Pharmacy Information System (PhIS)
and
Clinic Pharmacy System (CPS)

Hardware Allocation Guideline
for Pharmacy Based Implementation

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REVISION HISTORY

Ver. No	Date of Release	Consolidated by	Reviewed / Verified by	List of Changes from Previous Version
1.0	02/12/2013	Norliyana, Marzuki	Norazmi, Hoh	Initial document
1.1	30/03/2014	Norliyana	Hoh	- Simplify format - Consolidate sub-section, i.e User Group, Allocation by Unit & Hardware Allocation by Unit

1.2	27/05/2014	Norliyana	Hoh	- Amendment based on decision from PITC Bil 3-2014 & PITC Bil 4-2014
				- Section 3: Remove pool basis allocation
				- Section 2 & 3:
				  o Remove maximum & minimum in Qty/Remark column for Main Store, MTAC & Ward Pharmacy
				  o Add option either Desktop PC/Notebook for MTAC

1.3	13/02/2015	Norliyana, Janice Goh	Hoh	Amendment based on PITC Bil 2-2015 meeting.
				Section 2 :-
				  screening, verification & labelling activity –add in drug label printer (high-end)
				  removed the allocation for Acknowledgement & Registration activity at counter

1.4	08/07/2015	Norliyana	Hoh	Amendment as follows: - Section 2: add Unit allocation - Section 3: add allocation for KK without Pharmacy staff

Verified and Acknowledged by:

Name	Role/ Designation	Organization	Signature & Date
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1.0	Chew, Zainura, Daniel, Maxine, Sazani, Wilson	Initial document
1.1	Marzuki	- Consolidate sub-section 2.1 – 2.3 to section 2 - Consolidate sub-section 3.1 – 3.3 to section 3 - Amend user group, unit involvement and and rational for hardware allocation
1.2	Juridah	- Amendment based on decision from PITC Bil 3-2014 & PITC Bil 4-2014

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1. Introduction

This document underlines the guideline for hardware allocation for Pharmacy based implementation at MOH facilities, namely Hospital, Pejabat Kesihatan Daerah (PKD) and Klinik Kesihatan (KK). Hardware to be provided is to support the implementation of Pharmacy based version of PhIS and CPS System which are limited to Pharmacy Department and inventory users of other department at each facility.

This guideline is organised in the following order:

        Section 1 :   Introduction

        Section 2 :   Hardware Allocation Guideline For Hospital

        Section 3 :   Hardware Allocation Guideline For PKD And KK

The Introduction section provides overview of Pharmacy based version of PhIS and CPS System, and hardware allocation rationale.

Section 2 of this document explains hardware allocation guideline for Hospital that are depended on few criteria such as available units that will use the PhIS, services provided by facility, users and working space at the hospital.

Section 3 provides hardware allocation guideline for PKD and KK that has similar dependencies factors as per the hospital.

1.1. PhIS and CPS Pharmacy Based System Overview

PhIS and CPS Pharmacy Based System version focuses on pharmacy operational services as well as inventory service performed at non-pharmacy units such as Ward, Operation Theatre, Day-care, Emergency & Trauma and Support Services. Therefore, the hardware to be allocated to the facility are only limited to relevant services required at the designated areas only.

1.2. Hardware Requirement

The type of hardware delivered to facilities under the PhIS and CPS Project is as per Appendix 13 of the CA. For the purpose of Pharmacy based implementation, the type of hardware allocated for the facilities is as per following table:

NO	HARDWARE (Based on CA)	ABBREVIATION (used throughout this document)	PURPOSE
1	Server Type 1 (Medium size) for Hospitals	Server	Server to host PhIS System *(Server for Hospital ONLY)*
2	Server Type 2 (Small size) for Clinics	Server	Server to host CPS System *(Server for KK ONLY)*
3	Uninterruptable Power Supply (UPS)	UPS	UPS for Server
4	Desktop PC	PC	Client to access PhIS and CPS System
5	Notebook	Notebook	Client to access PhIS and CPS System
6	LaserJet Printer	LaserJet Printer	Normal printing requirement
7	Thermal Transfer Printer	Drug Label Printer	Printer for Drug Label printing at Pharmacy unit
8	Switches for Hospital	Switches	Local Area Network (LAN) setup for Hospital
9	Switches for Clinic	Switches	Local Area Network (LAN) setup for KK
10	Cabling for Hospital	Network Cabling	Network cabling and infrastructure setup at Hospital
11	Cabling for Clinic	Network Cabling	Network cabling and infrastructure setup at KK
12	Rack	Rack	Rack for Hospital server

Remarks:

1. Hardware to be allocated must meet the minimum requirement as required by CA.

2. Allocation of end user hardware to each facility is guided by the following conditions:

   i. Identification of activities for respective user group;
   ii. Personnel (permanent/shift basis) involvement in the identified activity;
   iii. Space allocation for hardware placement;
   iv. Special request for additional hardware required for high volume transaction within a unit; and
   v. Where possible, use existing hardware at facility that meets PhIS and CPS minimum specification and requirement.
   vi. Where possible the hardware shall be shared accordingly base on the location of the services provided (such as network printers).

