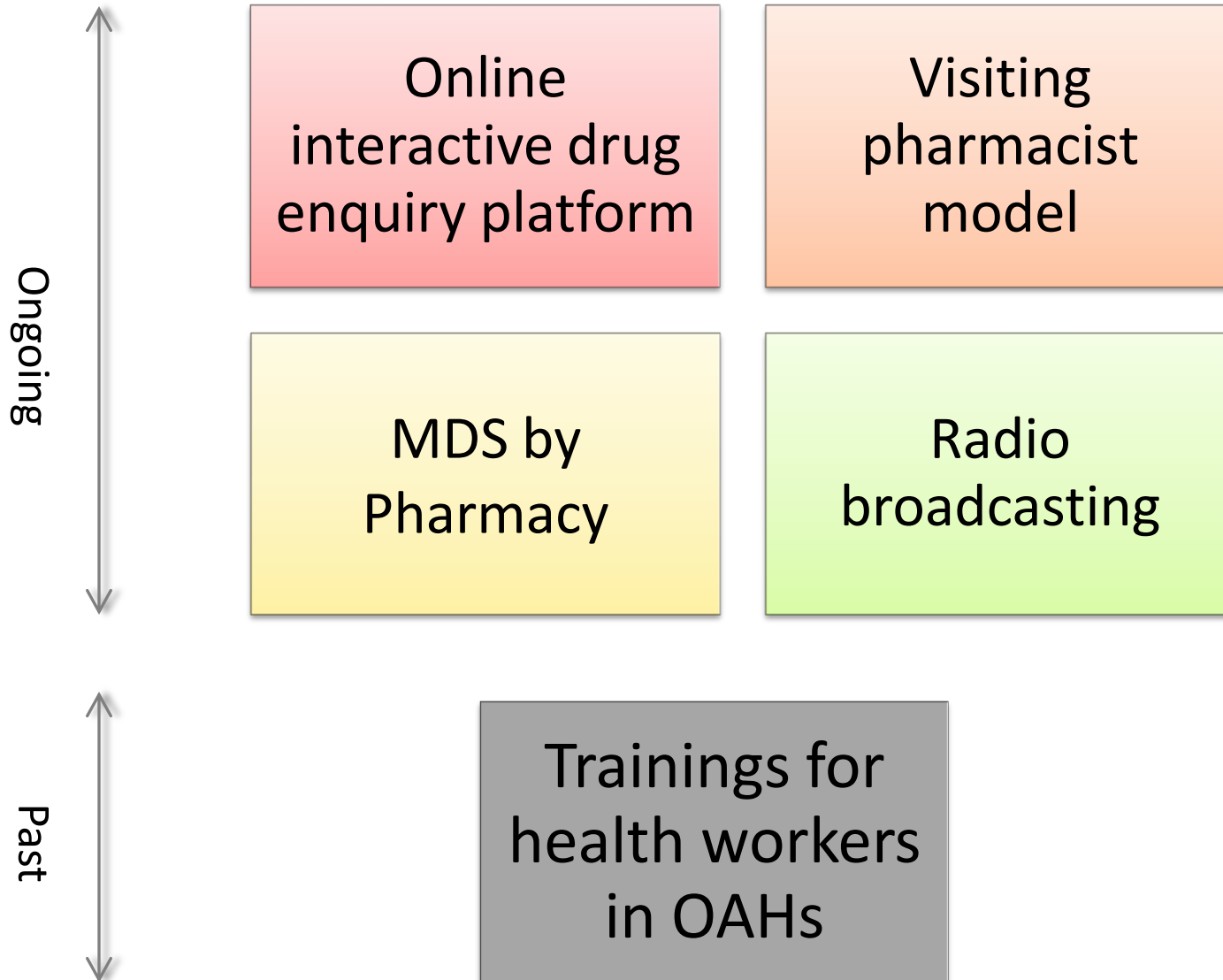
- ❖ (“*nursing home*” OR “*aged*” OR “*long term care*”) AND (“*Hong Kong*”) AND (“*pharm\**” OR “*medication review*” OR “*medical error*” OR “*pharmaceutical services*” OR “*pharmacist intervention*” OR “*polypharmacy*”)
- ❖ (「老人院」 OR 「安老院」 OR 「長者」) AND (「香港」) AND (「藥劑師」 OR 「藥物」 OR 「服務」) AND (「錯」 OR 「誤」)

# Result

## PRISMA flowchart of the process of study search and selection



# Result

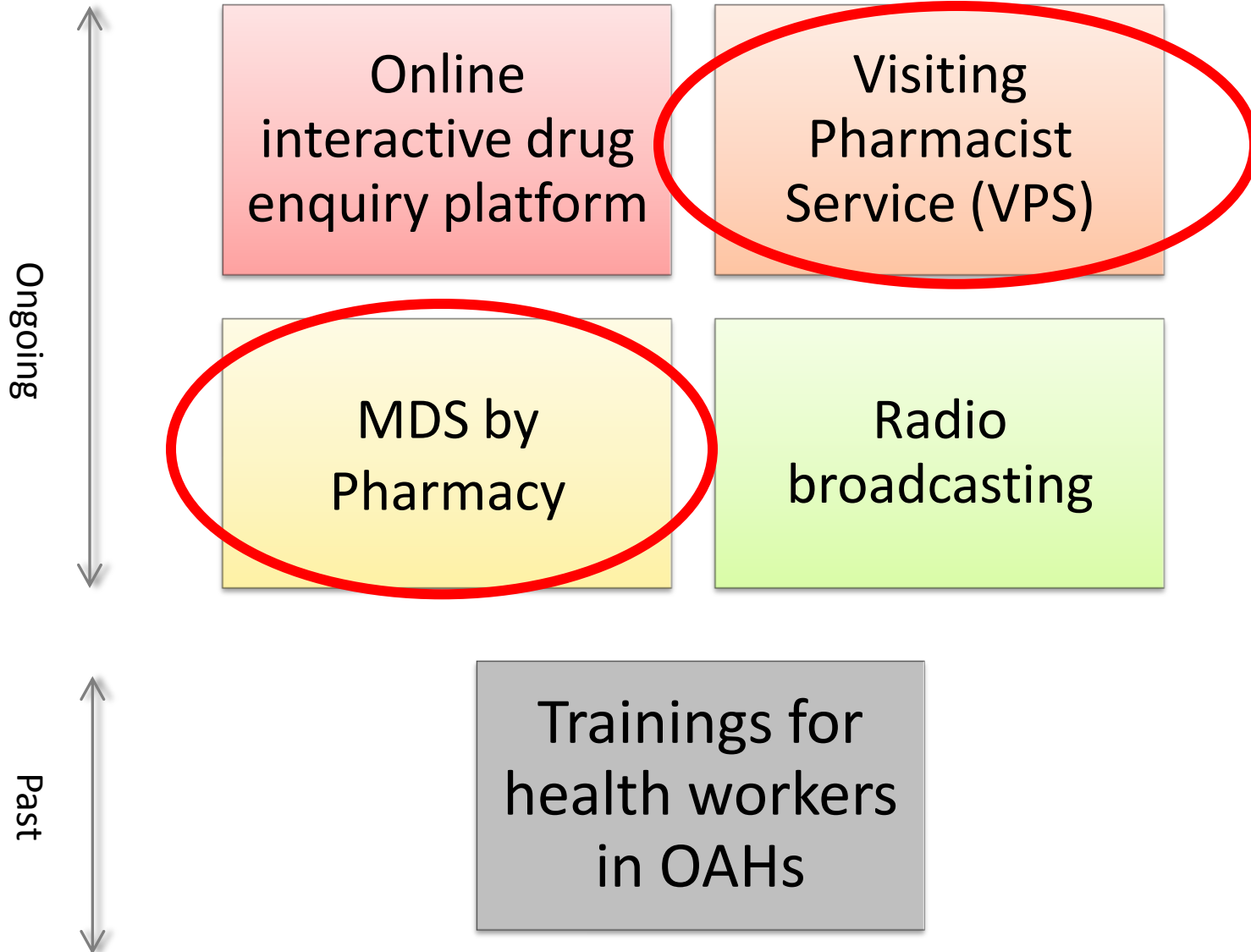


# **Part 2: Qualitative In-depth Interviews Of Elderly Service Providers**

To identify natures of services

# Method

## Subjects recruitment



# Method

## Subjects recruitment

By snowballing technique, we also identified:

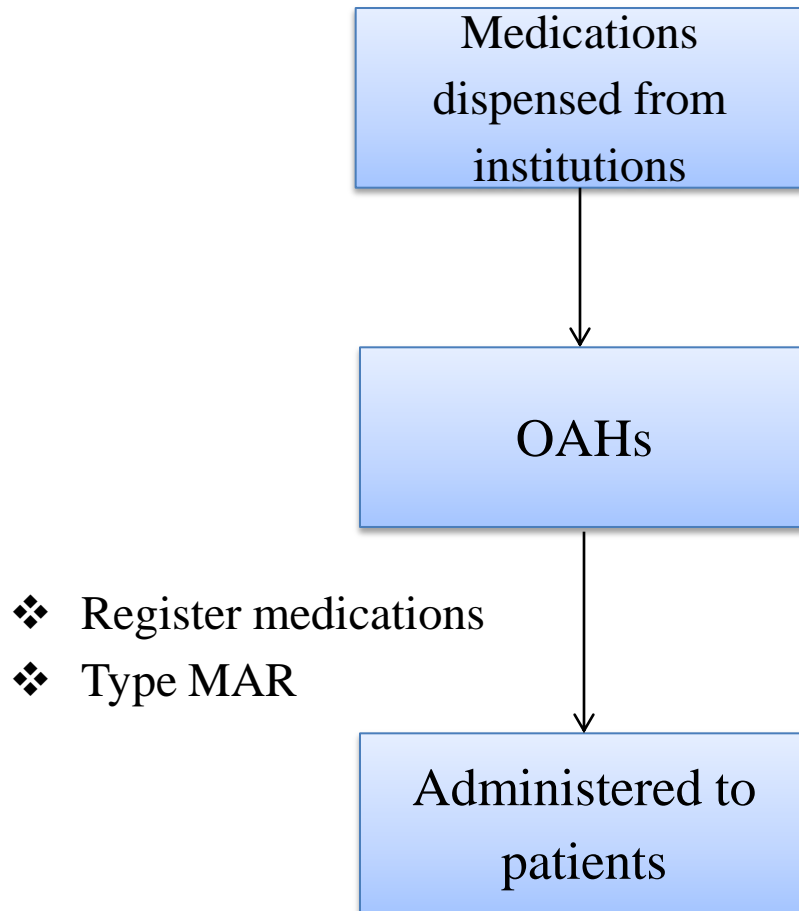
- In-house Pharmacist
- MDS for OAH staff

