HATI International

Wireframes:
MedCare PhIS Enhancement
Clinical Pharmacy Module

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Prepared By	Reviewed By
CP Chan, SVP Clinical Solutions	

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CLINICAL PHARMACY

Clinical pharmacy is an integral aspect of inpatient management. It is a service provided by pharmacists to promote rational drug therapy that is safe, appropriate, and cost-effective.

System requirements under Clinical Pharmacy are:

a) Extemporaneous Medication Ordering, Preparation & Administration

An extemporaneous preparation is a medication ordered by clinicians and prepared by a pharmacist because requested medication is not readily available or is not listed in the hospital's drug formulary. Extemporaneous preparation or compounding is frequently used in the field of Paediatric Medicine and Dermatology. Oral antibiotic syrups, and oral suspensions of medication (e.g., phenytoin suspension, carbamazepine suspension, trimethoprim and sulfamethoxazole suspension) (not readily available), and dermatological preparations, such as creams and ointments where active pharmaceutical ingredients can be incorporated are examples of extemporaneous compounding.

b) IV admixture Ordering, Preparation & Administration

IV admixture is an infusion whereby a drug (especially antibiotics) is added to a 50 ml or larger bottle of IV fluid for parenteral administration.

c) **TPN (Total Parenteral Nutrition) Ordering, Preparation & Administration**

TPN is the intravenous administration of nutrition. It contains protein, carbohydrate, fat, minerals and electrolytes, vitamins, and other trace elements. PN is usually administered to patients who are unable to eat or absorb sufficient food through tube feeding to assist in maintaining their nutrition status. An adequate nutritional intake is central to the prevention of complications and more importantly, it plays a pivotal role in assisting the patient's recovery. Examples of clinical conditions requiring PN are short bowel syndrome, GI fistulas, bowel obstruction, critically ill patients, and severe acute pancreatitis.

Total Parenteral nutrition is used interchangeably with the term **Parenteral Nutrition (PN)**

d) **CDR (Cytotoxic Drug Reconstitution) Ordering, Preparation & Administration**

CDR is the process by which cytotoxic drugs (anti-cancer agents) are prepared for administration. It is a process usually performed by clinical pharmacists under strict aseptic conditions to protect the handler, the drug and the environment – given the understanding that cytotoxic drugs are considered hazardous materials which have the ability to cause DNA damage that could ultimately lead to the development of cancer. This is why it is extremely important for people to practice caution when they are handling cytotoxic drugs and substances.

Synonym for CDR is "Chemotherapy".

e) Adverse Drug Reaction (ADR) Monitoring and Reporting

An **ADR** is "A response to a drug which is noxious and unintended, and which occurs at doses normally used in man for the prophylaxis, diagnosis, or therapy of disease, or for the modifications of physiological function…WHO1972.

Examples of ADR are rashes, jaundice, anaemia, anaphylaxis (a severe, potentially life-threatening allergic reaction), leucopenia (a reduction in the number of white blood cells), nephrotoxicity (kidney damage) and nerve injury impairing vision or hearing.

f) **Therapeutic Drug Monitoring (TDM)**

TDM encompasses the pharmacokinetic processes of absorption, distribution, metabolism and elimination of drug (Acronym: ADME). Therapeutic benefit is attained when a drug achieved a given range for efficacy yet remain below the toxicity threshold. The primary goal of CPS includes optimizing effectiveness and minimizing toxicity of patient's drug therapy.

TDM is therefore the clinical practice of measuring specific drugs at designated intervals to maintain a constant concentration in a patient's bloodstream, thereby optimizing individual dosage regimens. Examples of drugs frequently monitored are aminoglycosides (gentamicin), antiepileptics (carbamazepine, phenytoin) antipsychotics (pimozide, clozapine) and Digoxin.

g) Pre-packing of Medicine

The pre-packing of medicine refers to medications that have been purchased in bulk-packaging from manufacturers/suppliers and are repackaged into smaller packages either in unit dose or unit-of-use packaging. For example, Paracetamol 500 mg tablets are supplied in big containers of say 10,000 tablets by the manufacturer – at the Pharmacy they are repackaged into smaller packages of 10, 20 or more tablets to facilitate unit-of-use dispensing at the outpatient department.

1. Scope of Development Work

1.1 To develop functionalities for the screening, preparation, verification and dispensing/supply of:

a) Extemporaneous Medication
b) IV Admixture
c) TPN (Total Parenteral Nutrition)
d) CDR (Cytotoxic Drug Reconstitution)
e) Pre-packing of Medication

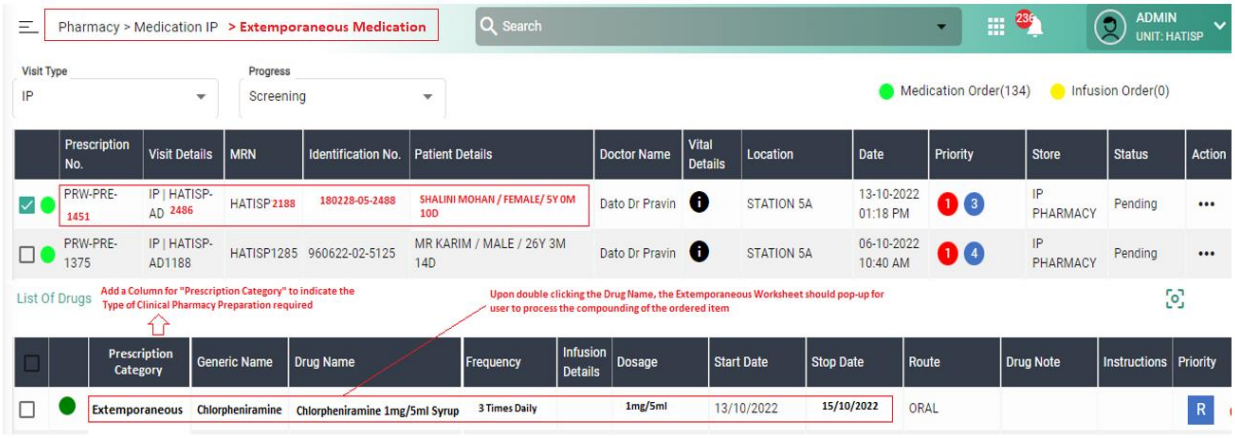
1.2 To provide relevant MIS reports specific to the module.

1.3 To configure relevant Checklists for Extemporaneous Medication

1.4 To provide a **hyperlink to the ADR (Adverse Drug Reaction) and TDM (Therapeutic Drug Monitoring) modules in CliniCare** to facilitate access for the Clinical Pharmacist to do ADR Reporting and Drug Monitoring.

2. Compounding of Extemporaneous Medication

2.1 IP Medication - Extemporaneous Medication - Screening



2.2 IP Medication - Extemporaneous Preparation Worksheet

EXTEMPORANEOUS WORKSHEET

Date of Preparation: 28/02/2023 **Worksheet ID:** EXTEMP 208/23

Patient Details: Shalini Mohan / Female / 5Y 0M 10D
Identification No: 180228-05-2488
MRN: HATISP 2188

Prescription No: PRW-PRE-1451

Order Location: Station 5A
Order Date: 28/02/2023
Ordered By: Dato' Dr. Pravin

No.	ROA	Preparation Name	Dose	Frequency / Duration	Material Used				Storage
					Ingredients	Vol/Qty Reqd	Batch No	Expiry Date	
1.	Oral	Chlorpheniramine 1mg/5ml Syrup	1mg/5ml	2 Times a Day / 3 Days	Chlorpheniramine Maleate 4mg Tablet	6mg (1.5 Tab)	248818	20/04/24	To be refrigerated
					Syrup BP	30 ml			

Worksheet Generated By:	Worksheet & Label Checked By:	Prepared By	Final Product Checked By:
Anis Sapura 28/02/2023	Catherine Tan 28/02/2023	Ilango 28/02/2023	Abdul Jalil 28/02/2023