3. Server specification for each facility shall be configured base on volume of patient and pharmacy transaction at the facility.

4. Software installed must meet the minimum requirement stated in CA.

5. Electrical power source / requirement for the hardware to be supplied shall be prepared by the facility as identified by PLSB.

6. The actual hardware allocation for PhIS and CPS users at particular facility will determine the ultimate network infrastructure, cabling and switches requirement to be setup.

2. Hardware Allocation Guideline For Hospital

Hardware allocation guideline for hospital is being derived based on user group, respective unit requirement and services provided at each hospital.

UNIT	USER	ACTIVITY	HARDWARE DISTRIBUTION		
			ITEM	QTY	RULES / SPECIFICATION
General Office (Pharmacy)	Chief Pharmacy	- Data Mining - Approval: Procurement & Special Drug - Administration	Desktop PC	1	per location
	Pharmacist	Drug Information & Consumer Education (DICE) - DAC - ADR	Desktop PC	1	per location
			LaserJet Printer	1	per location
Main Store	Pharmacist / Clerk	Procurement - APPL item - LP item	Desktop PC	1	**PC** per activity **LaserJet Printer** per location; OR for every 3 PC
			LaserJet Printer	1	
		Receiving	Desktop PC	1	
			LaserJet Printer	1	
		- Distribution - Stock Taking	Desktop PC	1	
Outpatient Pharmacy	Pharmacist	Sub-store	Desktop PC	1	per location
			LaserJet Printer	1	per location
		Screening, Verification & Labeling	Desktop PC	1	per number of workspace dedicated; OR per 250 prescription/day at OPD
			Drug Label Printer	1	per PC allocated

UNIT	USER	ACTIVITY	HARDWARE DISTRIBUTION		
			ITEM	QTY	RULES / SPECIFICATION
			Drug Label Printer (High-end)	1	per 350 prescription per day. For department with prescription more than 1000 per day
			LaserJet Printer	1	per location
		Preparation	-	-	-
		Dispensing	Desktop PC	1	per number of counters dedicated; OR per 250 prescription/day at OPD
			LaserJet Printer	1	per 3 PC ; OR per isolated location
		Pool basis	Notebook	1	per location
		Medication Counselling	Desktop PC	1	per location
			LaserJet Printer	1	per isolated location
Ward Supply Pharmacy	Pharmacist	Sub-store	Desktop PC	1	per location
			LaserJet Printer	1	per location
		Screening, Verification & Labeling	Desktop PC	1	per number of workspace dedicated; OR per 100 beds
			Drug Label Printer	1	per PC allocated
			Drug Label Printer (High-end)	1	per 350 prescription per day.

UNIT	USER	ACTIVITY	HARDWARE DISTRIBUTION		
			ITEM	QTY	RULES / SPECIFICATION
					For department with prescription more than 1000 per day
			LaserJet Printer	1	per location
		Preparation	-	-	-
		Dispensing	Desktop PC	1	per identified Dispensing location
		Pool basis	Notebook	1	per location
Satellite Pharmacy	Pharmacist	Screening, Verification & Labeling	Desktop PC	1	per number of workspace dedicated
			Drug Label Printer	1	per PC allocated
			Drug Label Printer (High-end)	1	per 350 prescription per day. For department with prescription more than 1000 per day
			LaserJet Printer	1	per PC allocated
		Preparation	-	-	-
		Dispensing	Desktop PC	1	per number of counters dedicated
			LaserJet Printer	1	per location