# Result

- Interviewed 3 service providers :
  1. MDS by Pharmacy
  2. In-house Pharmacist in OAH
  3. MDS operated by OAH Staff
- The service providing opinion leader for VPS refused to be interviewed

# Drug Delivery Model

❖ OAHs without pharmaceutical services:

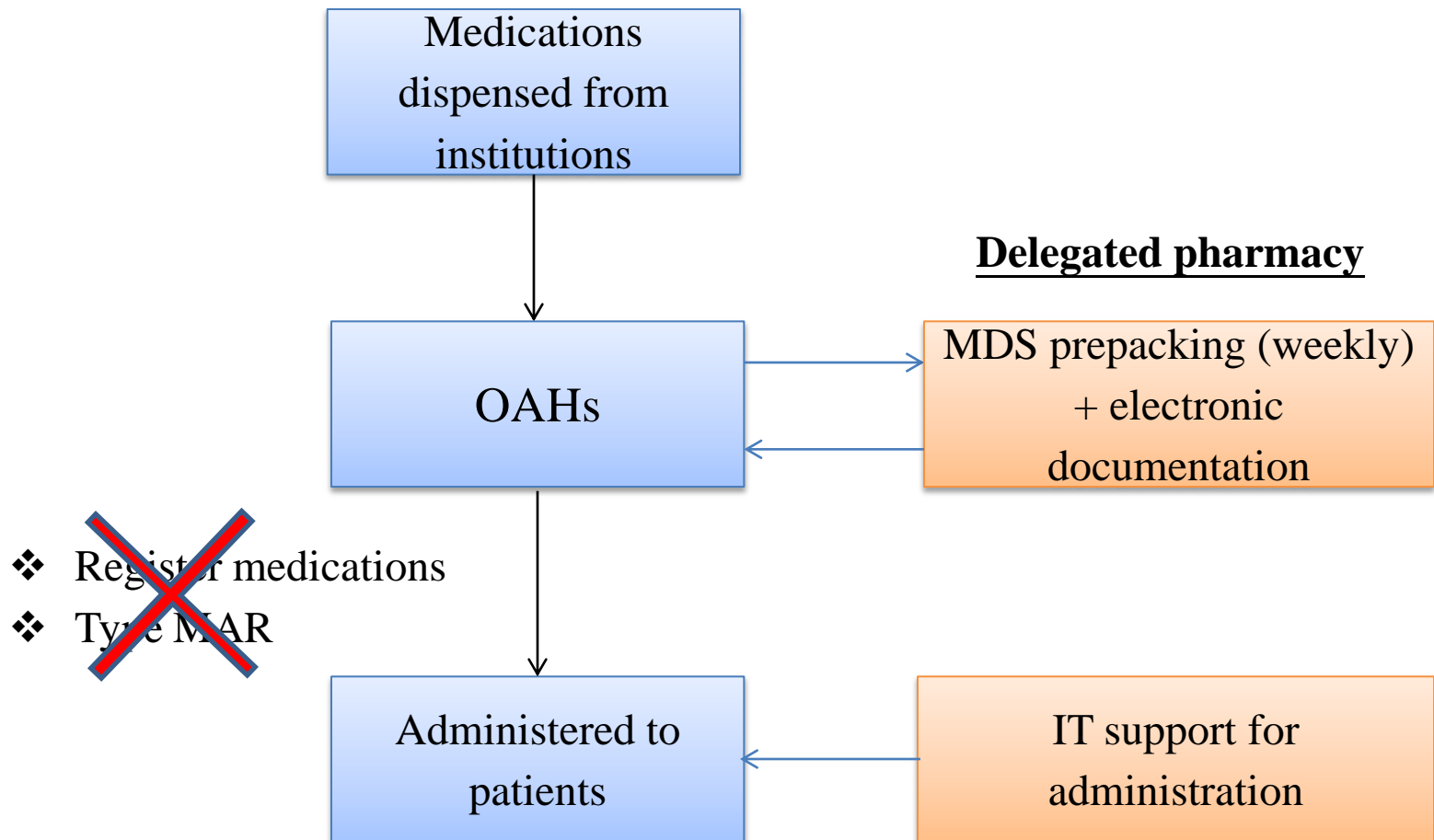




# Drug Delivery Model

## Service providers interviewees

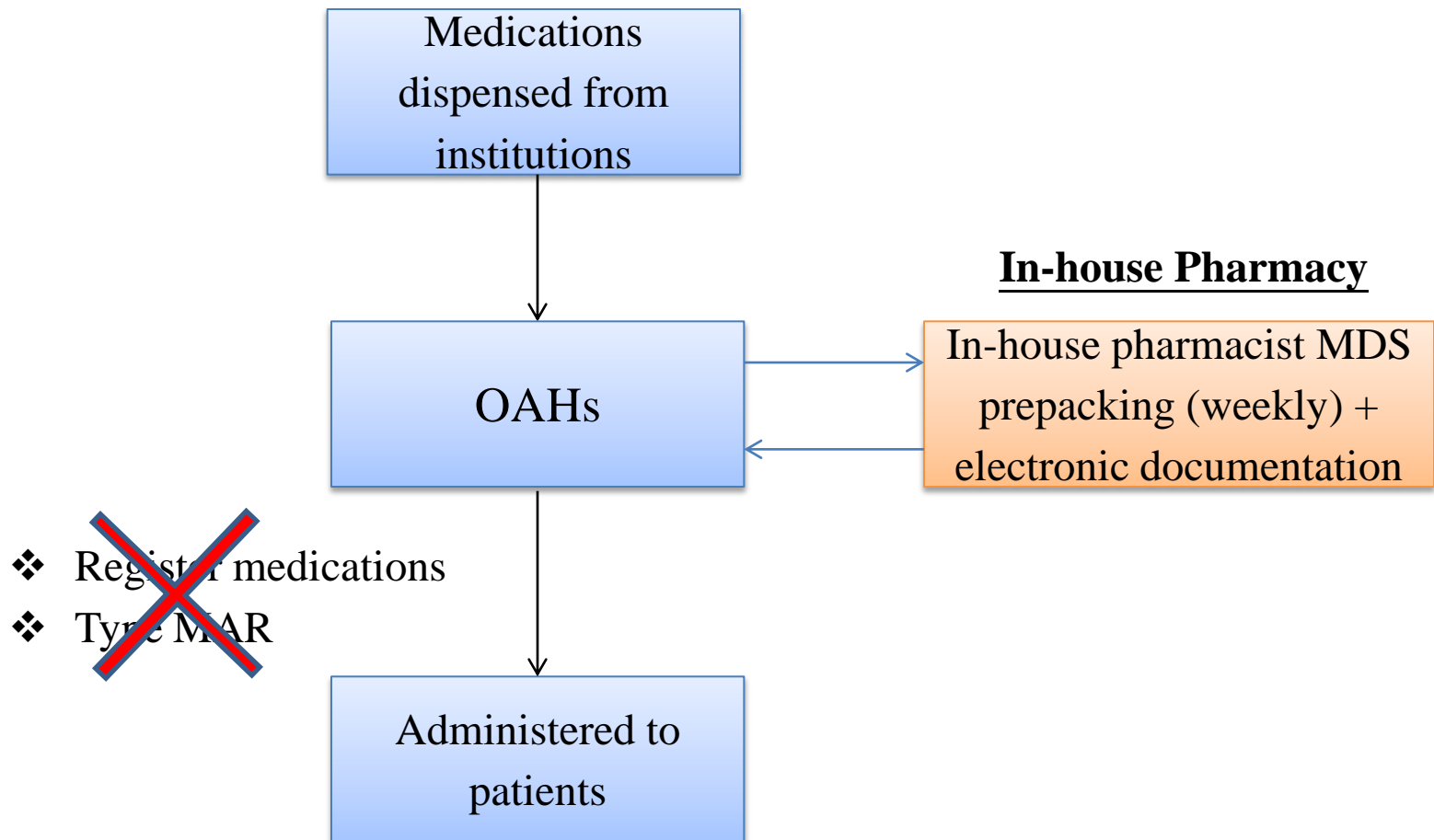
### ❖ MDS by Pharmacy



# Drug Delivery Model

## Service providers interviewees

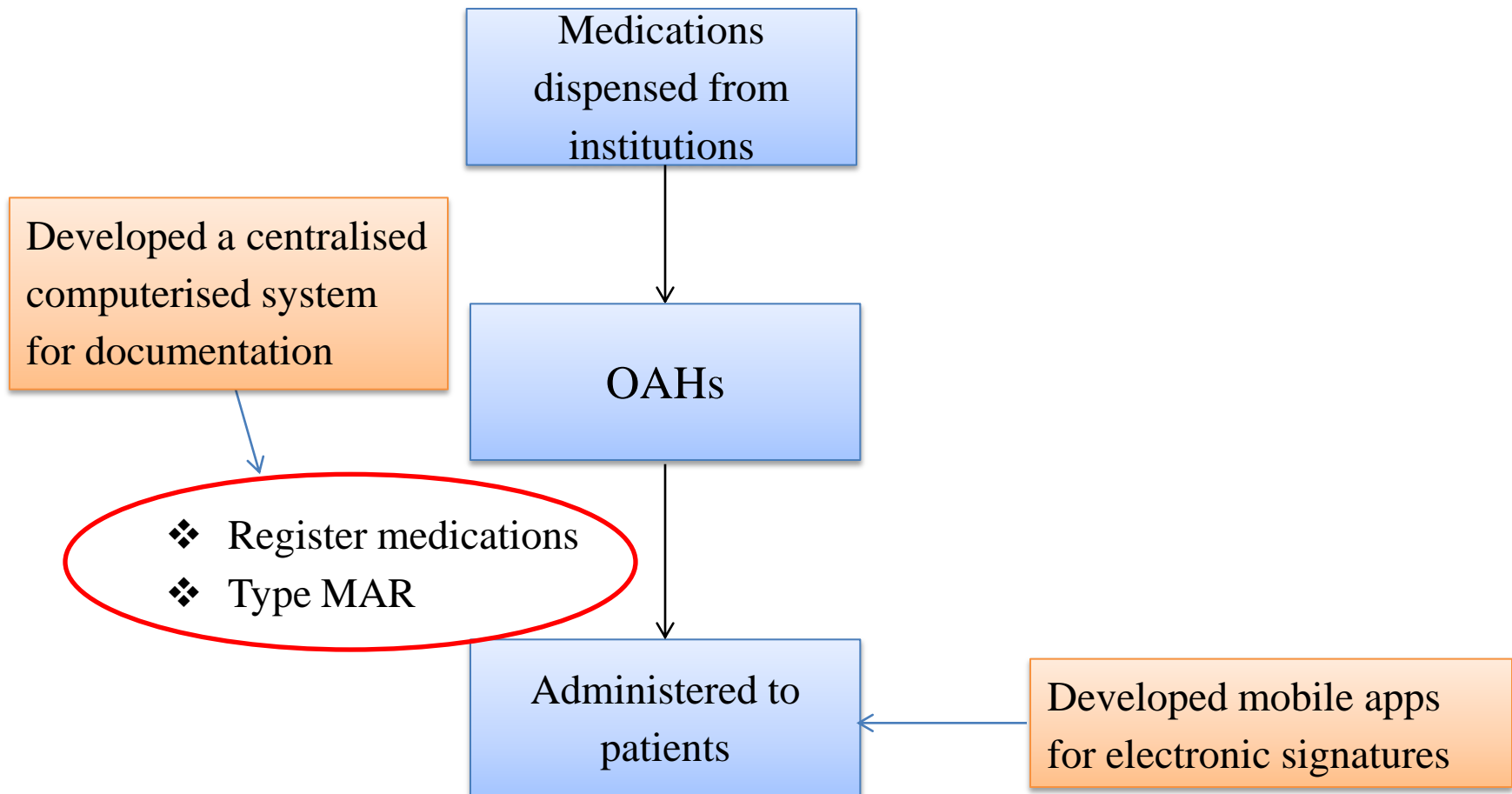
### ❖ In-house Pharmacist



# Drug Delivery Model

## Service providers interviewees

❖ MDS to be used by OAH Staff



# **Part 3: Qualitative semi-structured interviews of non-users**

To explore the reasons of not subscribing pharmaceutical services among non-users

# Method

## – Questionnaire used

### 電話訪談指引(非用戶)

1. 你們院舍有沒有設立機制以減低院內藥物事故的機會？(如訪問者不清楚問題：每一間院舍都應該有一本社署的手冊，內容應該有提及一些措施用來減低院內藥物事故的機會，請問你們有沒有基於這本手冊再作其他措施是關於長者藥物的管理？)

(a) 如有，可不可以具體形容一下機制的運作流程呢？(請跳到第二題)

(b) 如否，那麼你們現在是怎樣處理長者的藥物呢？

(c) 那麼其實是什麼原因令你們當時決定不設立措施／機制呢？

2. 你們院舍有沒有曾經聽過現時有藥劑師會為院舍提供不同的藥物服務嗎？

(a) 如曾聽過，那麼其實是什麼原因你們現在沒有使用藥劑師的藥物服務呢？

(b) (如上題原因是關於金錢) 你認為院舍願意付最多幾多錢去買這些藥物服務？

# Method

- ❖ Qualitative semi-structured **telephone interview questions:**
  - ❖ Have you heard of various pharmacist-led pharmaceutical services currently available for old aged homes?
  - ❖ 你們院舍有沒有曾經聽過現時有藥劑師會為院舍提供不同的藥物服務嗎？
  - ❖ If yes, what is/ are the reason(s) of not using those pharmacist-led pharmaceutical services?
  - ❖ 如曾聽過，那是什麼原因你們現在沒有使用藥劑師的藥物服務呢？
- ❖ Telephone interviews stop when data saturation achieved

# Result

- ❖ Interviewed 9 staff members from the OAHs not using the pharmaceutical services
- ❖ Reasons for not subscribing the pharmaceutical services

No perceived  
need

Financial  
concern

Doubted the  
usefulness of  
the services

Complicated  
communication  
cascade

Reluctant to  
change

Not heard of  
the services

# Discussion

The gap of understanding pharmacists' roles

- Most of the interviewees indicated that they **do not perceive the need** to have pharmacists' input
- Only see the dispensing role of pharmacists