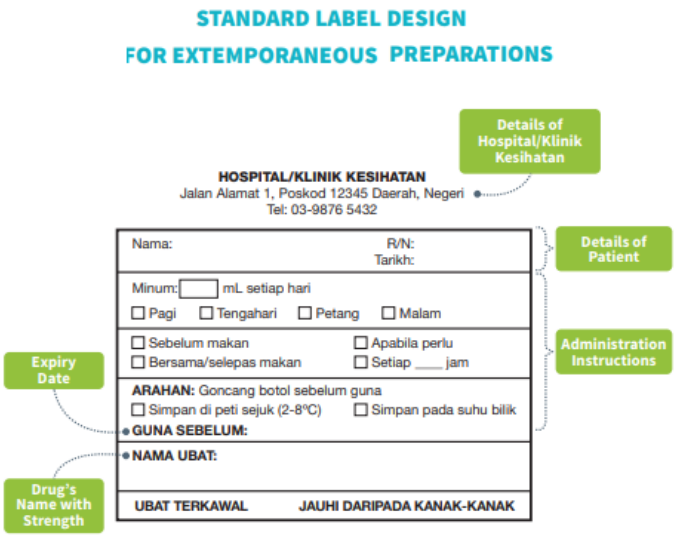
Notes:

a) The above is to be configured & stored in a document holder where user can pull it out and do the compounding required.

b) The patient details and the extemporaneous item name, ROA, Dose, Frequency & Duration should auto-fill the worksheet

c) Label for the prepared extemporaneous medication to be generated.

2.3 IP Medication - Extemporaneous Preparation Label

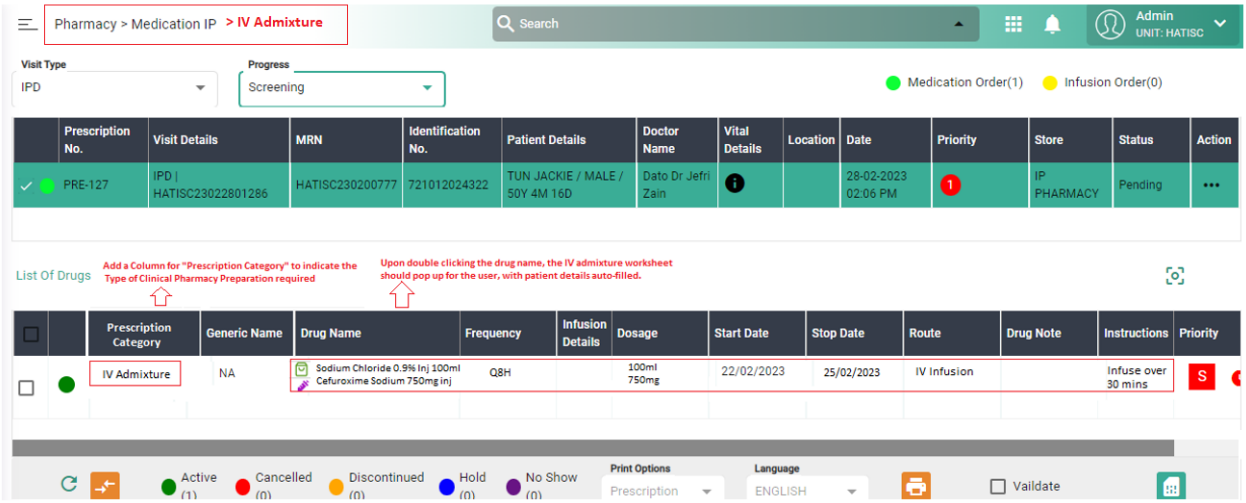


Label for extemporaneous preparations must have the above information

3. Compounding of IV Admixtures

3.1 IP Medication – IV Admixture Order - Screening

Screening: IV Admixture Order



3.2 IP Medication – IV Admixture Preparation Worksheet

IV ADMIXTURE WORKSHEET

Date of Preparation: 22/02/2023 **Worksheet ID:** IVAd 456/23

Patient Details: TUN JACKIE / Male / 50Y 4M 16D
Identification No: 721012024322
MRN: HATISC230200777
Prescription No: PRE-127
Order Location: WARD 3A - 10
Order Date: 22/02/2023
Ordered By: Dato' Dr. Jefri Zain

No.	ROA	Preparation Name	Dose	Frequency / Duration	Material Used				Storage
					Ingredients	Vol/Qty Reqd	Batch No	Expiry Date	
1.	IV Infusion	Cefuroxime Sodium 750mg Inj in Sodium Chloride 0.9% 50ml	750mg	Q8H	Cefuroxime Sodium 750mg	750mg/vial	88944	28/10/2024	Room temperature
					Sodium Chloride 0.9% 50ml	50ml/Bag	39002	30/05/2023	

Worksheet Generated By:	Worksheet & Label Checked By:	Prepared By	Final Product Checked By:
Sarfraz 22/02/2023	Suryakant 22/02/2023	Sarfraz 22/02/2023	Sunil 22/02/2023

Notes:

a) The above is to be configured & stored in a document holder where user can pull it out and do the compounding required.

b) The patient details and the IV Admixture item name, ROA, Dose, Frequency should auto-fill the worksheet

c) Label for the prepared IV Admixture to be generated.

3.3 IP Medication – IV Admixture Label

HATI SPECIALIST HOSPITAL
88 Jln Kerinchi, Kuala Lumpur
Tel: 03 -2288 1122

For IV Infusion Only

Patient Name: TUN JACKIE/M/50Y **Ward:** 3A
MRN: HATISH230200777 **Bed No:** 10

Cefuroxime Sodium 750 Inj in Sodium Chloride 0.9% 50ml

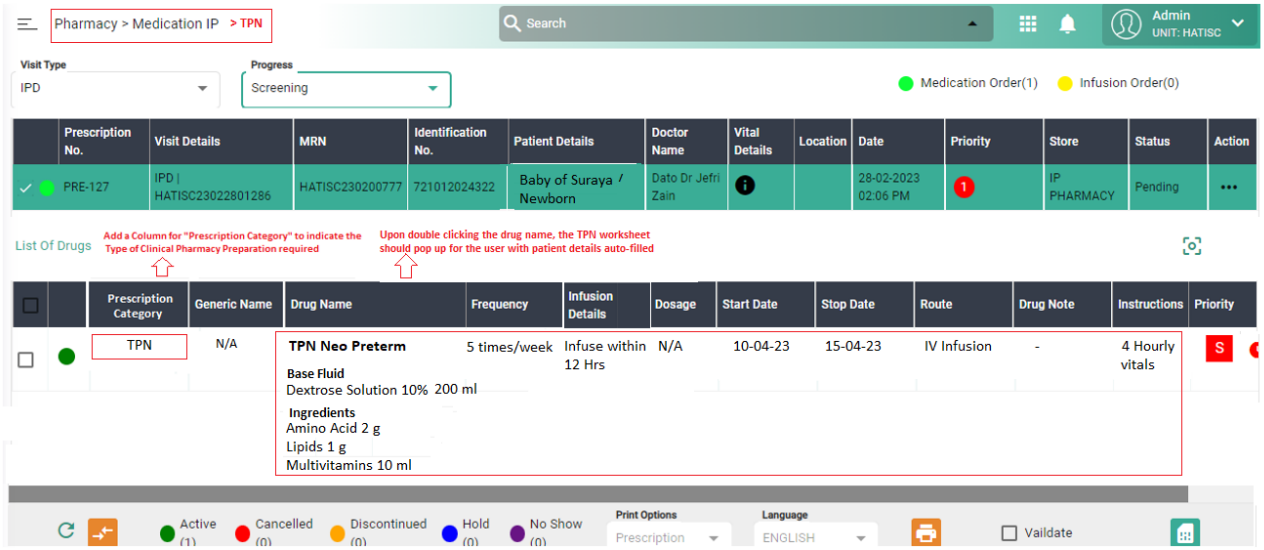
To be infused over 30 mins

Date: 22/02/2023 **Time:** 11.30 AM

Prepared By: Sarfraz, Clinical Pharmacist
Checked By: Sunil, Chief Pharmacist

4. Compounding of TPN

4.1 IP Medication – Screening TPN Order



4.2 IP Medication – TPN Preparation Worksheet

TPN WORKSHEET

Date of Preparation: 10-04-2023 **Worksheet ID:** TPN 288/2023

Patient Details: Baby of SURAYA /M/ Newborn
Identification No: 721012024322
MRN: HATISC230200777