UNIT	USER	ACTIVITY	HARDWARE DISTRIBUTION		
			ITEM	QTY	RULES / SPECIFICATION
Manufacturing * Separated based on location & label size (printing purpose)	Pharmacist	- Extemporaneous - IV Admixture & Eye Drops * Services to be performed at Screening, Verification & Labelling at Outpatient Pharmacy, Ward Supply Pharmacy and/or Satellite Pharmacy depending on facility setup	-	-	**PC** per location; OR per number of workspace dedicated **Drug Label Printer** per PC allocated **LaserJet Printer** per location * different type of activity conducted may share some of the equipment depending on: · request volume · work nature · location
		Parenteral Nutrition (PN)	Desktop PC	1	
			Drug Label Printer	1	
			LaserJet Printer	1	
		Cytotoxic Drug Reconstitution (CDR)	Desktop PC	1	
			Drug Label Printer	1	
			LaserJet Printer	1	
		Galenical	Desktop PC	1	
			Drug Label Printer	1	
			LaserJet Printer	1	
		Radiopharmaceutical	Desktop PC	1	
			Drug Label Printer	1	
			LaserJet Printer	1	
		Prepack * Applicable to isolated location	Desktop PC	1	
			Drug Label Printer	1	
			LaserJet Printer	1	

UNIT	USER	ACTIVITY	HARDWARE DISTRIBUTION		
			ITEM	QTY	RULES / SPECIFICATION
Medication Theraphy Adherence Clinic (MTAC)	Pharmacist	MTAC	Desktop PC / Notebook	1	Base on weightage for services provided at facility and location of the service. Weightage: 1. Number of services at facility 2. Number of services conduct at a time (concurrent)
Ward Pharmacy	Pharmacist	Ward Pharmacy	Notebook	1	Base on weightage for services provided at facility, priority goes to ICU and medical ward. Weightage: 1. Number of services at facility 2. Number of services conduct at a time (concurrent)
Therapeutic Drug Monitoring (TDM)	Pharmacist	TDM	Desktop PC	1	per location
			LaserJet Printer	1	for isolated TDM location
Ward	Nurse	Stock Indenting	Desktop PC	1	per identified Ward
Unit	Medical Assistant / Nurse	Stock indenting	Desktop PC	1	based on weightage for services provided at facility and location of the service Weightage: 1. Number of transaction (high frequency)

3. Hardware Allocation Guideline For PKD And KK

UNIT	USER	ACTIVITY	HARDWARE DISTRIBUTION		
			ITEM	QTY	RULES / SPECIFICATION
Outpatient Pharmacy	Pharmacist	Store - Procurement - Receiving - Distribution	Desktop PC	1	per location
			LaserJet Printer	1	per location
		Prepack / Galenical	Desktop PC	1	per isolated location; OR high volume of prepacking activities.
			Drug Label Printer	1	per PC allocated
			LaserJet Printer	1	per PC allocated
		Screening, Verification & Labelling - Extemporaneous	Desktop PC	1	per number of workspace dedicated; OR per 250 prescription/day at OPD
			Drug Label Printer	1	per PC allocated
			Drug Label Printer (High-end)	1	per 350 prescription per day. For department with prescription more than 1000 per day
			LaserJet Printer	1	per location
		Preparation	-	-	-
		Dispensing	Desktop PC	1	per number of counters dedicated; OR per 250 prescription/day at OPD

UNIT	USER	ACTIVITY	HARDWARE DISTRIBUTION		
			ITEM	QTY	RULES / SPECIFICATION
			LaserJet Printer	1	per 3 PC ; OR per isolated location
		Medication Counselling	Desktop PC	1	per location
			LaserJet Printer	1	per isolated location
		Drug Information & Consumer Education (DICE) - DAC - ADR	Desktop PC	1	sharing basis
		MTAC	Desktop PC / Notebook	1	based on weightage for services provided at facility and location of the service Weightage: 1. Number of services at facility 2. Number of services conduct at a time (concurrent)
Outpatient Clinic	Medical Assistant / Nurse	External Indent	Desktop PC / Notebook	1	Per Klinik Kesihatan without Pharmacy staff

4. Acronym

ACRONYM	DESCRIPTION
PhIS	Pharmacy Information System
CPS	Clinic Pharmacy System
MOH	Ministry Of Health
PKD	Pejabat Kesihatan Daerah
KK	Klinik Kesihatan
UPS	Uninterruptible Power Supply
PC	Desktop PC
SRF	Special Request Form
PF	Pegawai Farmasi
PPF	Penolong Pegawai Farmasi
PRP	Pegawai Farmasi Pelatih / Provisional Registered Pharmacist
PPT	Penolong Pegawai Tadbir
PT	Pembantu Tadbir
MA	Medical Assistant
PTM	Pegawai Teknologi Maklumat
PPTM	Penolong Pegawai Teknologi Maklumat
DIS	Drug Information Service
MTAC	Medication Therapy Adherence Clinic
ADR	Adverse Drug Reaction
TDM	Therapeutic Drug Monitoring
IV Admixture	Intravenous Admixture
CDR	Cytotoxic Drug Reconstitution
APPL	Approved Purchase List
LP	Local Purchase