The importance to elaborate other roles of pharmacists

- Should elaborate and promote pharmacists' image in primary care to the public



# **Part 4: Overall Discussion**

# Medication Errors

## Definitions

### Prescribing Error

Errors arise from

- Prescribing decision making
- Prescription writing process

### Dispensing Error

- Discrepancy between a prescription and the medicine dispensed

# Medication Errors

## Definitions

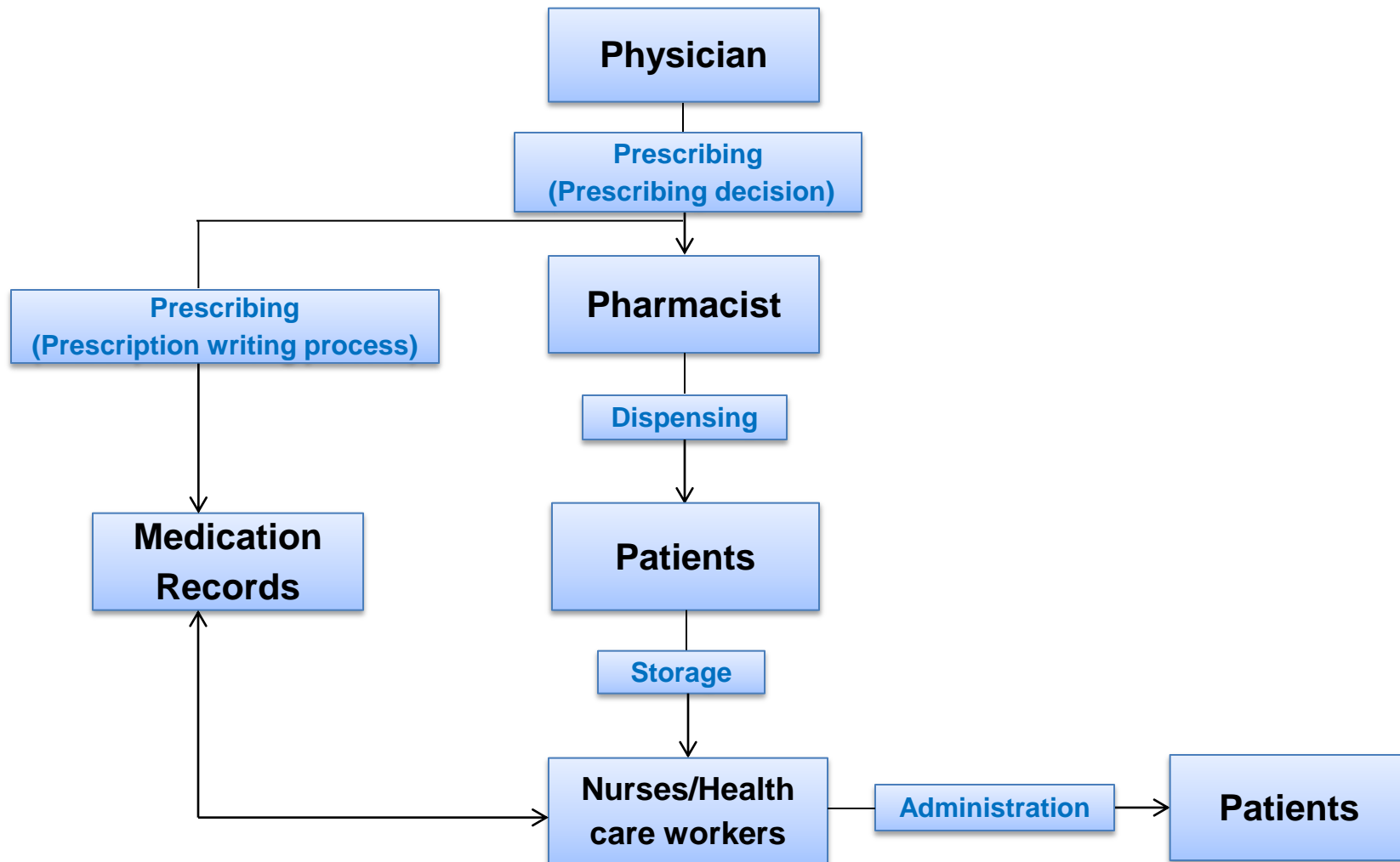
### Drug Storage Error

- Improper storage of medications
- Improper storage conditions

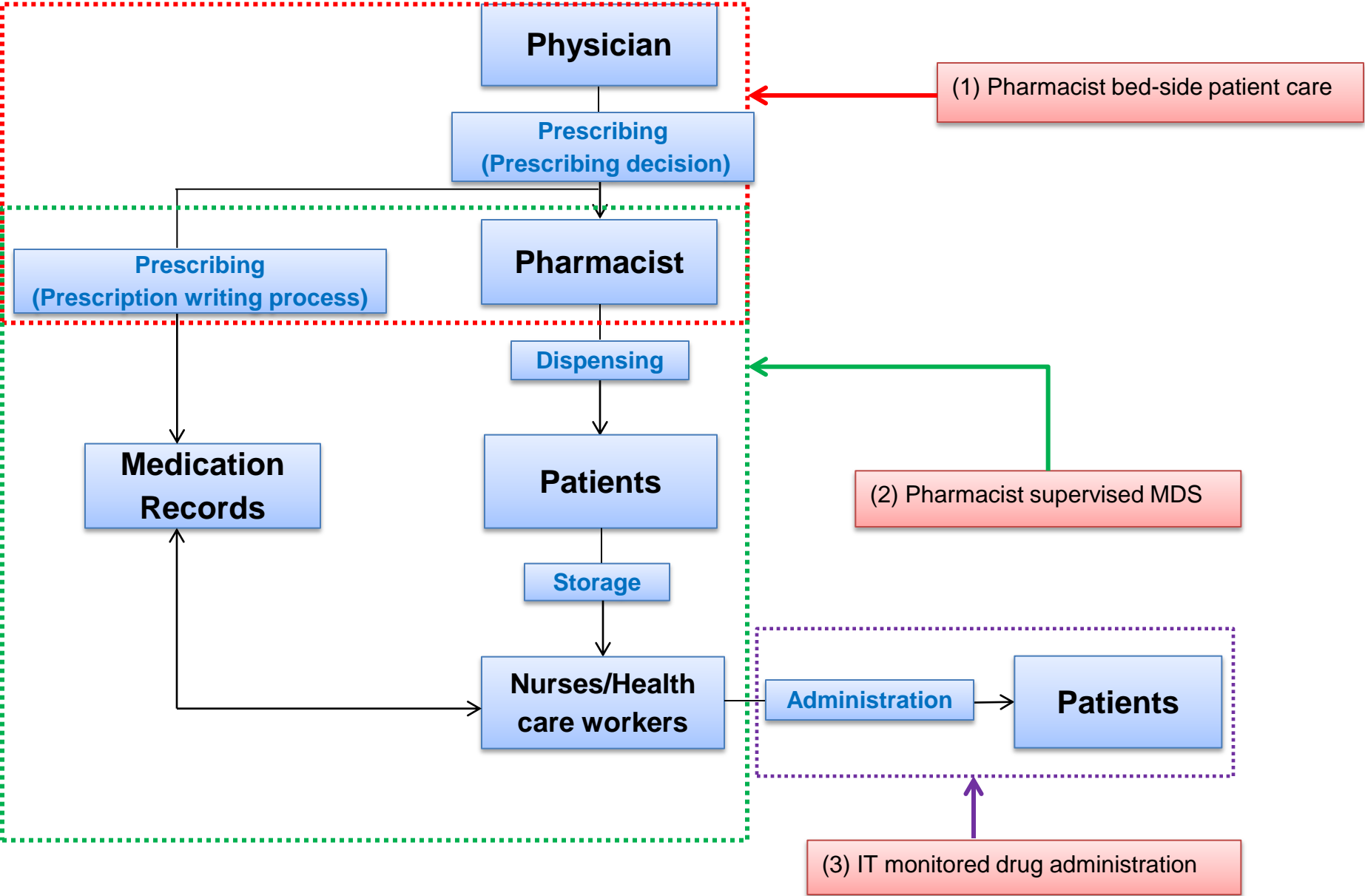