Prescription No:

Order Location: WARD 3A - 10
Order Date: 10-04-2023
Ordered By: Dato' Dr. Jefri Zain

No.	ROA	Preparation Name	Dose	Frequency / Duration	Material Used				Storage
					Ingredients	Vol/Qty Reqd	Batch No	Expiry Date	
1.	IV Infusion	TPN Neo Preterm	As Directed		**Base Fluid** Dextrose 10%	200 ml	34891	20-10-2024	Room temperature
					Ingredients Amino Acid Lipids Multivitamins	2 g 1 g 10 ml	4508 2844 11901	10-11-2024 05-08-2023 04-12-2023	

Worksheet Generated By:	Worksheet & Label Checked By:	Prepared By	Final Product Checked By:
Sarfraz 22/02/2023	Suryakant 22/02/2023	Sarfraz 22/02/2023	Sunil 22/02/2023

Notes:

a) The above worksheet is to be configured & stored in a document holder where user can pull it out and do the compounding required.

b) The patient details and the TPN Preparation, ROA, Frequency should auto-fill the worksheet

c) Label for the prepared TPN is to be generated.

4.3 IP Medication – TPN Label

TPN Label

HATI SPECIALIST HOSPITAL
88 Jln Kerinchi, Kuala Lumpur
Tel: 03 -2288 1122

Patient Name: BABY of SURAYA/Newborn
MRN: HATISH230200777
Ward: 3A - Bed No. 10

For IV Infusion Only

TPN Neo Preterm
Base Fluid:
Dextrose Solution 10% 200 ml
Ingredients:
Amino Acid 2 g
Lipids 1 g
Multivitamins 10 ml

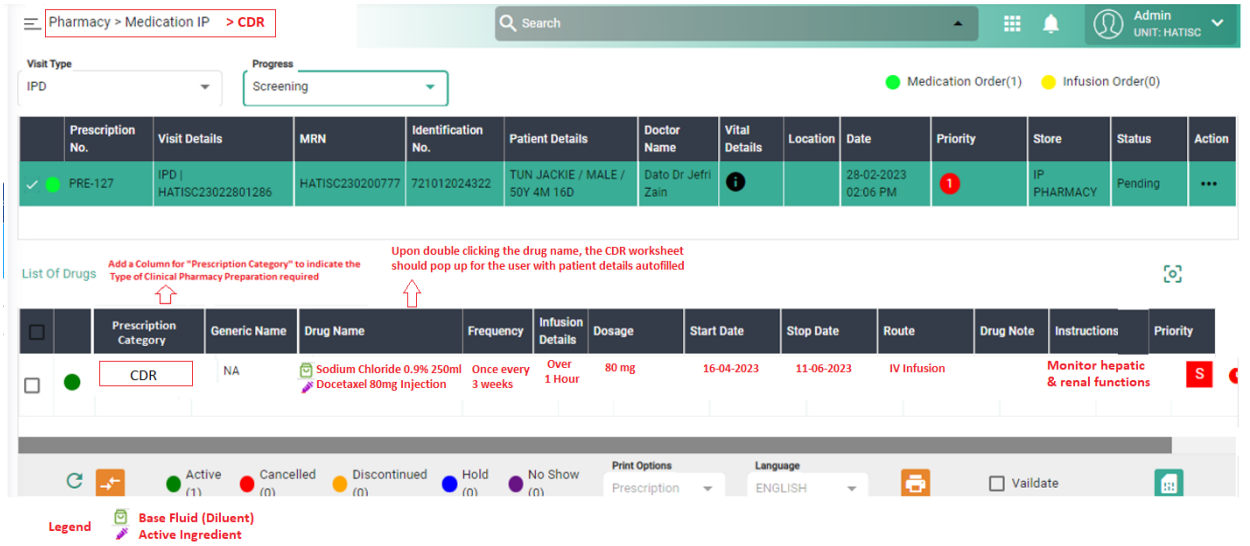
To be infused over 12 hours

Date: 10/04/2023 **Time:** 08:00 AM

Prepared By: Sarfraz, Clinical Pharmacist
Checked By: Sunil, Chief Pharmacist

5. Compounding of CDR

5.1 IP Medication – Screening CDR Orders



5.2 IP Medication - CDR Preparation Worksheet

CDR Worksheet

Date of Preparation: 16-04-2023 **Worksheet ID:** CDR 28/2023

Patient Details: TUN JACKIE / Male / 50Y 4M 16D
Identification No: 721012024322
MRN: HATISC230200777
Prescription No: PRE-288
Order Location: WARD 3A - 10
Order Date: 16-04-2023
Ordered By: Dato' Dr. Jefri Zain
Storage

No.	ROA	Preparation Name (Drug / Diluent)	Dose	Frequency / Duration	Material Used				Storage
					Ingredient / Diluent	Vol/Qty Reqd	Batch No	Expiry Date	
1.	IV Infusion	Docetaxel 80mg Injection	80 mg	Once every 3 weeks	Docetaxel 80mg Injection	80 mg	6518	28/10/2024	Room temperature
		Sodium Chloride 0.9%	250 ml		Sodium Chloride 0.9%	250 ml	2284	30/05/2023	

Worksheet Generated By:	Worksheet & Label Checked By:	Prepared By	Final Product Checked By:
Prashant 16-04-2023	Sunil 16-04-2023	Prashant 16-04-2023	Sunil 16-04-2023

5.3 IP Medication – CDR Label

CDR Label

HATI SPECIALIST HOSPITAL
88 Jln Kerinchi, Kuala Lumpur
Tel: 03-2288 1122

Patient Name: TUN JACKIE/M/50Y
MRN: HATISH230200777
Ward: 3A **Bed No:** 10

Cytotoxic Drug Reconstitution

Docetaxel 80mg Injection
Sodium Chloride 0.9% 250ml

To be infused over 1 hour

Storage:
Protect from Light, Store in a cool and dry place

Date: 16-04-2023 **Time:** 11:30 AM

Prepared By: Prashant, Clinical Pharmacist
Checked By: Sunil, Chief Pharmacist

Notes:

1. There developed functionalities for CDR in CliniCare are still undergoing testing. There are quite a number of bugs which need to be fixed and there are also some missing fields which have to be included later on, such as:
    a. The regimen code
    b. Cycle Start Date / Cycle End Date
    c. Total Number of Cycles / Cycle No. (of the current administration)
    d. Cycle Duration
    e. Calculation of the active ingredient (drug) based on Actual Body Weight, Adjusted Body Weight or the Ideal Weight.
    f. The **AUC Dosing Calculator** – AUC means “Area under the Curve” It is a representation of total drug exposure. Hence, the area-under-the-curve is a function of (i) the length of time the drug is present and (ii) the concentration of the drug in blood plasma.

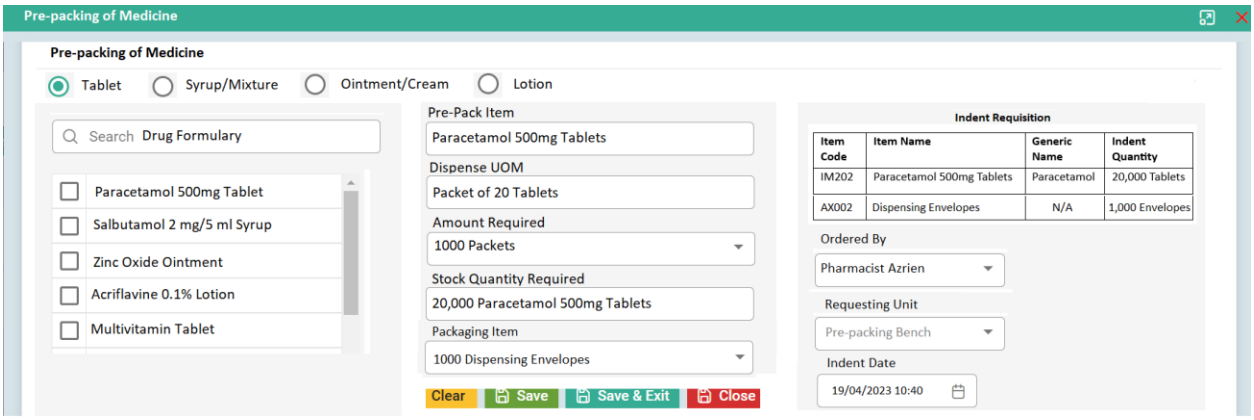
6. Pre-packing of Medication

Pre-packing of Medication refers to the repackaging of drugs that have been supplied in bulk by the manufacturer or supplier into smaller packages.