### Administration Error

- Discrepancy between the intentions of the prescriber and the treatment

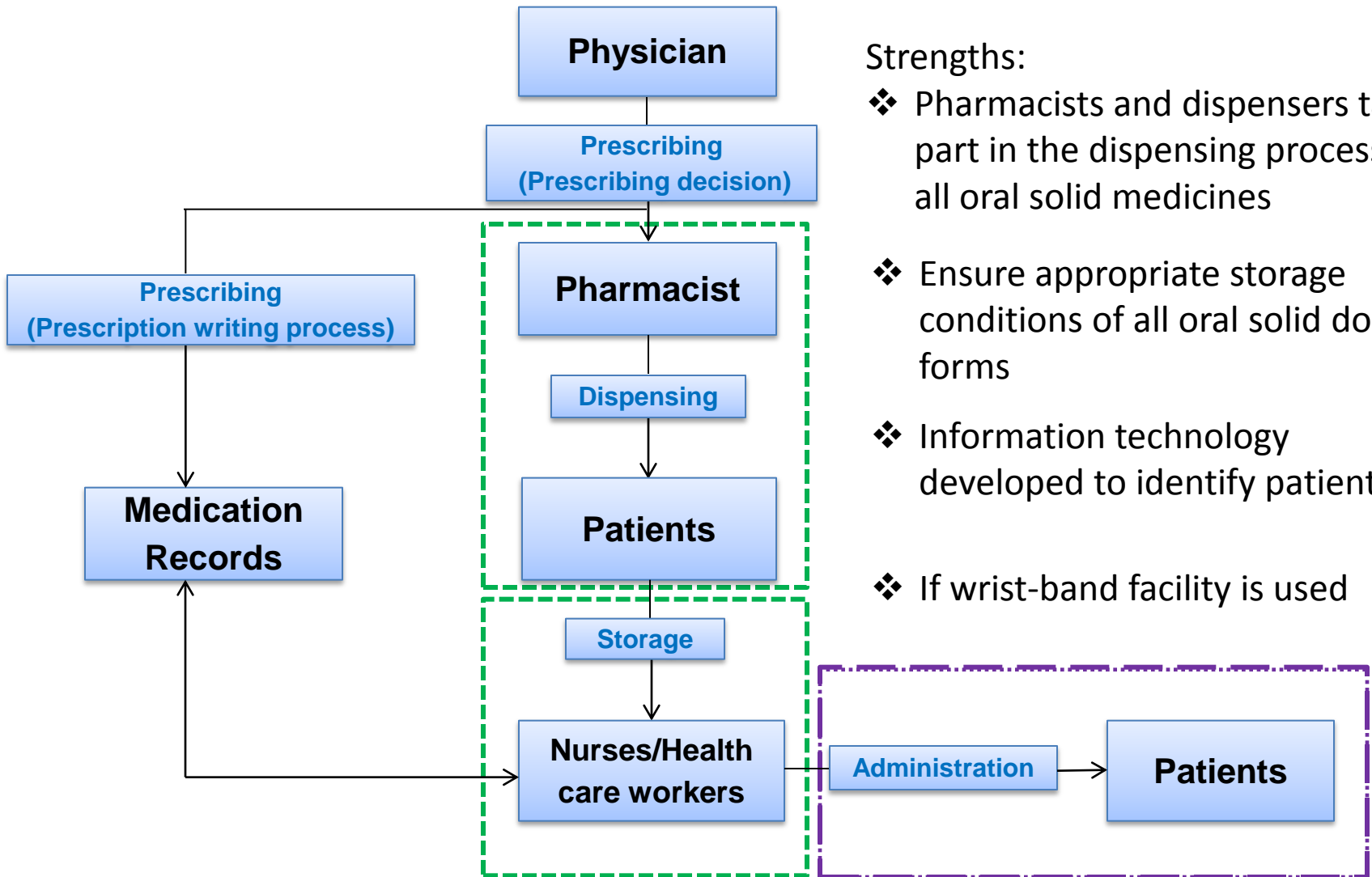
# Medication Management Process



# Medication Management Process



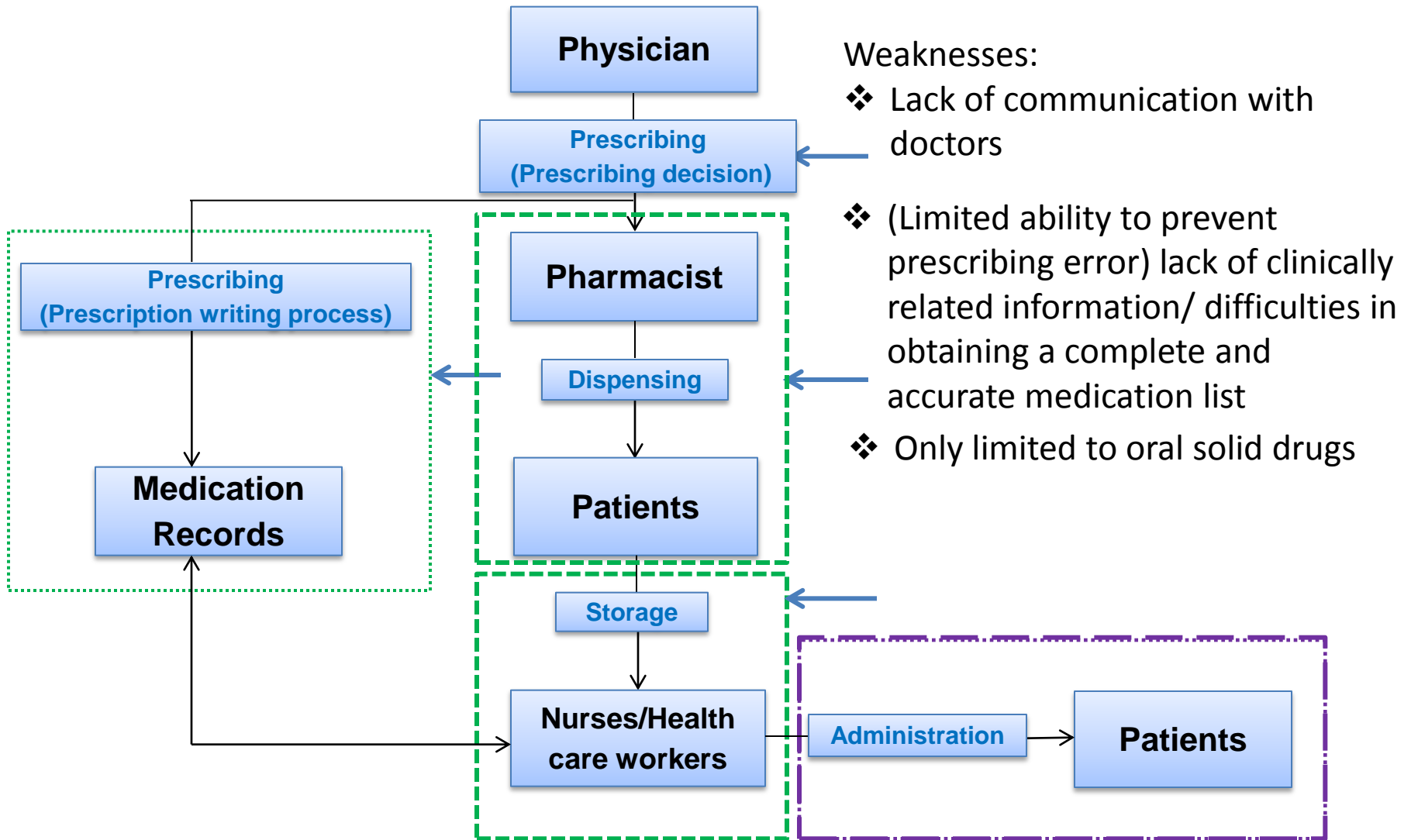
# MDS by Pharmacy



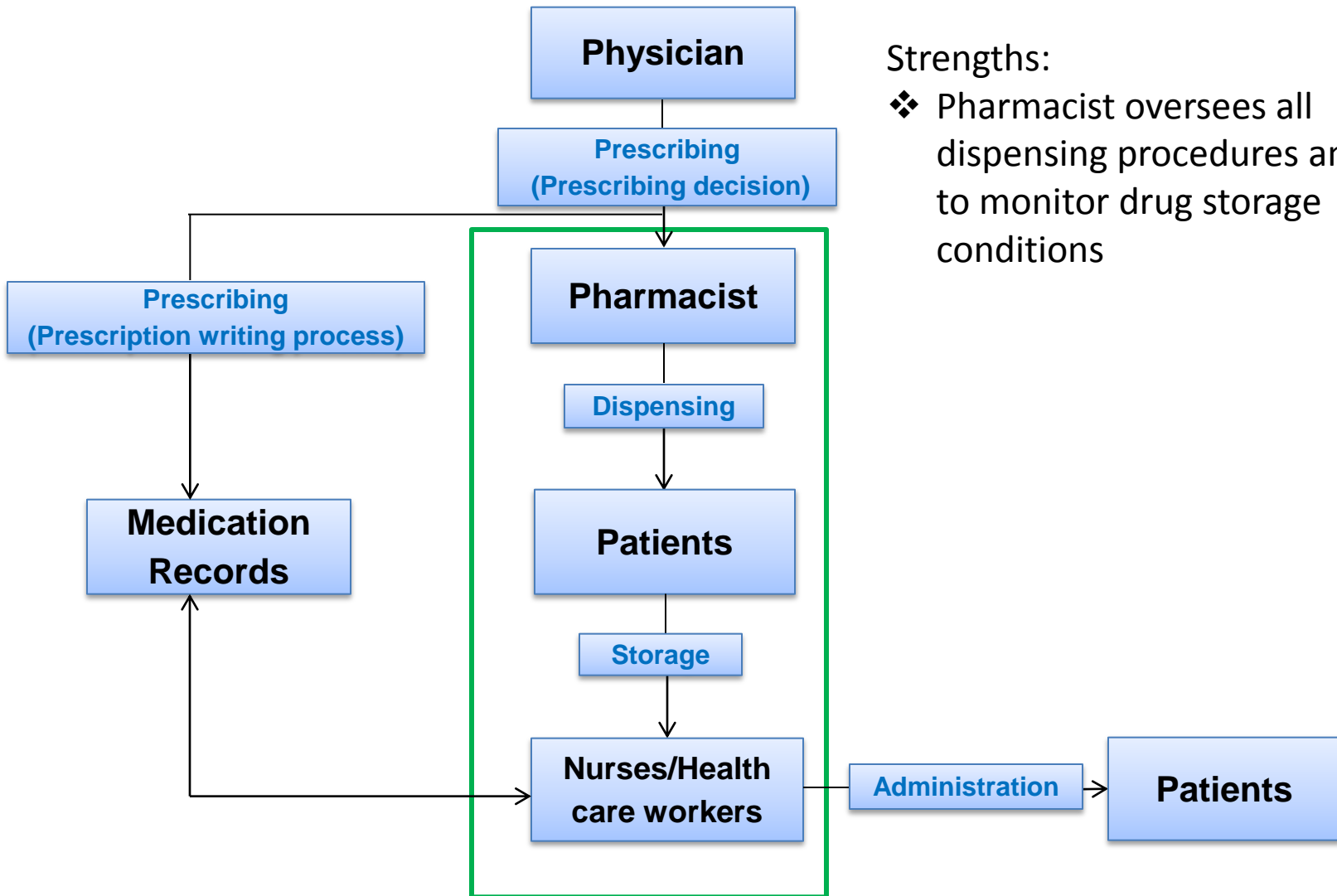
Strengths:

- ❖ Pharmacists and dispensers take part in the dispensing process of all oral solid medicines
- ❖ Ensure appropriate storage conditions of all oral solid dosage forms
- ❖ Information technology developed to identify patients
- ❖ If wrist-band facility is used

# MDS by Pharmacy



# In-house Pharmacist

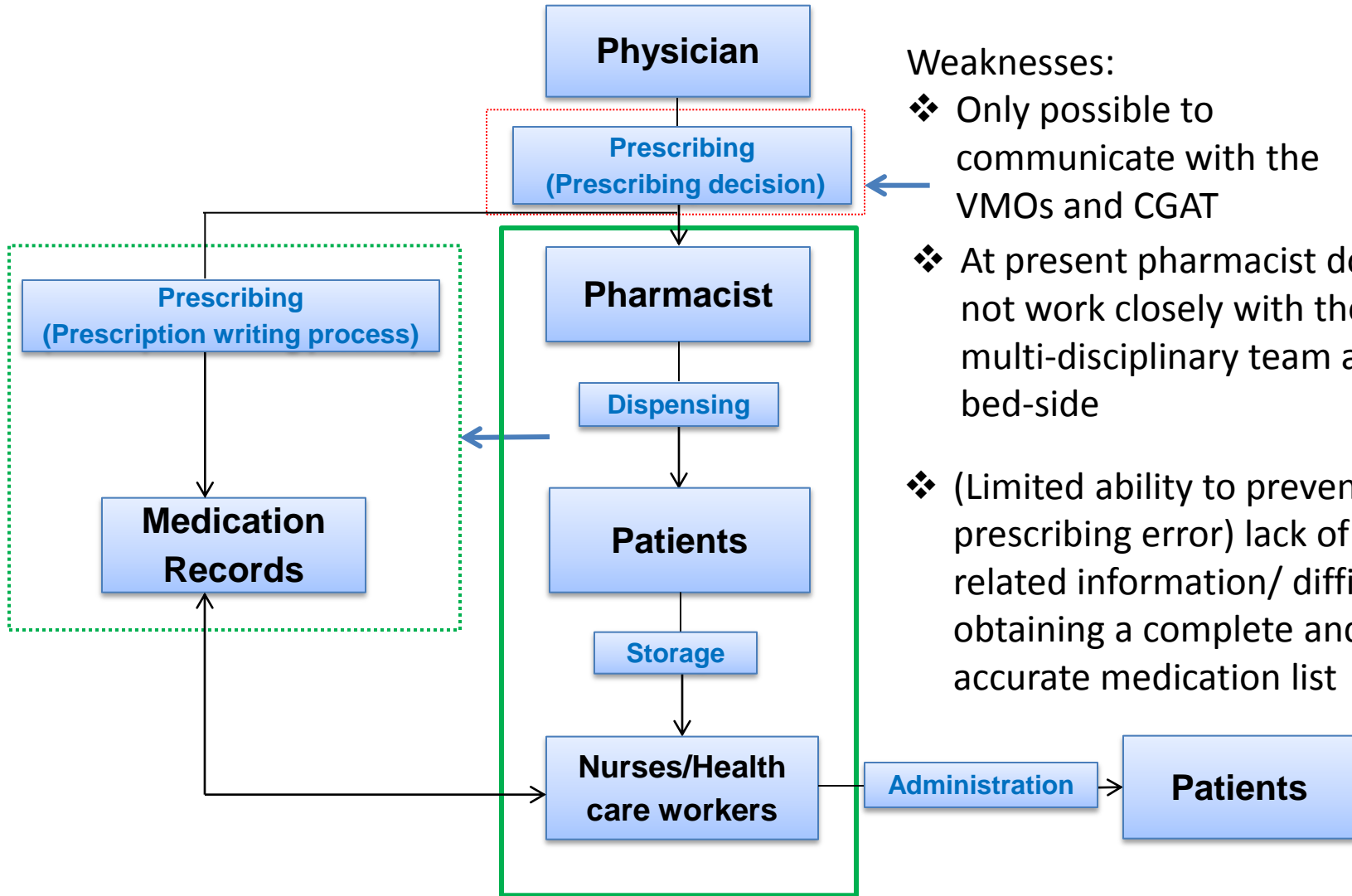


Strengths:

- ❖ Pharmacist oversees all dispensing procedures and to monitor drug storage conditions



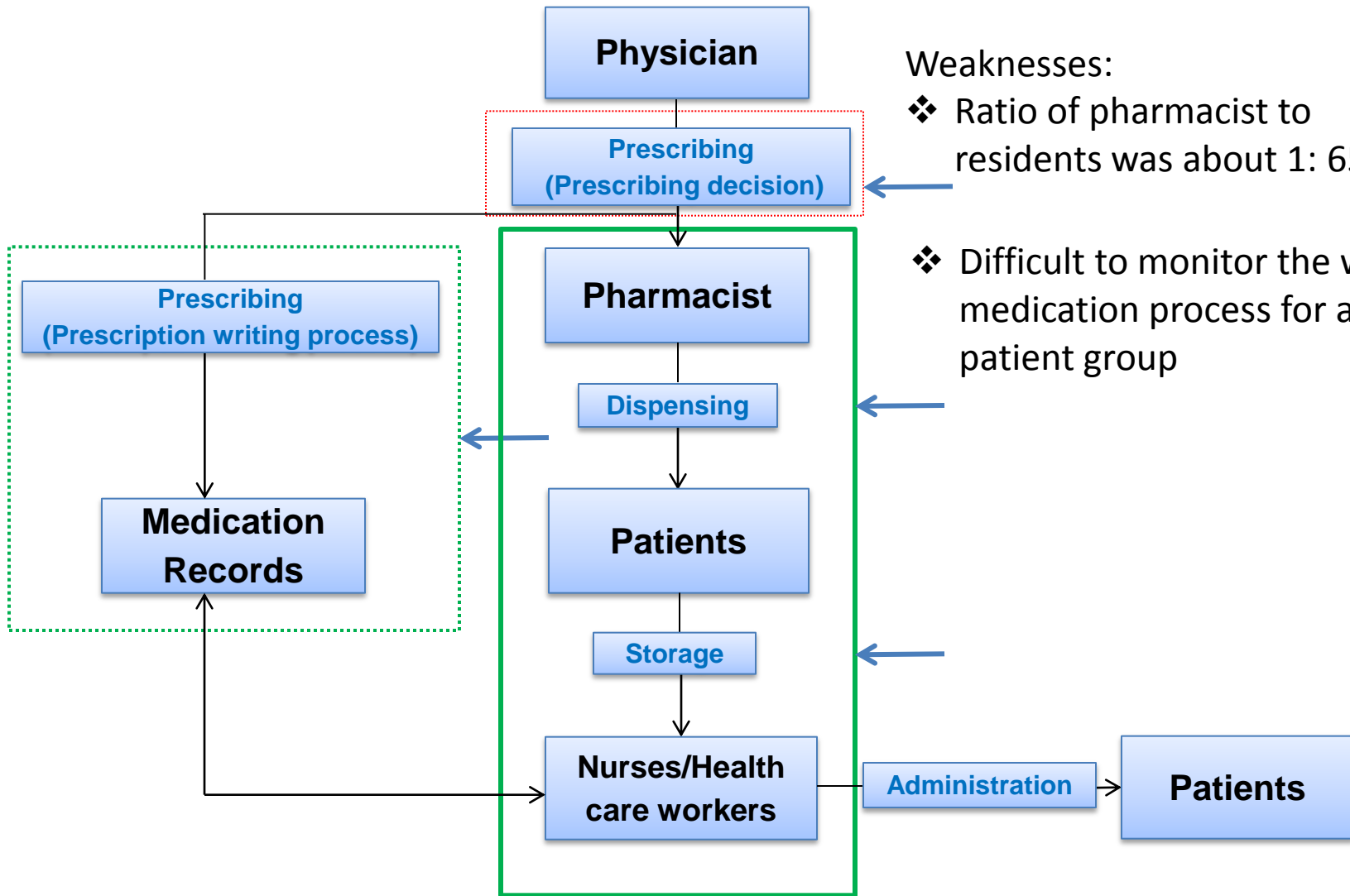
# In-house Pharmacist



## Weaknesses:

- ❖ Only possible to communicate with the VMOs and CGAT
- ❖ At present pharmacist does not work closely with the multi-disciplinary team at the bed-side
- ❖ (Limited ability to prevent prescribing error) lack of clinically related information/ difficulties in obtaining a complete and accurate medication list