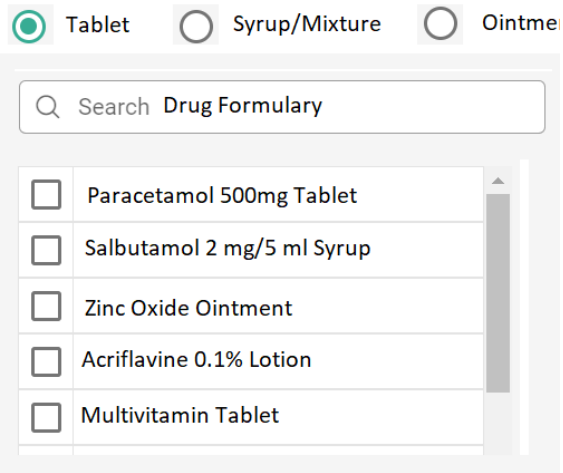
For example, Paracetamol 500 mg tablets are supplied in big containers of say 10,000 tablets by the manufacturer or supplier – at the Pharmacy they are repackaged into smaller packages of 10, 20 or more tablets to facilitate unit-of-use dispensing at the outpatient department.

Please note that this requirement is not triggered from the patient's medication orders, but rather it is the management of supplies within the pharmacy by pharmacists.

6.1 Pre-packing of Tablets

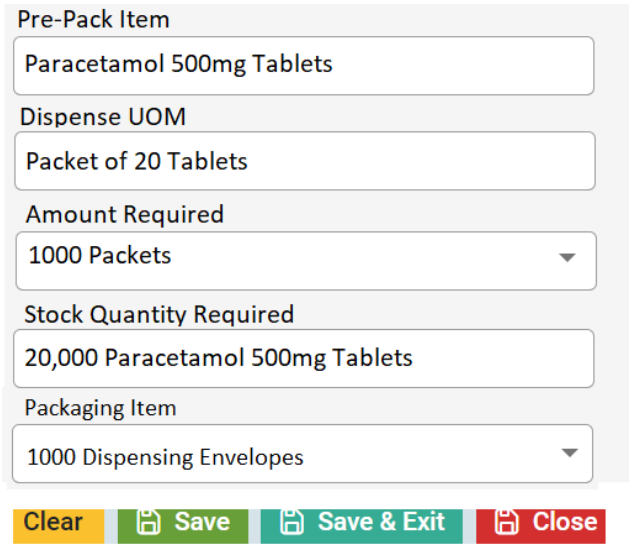


Use Case - Pre-packing of Tablets

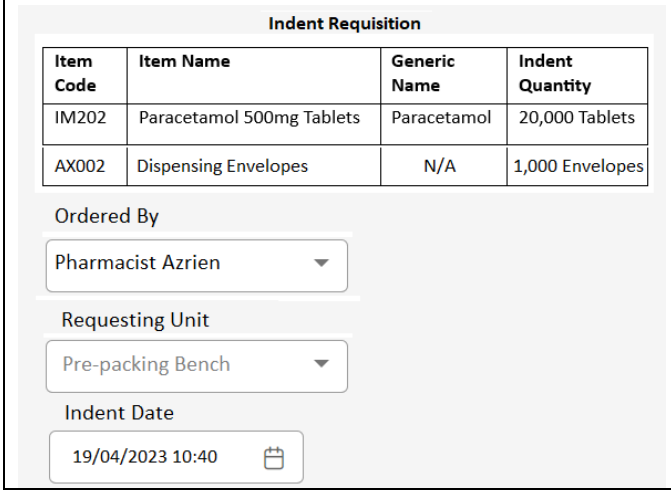


Use Case

1. Pharmacist decides to pre-pack Paracetamol 500mg Tablets.
2. Pharmacist checks the Pharmacy Stock level for the above.
3. Pharmacist selects the drug item (Paracetamol 500mg Tablet) from the Hospital Drug Formulary.



4. Selected drug item auto-populate field for “Pre-Pack Item”.
5. Pharmacist defines the dispense UOM and key-in the Pre-pack quantity or “Amount Required”.
6. System auto-calculates the “Stock Quantity Required”
7. Pharmacist selects the appropriate “Packaging Item” & key-in the number required (i.e. Dispensing envelopes)
8. Upon clicking “Save”, details from Point No. 7 will populate the Indent requisition.
9. Touch point with Inventory Management.



10. Requested quantity of Paracetamol 500mg released/supplied from Store to the Pre-packing Workbench.
11. Assistant Pharmacist or Pharmacist generates required number of labels and does the pre-packing.
12. Prepacked items released to dispensing counter.
13. END.

Pre-packing Worksheet for Tablets

Pre-packing Worksheet

Date of Pre-packing: 19-04-2023 **Worksheet ID:** PP28/2023

Activity: To repack 5000 Paracetamol 500mg Tablets into packages of 20 tablets per packet

Storage: Cool and Dry Place

No.	ROA	Item Name	Strength	Material Required			
				Ingredient/Diluent	Vol/Qty Reqd	Batch No.	Expiry Date
1.	Oral	Paracetamol 500mg Tablets	500mg	Paracetamol 500mg Tablets	20,000 Tablets	B209288	20-06-2024
2.	N/A	Dispensing Envelopes	N/A	N/A	1,000 Envelopes	N/A	N/A

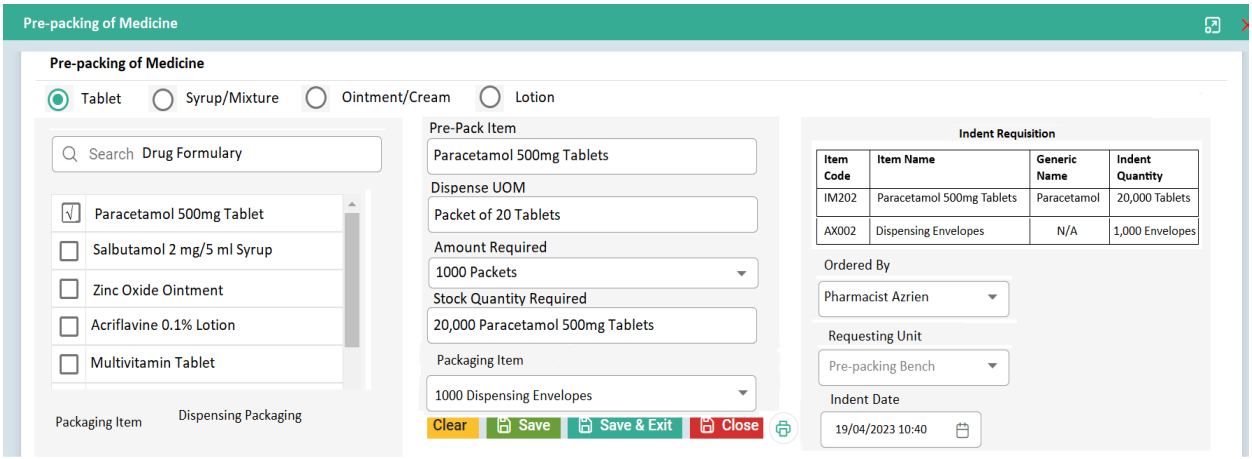
Worksheet Generated By:	Worksheet & Labels Verified By	Pre-packing Performed By:	Pre-packed Medication Checked and Released to Dispensing Counter By
Zafri, Assistant Pharmacist 19-04-2023	Rohaidi, Pharmacist 19-04-2023	Zafri, Assistant Pharmacist 19-04-2023	Rohaidi, Pharmacist 19-04-2023

Label for Dispensing of Tablets, Caplets and Capsules

Label Dimensions would depend on the size of dispensing envelope used. Please note that label contents may differ from facility to facility – hence it is essential to finalize the contents during BPR.