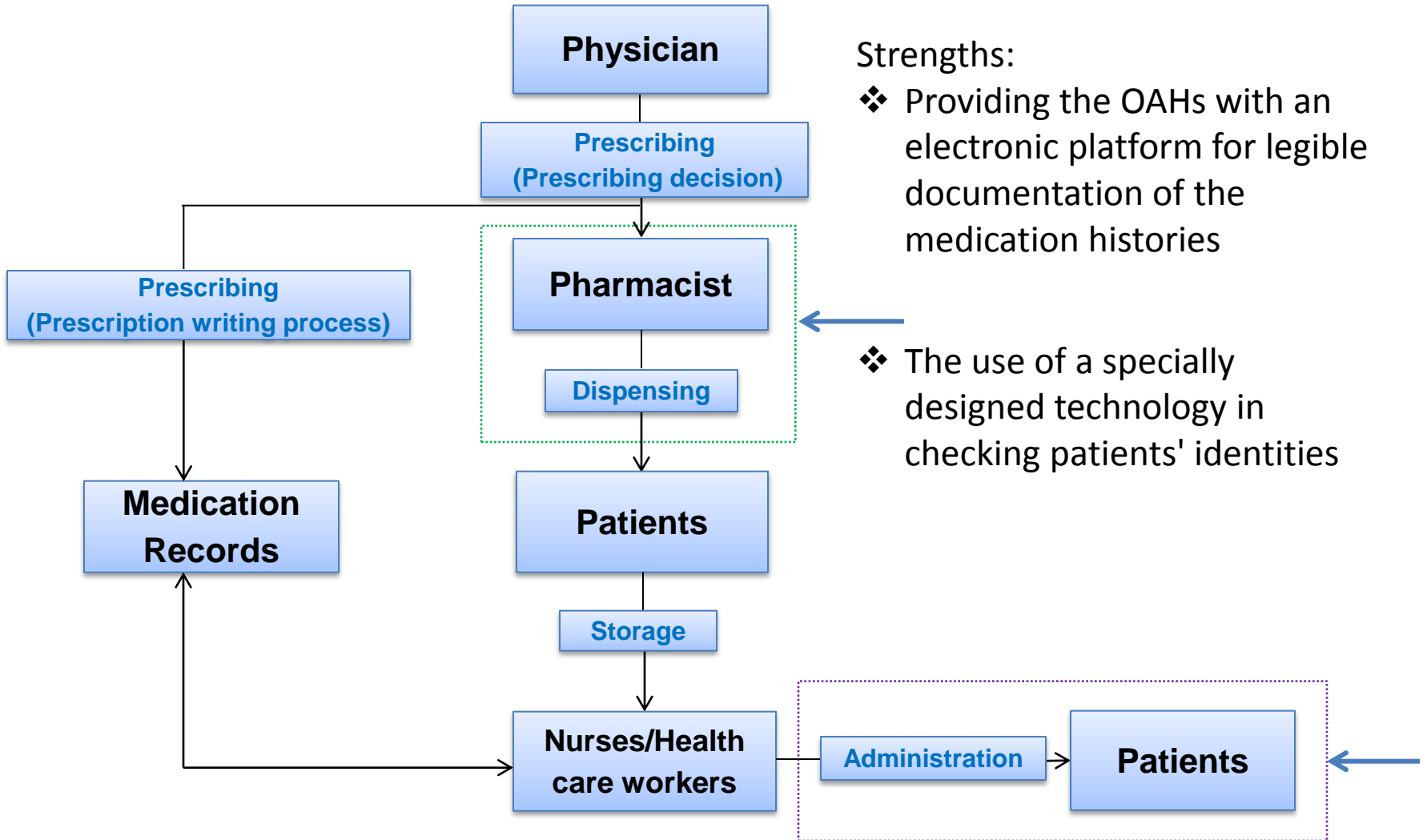
# In-house Pharmacist



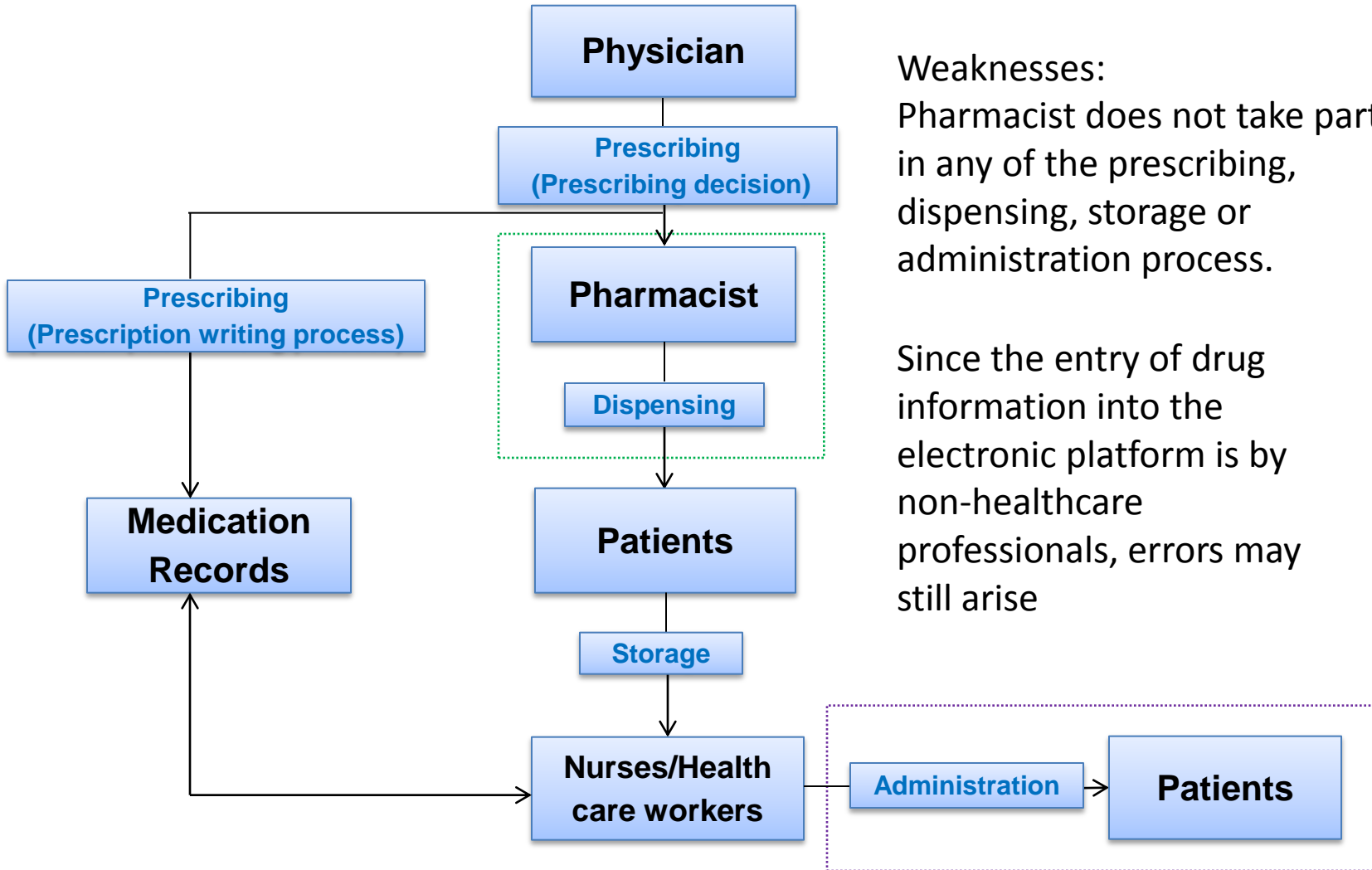
Weaknesses:

- ❖ Ratio of pharmacist to residents was about 1: 650
- ❖ Difficult to monitor the whole medication process for a large patient group

# MDS by OAH Staff



# MDS by OAH Staff

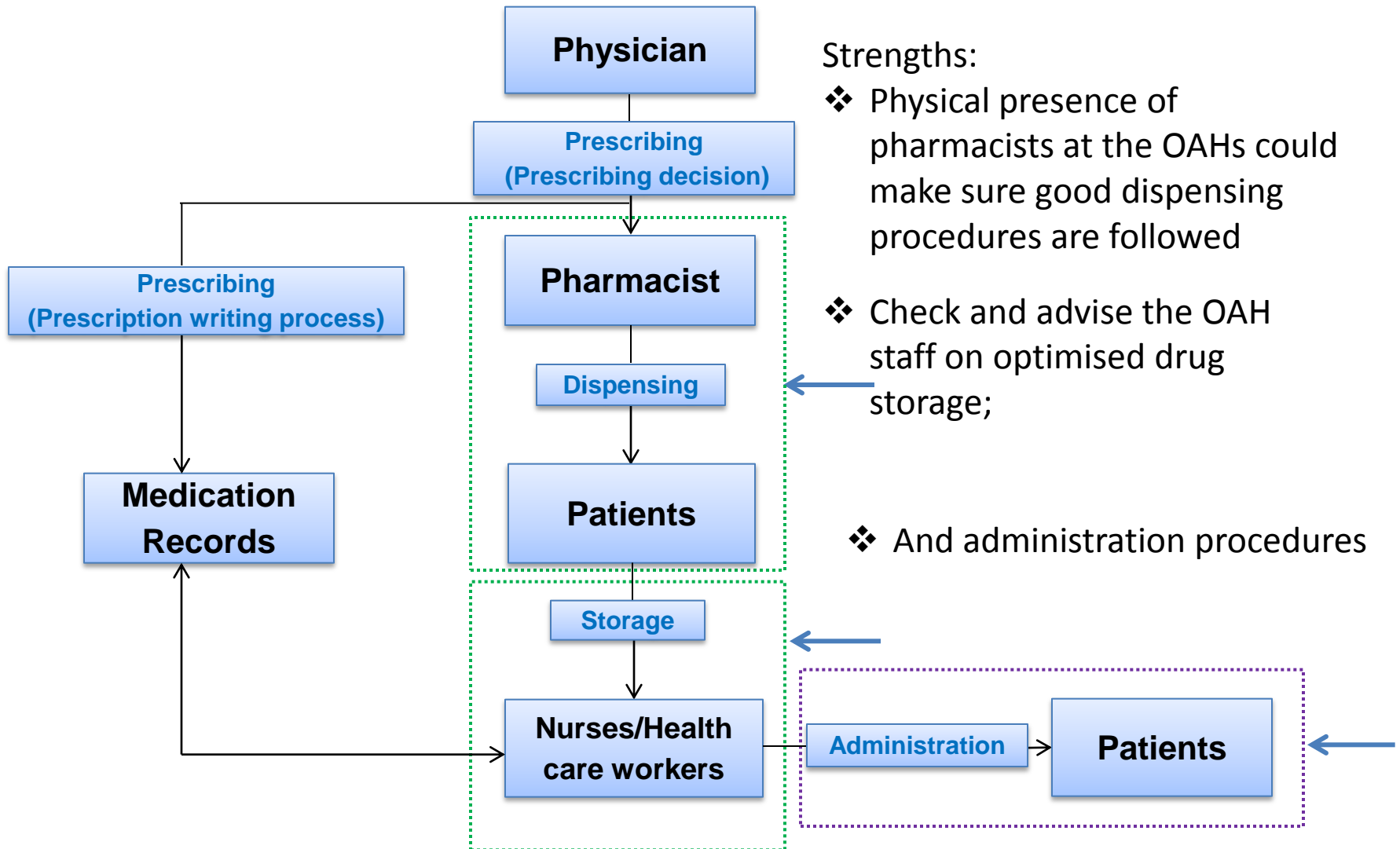


Weaknesses:

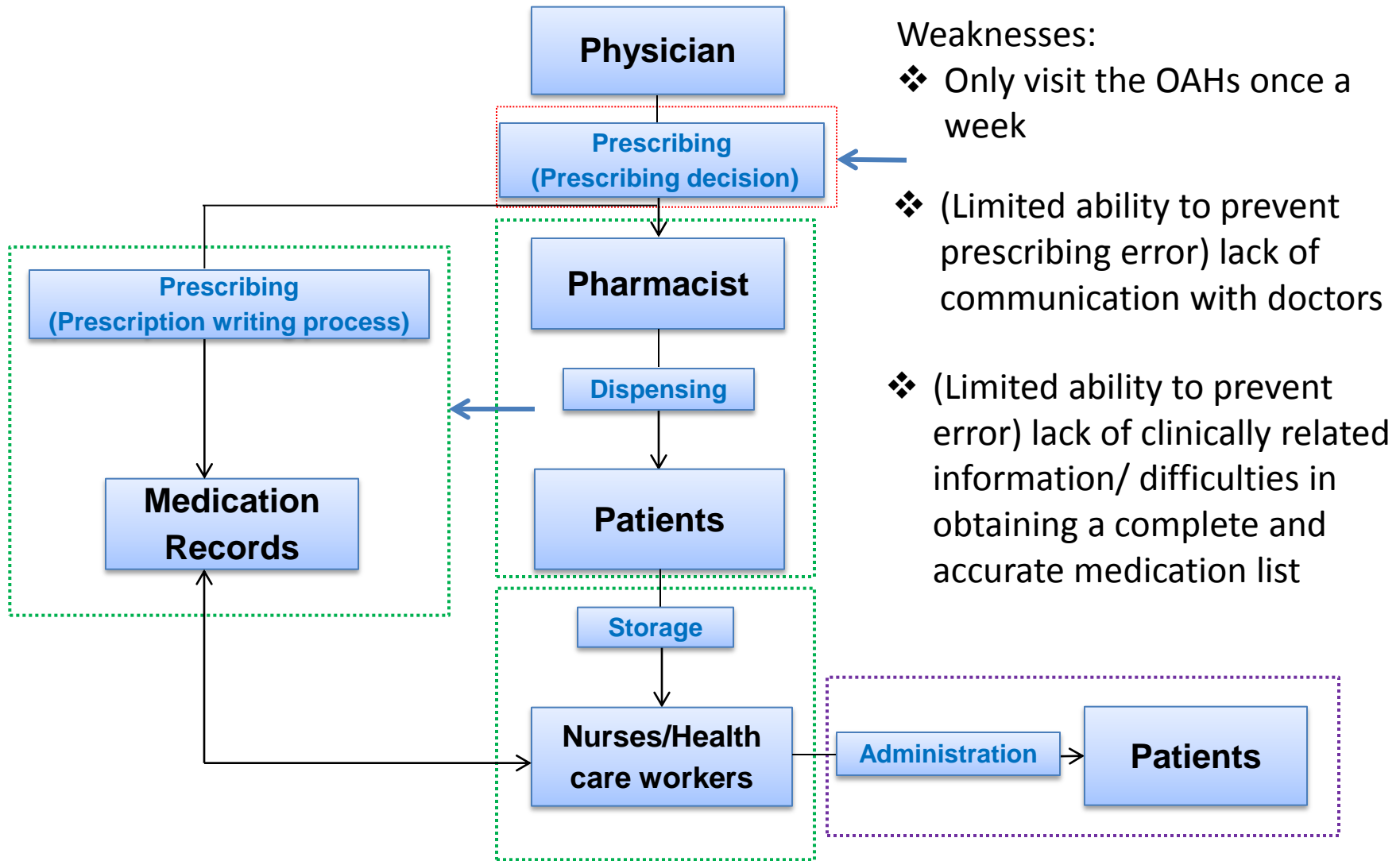
Pharmacist does not take part in any of the prescribing, dispensing, storage or administration process.

Since the entry of drug information into the electronic platform is by non-healthcare professionals, errors may still arise

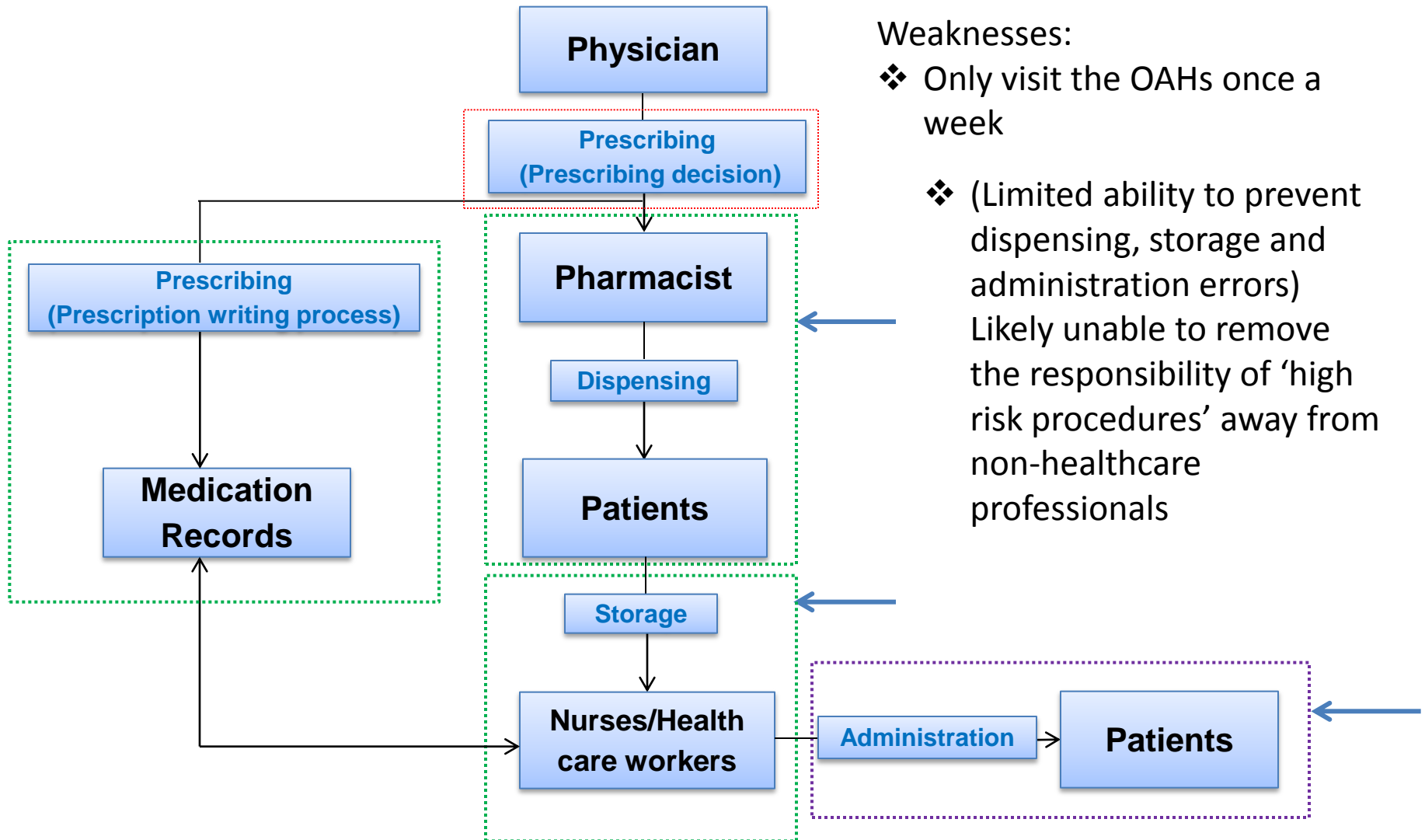
# Visiting Pharmacist Service



# Visiting Pharmacist Service



# Visiting Pharmacist Service



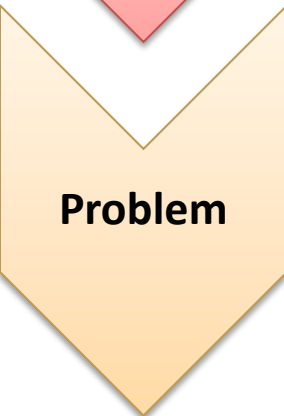
After this, a number of  
problems were identified



# Problem (1) – Double Dispensing



- Two monitored dosage packing systems: out-sourcing to a community pharmacy or the in-house pharmacy



- Duplicated procedures of double-dispensing (first in HA institutes, next in the delegated pharmacy)



- Sending the prescription directly to the delegated pharmacies after the process of prescribing
- Databases allowing better access to patient information
- Streamlined centralised remuneration mechanism
- Enhance safety for dispensing procedures

# Problem (2) – Lack of Clinical Communication

## Current situation

- Secondary and tertiary care institutes do not provide the OAHs with a care summary or clinical communication

## Problem

- Doctors may make changes to the prescriptions without informing the OAH staffs

## Recommendation

- The mandatory printing of discharge summaries and post-clinic summaries for every patient

# Problem (3) – Role of Primary Care Underutilised

## Current situation

- The model of Visiting Pharmacist Service and In-house Pharmacist: has the potential to provide bed-side care and advice

## Problem

- Visiting Pharmacist Service: infrequent visits to OAHs
- In-house pharmacist currently mainly focuses on the daily dispensing duties in packing the MDS system