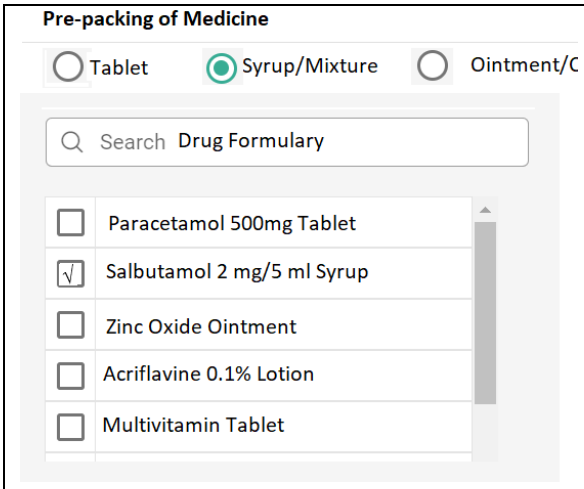
6.2 Pre-packing of Syrup / Mixture



Master: Packaging Item

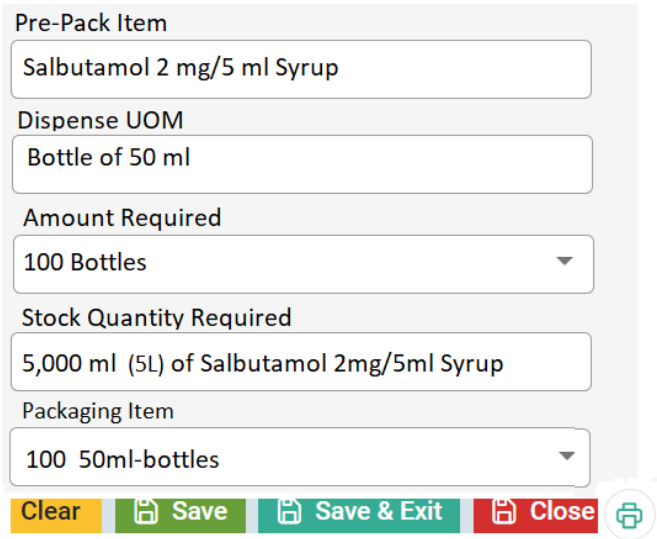
1. Dispensing Envelope
2. Ointment Box 20gm
3. Ointment Box 10gm
4. Ointment Box 5gm
5. 50-ml Medicine Bottle
6. 75-ml Medicine Bottle
7. 100-ml Medicine Bottle
8. 50-ml Lotion Bottle
9. 100-ml Lotion Bottle

Use Case - Pre-packing of Syrup or Mixture

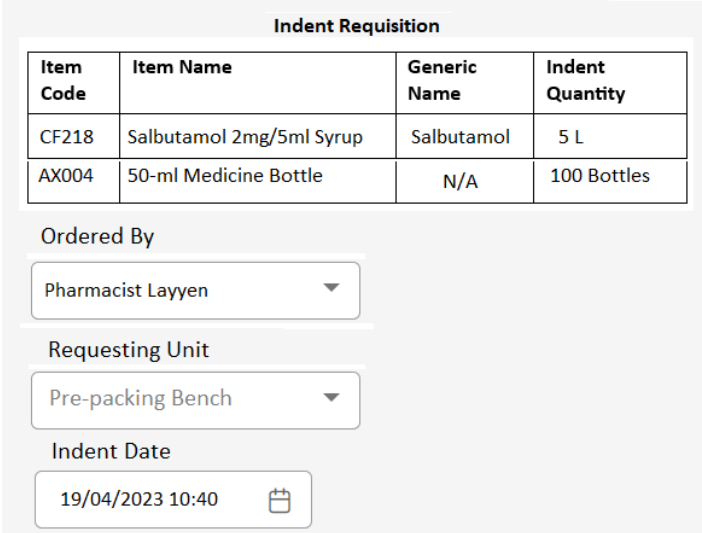


Use Case

1. Pharmacist decides to pre-pack Syrup Salbutamol 2mg/5ml Syrup.
2. Pharmacist checks the Pharmacy Stock level for the above.
3. Pharmacist selects the drug item (Salbutamol 2mg/5ml Syrup) from the Hospital Drug Formulary.



4. Selected drug item auto-populate field for “Pre-Pack Item”.
5. Pharmacist defines the dispense UOM and key-in the Pre-pack quantity or “Amount Required”.
6. System auto-calculates the “Stock Quantity Required”
7. Pharmacist selects the appropriate “Packaging Item” & key-in the number required (i.e. 100 50ml-Medicine bottle)
8. Upon clicking “Save”, details from Point No. 7 will populate the Indent requisition.
9. Touch point with Inventory Management.



10. Requested quantity (5L) of Salbutamol 2mg/5ml Syrup and 100 50-ml mixture bottles released/supplied from Store to the Pre-packing Workbench.
11. Assistant Pharmacist or Pharmacist generates required number of labels and does the pre-packing.
12. Prepacked items released to dispensing counter.
    END

Pre-packing Worksheet for Syrup / Mixture

Pre-packing Worksheet

Date of Pre-packing: 19-04-2023 **Worksheet ID:** PP45/2023

Activity: To repack Salbutamol 2mg/5ml Syrup into Bottles of 50ml

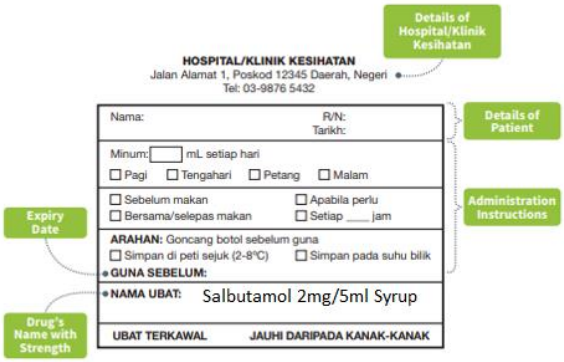
Storage: Store below 30C & Protected from light

No.	ROA	Item Name	Strength	Material Required			
				Ingredient/Diluent	Vol/Qty Reqd	Batch No.	Expiry Date
1.	Oral	Salbutamol 2mg/5ml Syrup	2mg/5ml	Salbutamol 2mg/5ml Syrup	5L of Salbutamol 2mg/5ml Syrup	W998412	28-10-2023
2.	N/A	50ml Medicine Bottle	N/A	N/A	100 50ml-Bottles	N/A	N/A

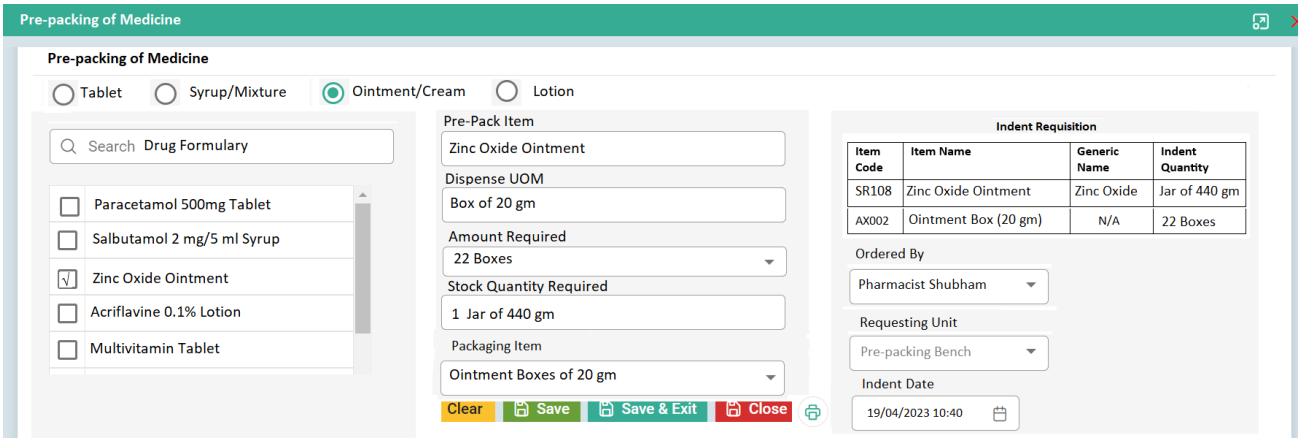
Worksheet Generated By:	Worksheet & Labels Verified By	Pre-packing Performed By:	Pre-packed Medication Checked and Released to Dispensing Counter By
Zafri, Assistant Pharmacist 19-04-2023	Rohaidi, Pharmacist 19-04-2023	Zafri, Assistant Pharmacist 19-04-2023	Rohaidi, Pharmacist 19-04-2023

Label for the dispensing of Liquid Medication such as Syrup, Mixture, Linctus, Elixir, Suspension and Emulsion.

Label Dimensions would depend on the size of the medication bottle used. Please note that label contents may differ from facility to facility – hence it is essential to finalize the contents during BPR.



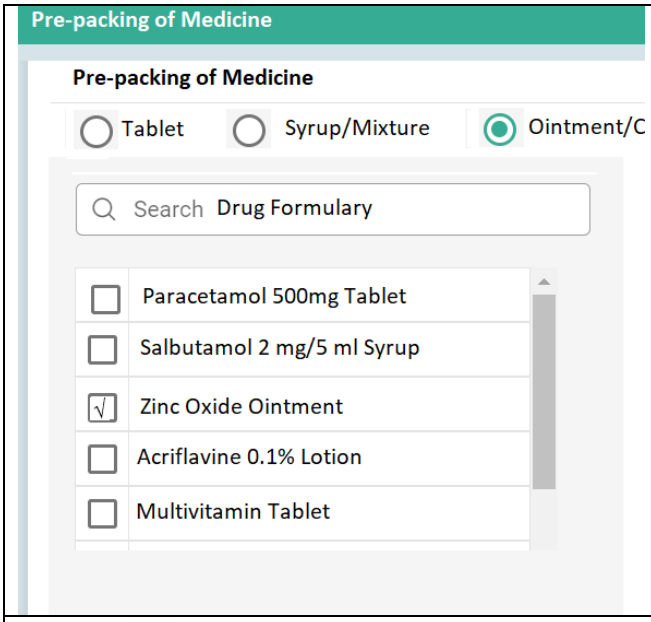
6.3 Pre-packing of Ointment / Cream



Notes:

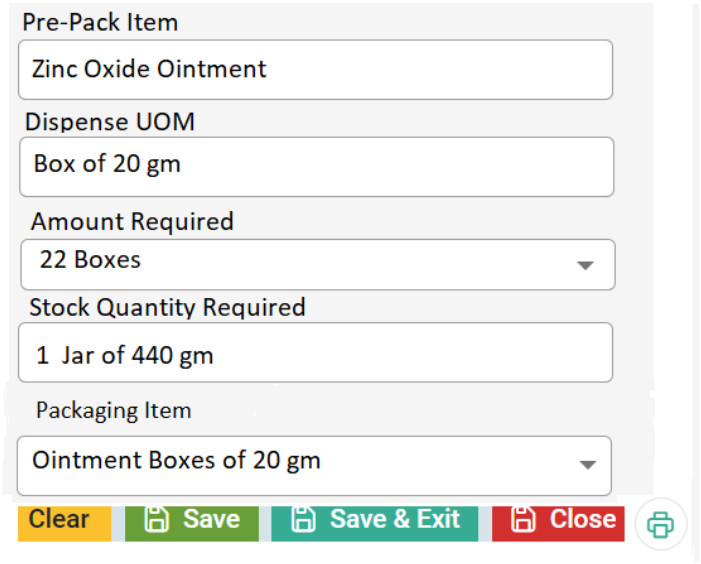
Prepacking for Cream such as Calamine Cream, Hydrocortisone Cream will follow the same process as that of Ointment.

Use Case - Pre-packing of Ointment or Cream



Use Case

1. Pharmacist decides to pre-pack Zinc Oxide Ointment
2. Pharmacist checks the Pharmacy Stock level for the above.
3. Pharmacist selects the drug item (Zinc Oxide Ointment) from the Hospital Drug Formulary.



4. Selected drug item auto-populate field for “Pre-Pack Item”.
5. Pharmacist defines the dispense UOM and key-in the Pre-pack quantity or “Amount Required”.
6. System auto-calculates the “Stock Quantity Required”
7. Pharmacist selects the appropriate “Packaging Item” & key-in the number required (i.e. 22 Ointment Boxes of 20 gm)
8. Upon clicking “Save”, details from Point No. 7 will populate the Indent requisition.
9. Touch point with Inventory Management.

Indent Requisition

Item Code	Item Name	Generic Name	Indent Quantity
SR108	Zinc Oxide Ointment	Zinc Oxide	Jar of 440 gm
AX002	Ointment Box (20 gm)	N/A	22 Boxes

Ordered By

Pharmacist Shubham

Requesting Unit

Pre-packing Bench

Indent Date

19/04/2023 10:40

10. Requested quantity 1 Jar of Zinc Oxide Ointment of 440 gm & 22 Ointment Boxes of 20 gm released/supplied from Store to the Pre-packing Workbench.
11. Assistant Pharmacist or Pharmacist generates required number of labels and does the pre-packing.
12. Prepacked items released to dispensing counter.
    END

Pre-packing Worksheet for Ointment / Cream

Pre-packing Worksheet

Date of Pre-packing: 19-04-2023 **Worksheet ID:** PP45/2023

Activity: To repack Zinc Oxide Ointment in Boxes of 20 gm

Storage: Store below 30C & Protected from light

No.	ROA	Item Name	Strength	Material Required			
				Ingredient/Diluent	Vol/Qty Reqd	Batch No.	Expiry Date
1.	External	Zinc Oxide Ointment	N/A	Zinc Oxide Ointment	Jar of 440 gm	T202818	12-12-2025
2.	N/A		N/A	N/A		N/A	N/A

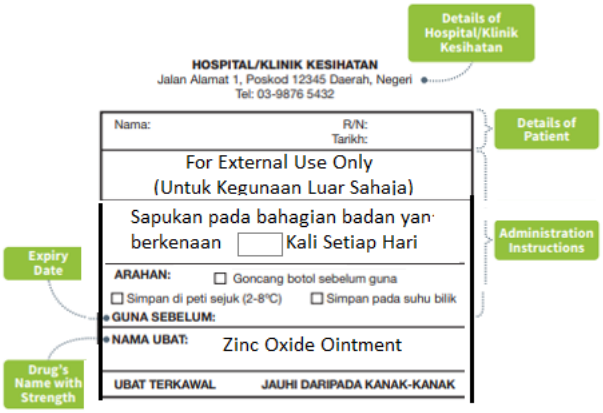
Worksheet Generated By:	Worksheet & Labels Verified By	Pre-packing Performed By:	Pre-packed Medication Checked and Released to Dispensing Counter By
Zafri, Assistant Pharmacist 19-04-2023	Rohaidi, Pharmacist 19-04-2023	Zafri, Assistant Pharmacist 19-04-2023	Rohaidi, Pharmacist 19-04-2023