## Recommendation

- Bed-side clinical care and monitoring could be provided by pharmacists

# Problem (4) – Gap of Understanding Pharmacists' Roles

## Current situation

- Many of the non-service users OAH management only see the dispensing roles of pharmacists

## Problem

- OAH management may consider money may be better spent on the employment of HCAs or nurses

## Recommendation

- Elaborate and promote the pharmacists' roles
- Recognise other pharmacists' roles, such as provision of drug knowledge and identifying drug-related problems

# Problem (5) – Drug wastage

## Current situation

- Significant amount of drugs were unused and disposed in the delegated pharmacy & OAHs

## Problem

- Create economic burden to the healthcare system
- There had been no available published information on the volume of medicines waste and their total costs in Hong Kong

## Recommendation

- Audits should be carried out to quantify the volume of medicines waste

# Follow-up Audit - Method

Drug wastage data collected in a delegated pharmacy which served 3,020 OAH residents

Time

Mid September 2012 to mid January 2013  
(four months)

Data

Unique patient ID, trade names, generic names, strengths, and dosage forms, discarded quantities

Price

Obtained from HA + MIMS Hong Kong

# Results

	No. of discarded drugs	Cost (HKD)
Oral solid preparations	173,790 units	\$50,769
Oral liquid preparations	80,860 millilitres	\$7,066
Inhaler preparations	500 units	\$20,429
External preparations	5,348 grams	\$1,379
Parenteral preparations	427 units	\$7,718
Others (including patch, sachet, drops, enema, spray, suppository)	2,979 units	\$9,562
Grand Total	---	\$96,924

# Results

Anatomical Therapeutic Chemical classification system	Cost (HKD)
(A) Alimentary tract and metabolism	\$22,965
(B) Blood and blood forming organs	\$5,496
(C) Cardiovascular system	\$9,944
(D) Dermatologicals	\$1,149
(G) Genito urinary system and sex hormones	\$1,328
(H) Systemic hormonal preparations	\$1,579
(J) Antiinfectives for systemic use	\$794
(L) Antineoplastic and immunomodulating agents	\$496
(M) Musculo-skeletal system	\$1,062
(N) Nervous system	\$26,872
(P) Antiparasitic products, insecticides and repellents	\$36
(R) Respiratory system	\$23,875
(S) Sensory organs	\$1,320
(V) Various	\$0.3
<b>Grand Total</b>	<b>\$96,924</b>



# Results

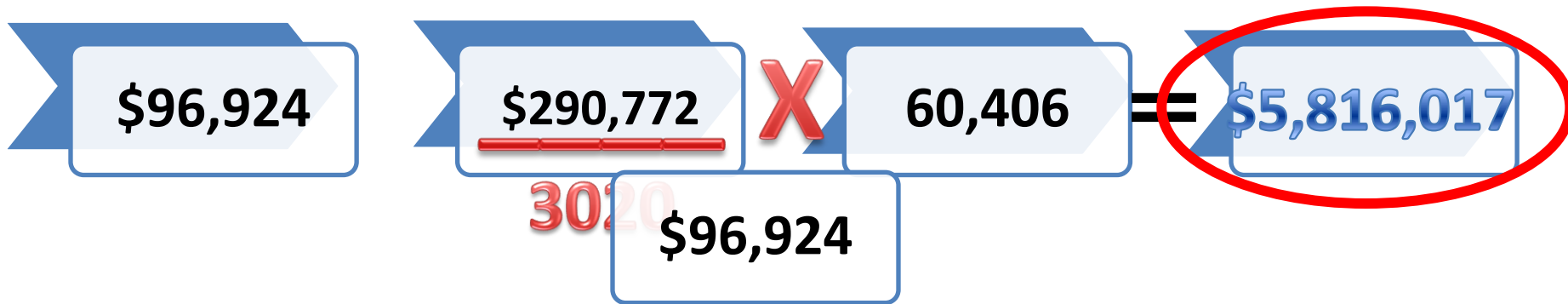
Drugs (Nervous system)	Cost (HKD)
Anticonvulsants	\$8,167
Antipsychotics	\$5,511
Narcotic drugs	\$2,201
Benzodiazepines	\$1,505

Drugs (Alimentary tract and metabolism)	Cost (HKD)
Laxatives	\$8,467
PPIs	\$6,184
Insulin	\$2,653

Drugs (Respiratory system)	Cost (HKD)
Inhalers	\$20,429

# Results- Economic impact

## Extrapolation



Cost  
(4 months  
in 3,020  
residents)

Cost (a year  
in 3,020  
residents)

Number of  
elderly living  
in OAHs

Cost (a year  
in all elderly  
living in  
OAHs)

# Results

Drugs (Nervous system)	No. of discarded drugs	Cost (HKD)
Paracetamol	31,519	\$1,261
Tramadol HCl	5,760	\$1,464
Betahistine mesylate	2,616	\$387

Drugs (Alimentary tract and metabolism)	No. of discarded drugs	Cost (HKD)
Senna	11,335	\$1,471
Famotidine	6,594	\$361
Aluminium hydroxide, magnesium hydroxide, simethicon	3,958	\$394

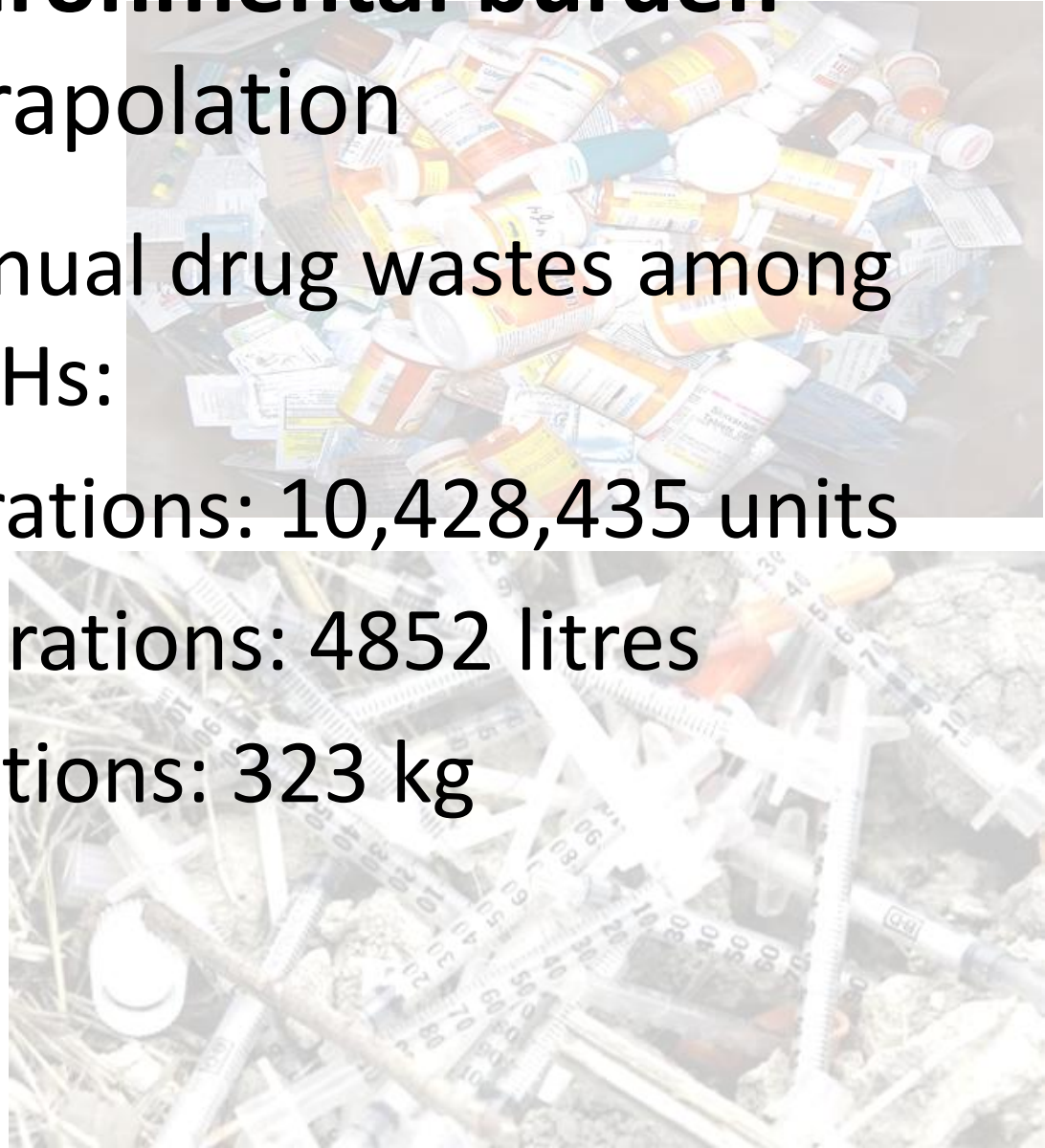
Drugs (Respiratory system)	No. of discarded drugs	Cost (HKD)
Bromhexine HCl	2,744	\$247
Chlorpheniramine maleate	2,580	\$111

# Results- Environmental burden

## Extrapolation

Extrapolate the annual drug wastes among elderly living in OAHs:

- ❖ Oral solid preparations: 10,428,435 units
- ❖ Oral liquid preparations: 4852 litres
- ❖ External preparations: 323 kg



# Recommendations for future practice and research

Develop a **monitoring surveillance system** with OAHs, doctors and nurses for the systematic record and collection of data

Conduct high quality outcome measure studies to evaluate the **effectiveness of the services**

Conduct an **economic study** to evaluate the feasibility of the implementation of the services on a large scale

Deploy the **repeat prescriptions scheme**, allowing patients to obtain drugs on monthly basis from community pharmacies after the first attendance at HA

# Take Home Messages

- ❖ Send the prescriptions directly to the delegated pharmacies after the prescribing process
- ❖ Mandatory print discharge summaries and post-clinic summaries for every patient
- ❖ Bed-side clinical care and monitoring could be provided by pharmacists
- ❖ Elaborate pharmacists' roles to the public
- ❖ Deploy the repeat prescriptions scheme, allowing patients to obtain drugs on monthly basis from community pharmacies after the first attendance at HA

# Acknowledgements

- ❖ Acknowledgement is given to Merck Sharp & Dohme(Asia) Ltd. for the funding and support
- ❖ Thank my colleagues at The Pharmaceutical Society of Hong Kong and The University of Hong Kong for conducting this scoping study
- ❖ We also wish to thank the inputs of all interviewees and contact persons who participated in this study

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