Sample Label for the dispensing of Ointment and Cream

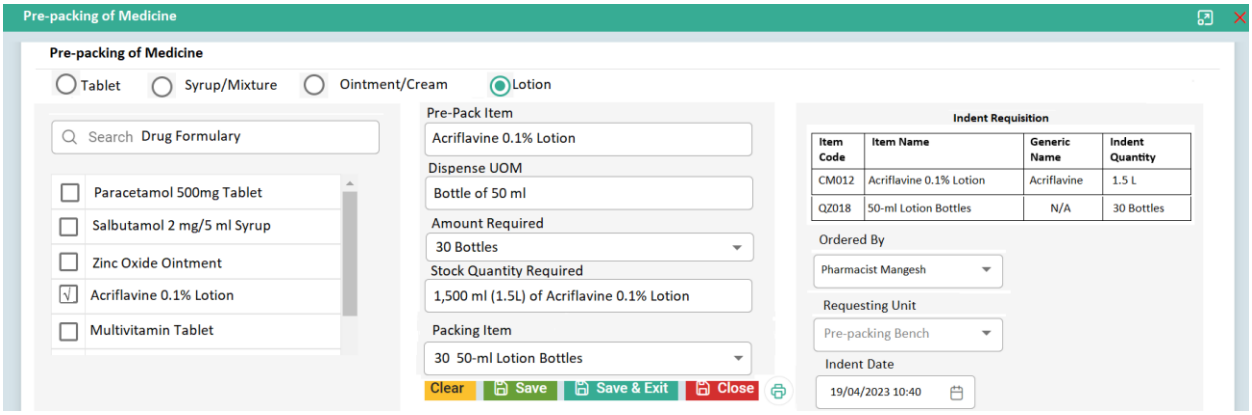
Label Dimensions would depend on the size of Ointment Box used

If the box is too small to fit the label, then only the Drug name is required to be pasted. The ointment box will then be dispensed in an envelope large enough to stick the label like the one below.

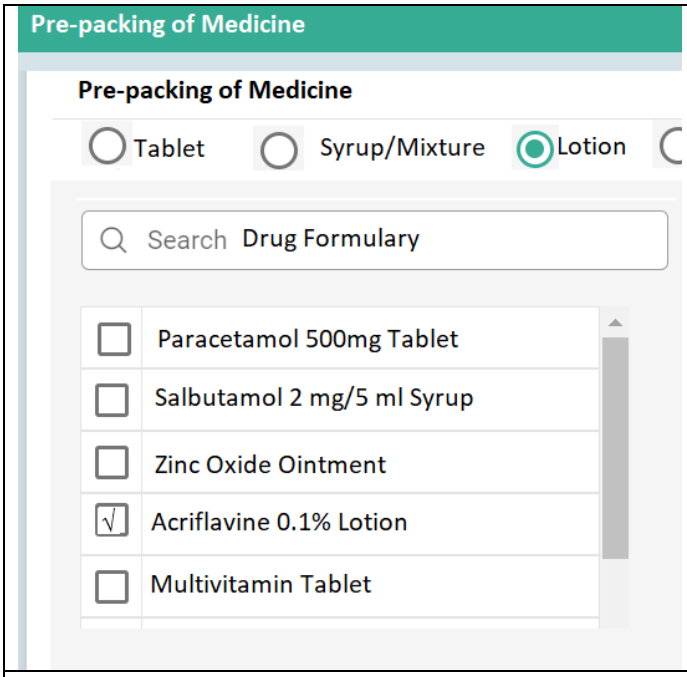
Please note that label contents may differ from facility to facility – hence it is essential to finalize the contents during BPR.

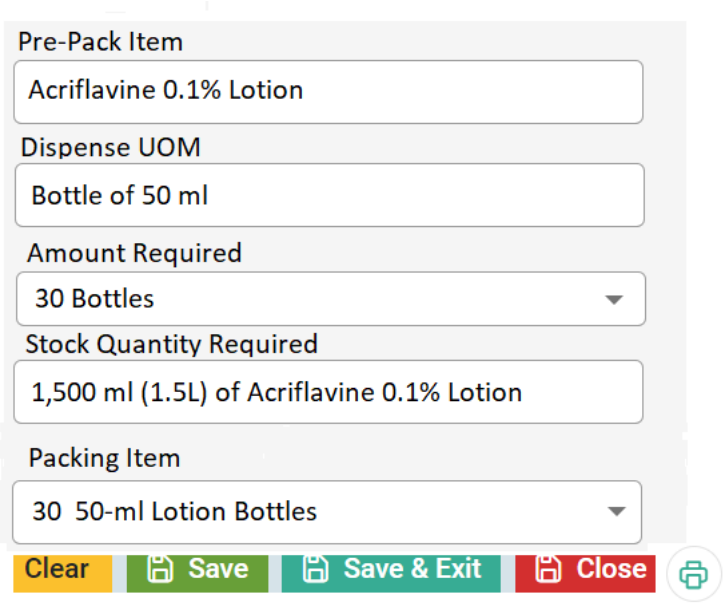


6.4 Pre-packing of Lotion



Use Case - Pre-packing of Lotion

<table>
<tr>
<td>
</td>
<td>Use Case

1. Pharmacist decides to pre-pack Acriflavine 0.1% Lotion
2. Pharmacist checks the Pharmacy Stock level for the above.
3. Pharmacist selects the pre-pack item (Acriflavine 0.1% Lotion) from the Hospital Drug Formulary.</td>
</tr>
<tr>
<td>
</td>
<td>4. Selected item auto-populate field for “Pre-Pack Item”.
5. Pharmacist defines the dispense UOM and key-in the Pre-pack quantity or “Amount Required”.
6. System auto-calculates the “Stock Quantity Required”
7. Pharmacist selects the appropriate “Packaging Item” & key-in the number required (i.e. 30 50-ml Lotion Bottles)
8. Upon clicking “Save”, details from Point No. 7 will populate the Indent requisition.
9. Touch point with Inventory Management.</td>
</tr>
</table>

Indent Requisition

Item Code	Item Name	Generic Name	Indent Quantity
CM012	Acriflavine 0.1% Lotion	Acriflavine	1.5 L
QZ018	50-ml Lotion Bottles	N/A	30 Bottles

Ordered By

Pharmacist Mangesh

Requesting Unit

Pre-packing Bench

Indent Date

19/04/2023 10:40

10. Requested quantity 1.5 L of Acriflavine 0.1% Lotion & 30 50-ml Lotion Bottles released/supplied from Store to the Pre-packing Workbench.
11. Assistant Pharmacist or Pharmacist generates required number of labels and does the pre-packing.
12. Prepacked items released to dispensing counter.
END

Pre-packing Worksheet for Lotion

Pre-packing Worksheet

Date of Pre-packing: 19-04-2023 **Worksheet ID:** PP102/2023

Activity: To pre-pack Acriflavine 0.1% Lotion into Botttles of 50ml **Storage**

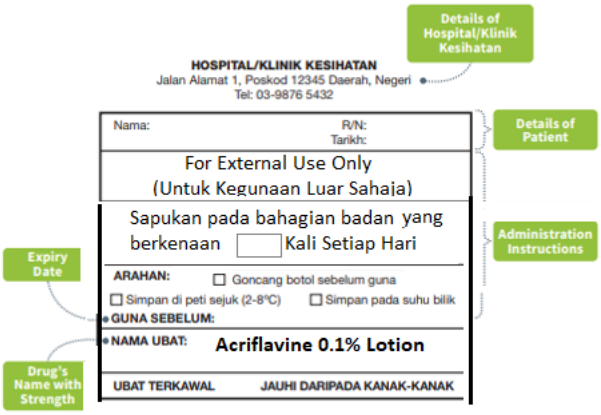
No.	ROA	Item Name	Strength	Material Required				
				Ingredient/Diluent	Vol/Qty Reqd	Batch No.	Expiry Date	
1.	External Use	Acriflavine 0.1% Lotion	0.1%	Acriflavine 0.1% Lotion	1.5 L	R428411	10-06-2024	Store below 30C & in a cool dry place
2.	N/A	50ml Lotion Bottles	N/A	N/A	30 Bottles	N/A	N/A	

Worksheet Generated By:	Worksheet & Labels Verified By	Pre-packing Performed By:	Pre-packed Medication Checked and Released to Dispensing Counter By
Zafri, Assistant Pharmacist 19-04-2023	Rohaidi, Pharmacist 19-04-2023	Zafri, Assistant Pharmacist 19-04-2023	Rohaidi, Pharmacist 19-04-2023

Sample Label for the dispensing of Lotion

Label Dimensions would depend on the size of Lotion bottle used.

Please note that label contents are subject to changes by the facility using the system. Please note that label contents may differ from facility to facility – hence it is essential to finalize the contents during BPR.



7 Checklist

Checklist 1: Compounding Extemporaneous Medication

No.	Activity	(√)	Remarks
1.	Identify Extemporaneous medications currently in use		
2	Check appropriateness of the prescribed extemporaneous medication		
3	Check registration status		
4	Check availability of commercial preparations		
5	Check cost of commercial preparation versus cost of inhouse preparation		
6	Propose/recommend the Hospital to purchase commercial preparation		

Checklist 2: Handling Extemporaneous Medication Preparation in the Pharmacy

No.	Activity	(√)	Remarks
1.	Receive Extemporaneous medication prescription		
2	Check availability of medicine		
3	Discuss with Doctor on alternative medication		
4	Check commercial availability of the prescribed medication		
5	Look up evidence-based reference to prepare the extemporaneous medication		
6	Prepare, dispense medication and counsel patient/care provider		

8 MIS Reports

MIS Reports: Clinical Pharmacy Module (MedCare)

Please note that the **report components and contents may differ** from hospital to hospital. Therefore, it is imperative that these are addressed during BPR to finalise the requirements for each report.

5.1 Extemporaneous Medication Preparation by Prescription Item and Speciality.

Report Frequency: Monthly / Yearly			
March 2023: Extemporaneous Medication Preparation by Prescription Item and Speciality			
S/No.	**Prescription Item**	**No. of Prescriptions**	**Speciality**
1	Trimethoprim Syrup 10 mg/ml	45	Paediatrics
2	Chlorpheniramine Syrup 2 mg/5ml	55	Paediatrics
3	Lorazepam Syr 0.4 mg/ml	24	Paediatrics
4	Midazolam Syrup 2 mg/ml	13	Paediatrics
5	Ciprofloxacin Suspension 50 mg/ml	28	Paediatrics
6	Nitrofurantoin Suspension 10 mg/ml	10	Geriatrics
7	Sildenafil Suspension 2.5 mg/ml	12	General Medicine
8	6% Sulphur in Calamine Cream	40	Dermatology
9	Coal Tar in Vaseline 3%	25	Dermatology
10	Fusidic Acid & Betamethasone Cream	30	Dermatology
	Total	**282**	

5.2 IV Admixture Preparation by Speciality.

Report Frequency: Monthly / Yearly		
April 2023: IV Admixtures Preparation by Speciality		
S/No.	Speciality	Number of Preparations
1	General Medicine	80
2	General Surgery	120
3	Paediatrics	40
4	Orthopaedics	55
5	Obstetrics & Gynaecology	60
6	Oncology	20
	Total	**375**

5.3 Total Parenteral Nutrition Preparations (TPN) by Speciality.

Report Frequency: Monthly / Yearly		
April 2023: Total Parenteral Nutrition (TPN) Preparations by Speciality		
S/No.	**Speciality**	**Number of Preparations**
1	General Medicine	35
2	General Surgery	20
3	Paediatrics	15
4	Orthopaedics	5
5	Oncology	50
	Total	**125**

5.4 Cytotoxic Drug Reconstitution (CDR) Preparations by Diagnosis and Pharmacist

Report Frequency: Monthly / Yearly			
April 2023: Cytotoxic Drug Reconstitution (CDR) Preparations by Diagnosis & Pharmacist			
S/No.	**Diagnosis**	**Pharmacist**	**Number of Preparations**
1	CA Breast	Cik Kirosha	5
2	CA Breast	Cik Tina Tan	8
3	Colorectal Cancer	En Lokman Mohd	4
4	Colorectal Cancer	Cik Kirosha	10
5	Non-Hodgkin lymphoma	Cik Tina Tan	4
6	Pancreatic Carcinoma	En Lokman Mohd	2
7	Acute Lymphocytic Leukemia (ALL)	Cik Kirosha	3
	Total		**36**

5.5 Prepacking of Medication by Drug and Assistant Pharmacist

Report Frequency: Monthly / Yearly				
April 2023: Prepacking of Medication by Drug & Assistant Pharmacist				
S/No.	**Pre-packed Medication**	**Dispense UOM**	**Quantity Pre-packed**	**Assistant Pharmacist**
1	Paracetamol Tablet 500 mg	Packet of 20 Tablets	8000	Cik Farida
2	Paracetamol Tablet 500 mg	Packet of 10 Tablets	3000	Cik Tina Tan
3	Paracetamol Syrup 120 mg / 5 ml	Bottle of 60 ml	4500	En Lokman Mohd
4	Ampicillin Syrup 125 mg / 5 ml	Bottle of 100 ml	1000	Cik Kirosha
5	Amlodipin Tablet 10 mg	Packet of 30 Tablets	3000	Cik Tina Tan
6	Betnovate G Cream 30 gm	Box of 30 gm	500	En Lokman Mohd
7	Zinc Oxide 20% Ointment	Box of 30 gm	250	Cik Farida

5.6 Clinical Pharmacy Workload by Preparation Type and Pharmacist

Report Frequency: Monthly / Yearly			
March 2023: Clinical Pharmacy Workload by Preparation Type and Pharmacist			
S/No.	**Preparation Type**	**Pharmacist**	**Number of Preparations**
1	Extemporaneous Medication	Cik Kirosha	108
2	Extemporaneous Medication	Cik Tina Tan	120
3	IV Admixture	En Lokman Mohd	300
4	IV Admixture	Cik Kirosha	500
5	Total Parenteral Nutrition	Cik Tina Tan	50
6	Total Parenteral Nutrition	En Lokman Mohd	25
7	Cytotoxic Drug Reconstitution	Cik Kirosha	20
8	Cytotoxic Drug Reconstitution	En Lokman Mohd	15
	Total Number of Preparations		**1138**

5.7 Adverse Drug Reaction (ADR) Reporting by Patient, Drug and Care Provider

Report Frequency: Monthly / Yearly				
April 2023: Adverse Drug Reaction (ADR) Reporting by Patient, Drug, Reaction & Care Provider				
S/No.	**Patient Details**	**Drug Name**	**Reaction**	**Reported By (Care Provider)**
1	Jaffar Salleh 55 Y / M / MRN: HATI11886	Procaine Benzylpenicillin	Anaphylaxis	Dato' Dr. Mohd Yusof
2	Kesavan Pillay 75 Y / M / MRN: HATI11950	Atropine Sulphate Injection	Raised Intra-ocular Pressure	Dr. Dikshya
3	Janet Moo 40 Y / F / MRN: HATI21018	Amoxicillin Capsule	Cholestatic Jaundice	Dr. Ilango
4	Aminah Mohd 59 Y / F / MRN: HATI22008	Lansoprazole Tablet	Drug-induced diarrhoea	SN Arifah Mahmud
5	Meenachi Singam 50 Y / F / MRN: HATI20116	Metronidazole Injection	Urticaria & Angioedema	Dr. Rohaidi Darus

5.8 Therapeutic Drug Monitoring (TDM) by Drug and Care Provider

Report Frequency: Monthly / Yearly			
March 2023: Therapeutic Drug Monitoring (TDM) by Patient, Drug & Care Provider			
S/No.	**Patient Details**	**Drug Name**	**Care Provider**
1	Johari Abdullah 50 Y / M / MRN: HATI22486	Kanamycin	Dato' Dr. Sanjay
2	Ganeson Karupillai 70 Y / M / MRN:HATI28345	Digoxin	Cik Tina Tan (Clinical Pharmacist)
3	Jennifer Lai 38 Y / F / MRN:HATI26828	Vancomycin	Dr Lokman Mohd
4	Sharifah Iskandar 60 Y / F / MRN:HATI26844	Methotrexate	Cik Kirosha (Clinical Pharmacist)
5	Angammah Velupillay 50 Y / F / MRN:26902	Gentamicin	Cik Tina Tan (Clinical Pharmacist)