

---

# **Safety in Numbers - Multi-Stakeholder Use of the Chemical Abstract Service (CAS) Number for Improved Compounding Safety**

## **The Alberta Health Services Experience**

**Dalyce Zuk, BScPharm, ACPR, PharmD**

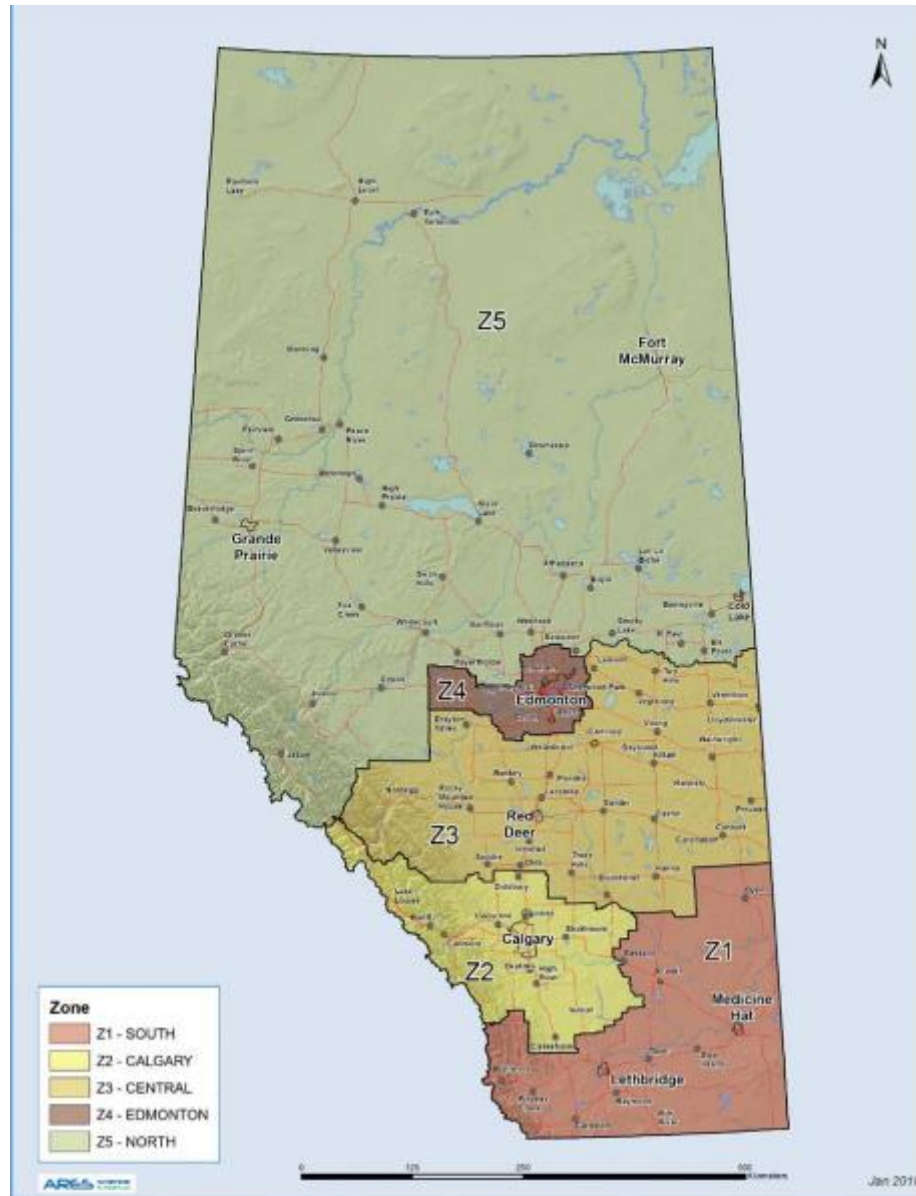
**Clinical Content, Compounding & Repackaging Manager**

---

# Presenter Disclosure

- Presenter's Name: Dalyce Zuk
- I am an employee of Alberta Health Services.
- Speaking Fees for current program:
  - I have received no speaker's fee for this learning activity





---

# Our Standardization Journey

- Precipitant: Connect Care
  - Timeline: 2018 (~18 months before launch 1)
  - Project goal: Creation of single provincial database as single sources of truth for repackaging, sterile and non-sterile compounding
  - Rationale: Responsible use of build resources for Connect Care required a single, standardized recipe/worksheet for compounding
-

---

# Our Journey Continues...

- 2 systems at play
- 2 pieces of work completed to date
  - Worksheet Updates - 2020
  - Inventory Naming Updates - 2021
- Project goal: Incorporation of CAS# into AHS processes – purchasing, inventory, compounding
- Rationale: ISMP encourages the use of CAS# as unique identifiers to avoid product selection errors. NAPRA includes the CAS# as a unique identifier for APIs on their master formulation template

---

# Recipe Database

- Dedicated team of compounding & repackaging (CNR) personnel
  - Databases available - repackaging, sterile and non-sterile
  - Source of truth for Connect Care build
  - CAS# treated like DIN
-



Initials	Date
Inventory Charges	

## Recipe - Compounding Worksheet

FOR ALBERTA HEALTH SERVICES USE ONLY. Unauthorized distribution, copying or disclosure prohibited. These recipes are intended for use by the pharmacy manufacturing departments only.

**nystatin topical powder in magnesium carbonate 100,000 units/gram**

Lot #	Manufacturer	Ingredients Expiry (mm/dd/yyyy)	Strength	Form	Quantity Required	Compounder	Checker
<input type="text"/>	<input type="text"/>	nystatin, USP CAS 5860 1400-81-9	5860 units/mg	PWD	2.5 g	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	magnesium carbonate, USP CAS 23389-33-5		PWD	147.5 g	<input type="text"/>	<input type="text"/>
<b>Recipe Total Quantity:</b>					<b>150 g</b>		

---

# Inventory Item

- CAS# included in ERX description/nomenclature

Inventory Item: NYSTATIN, CAS: 1400-61-9 POWDER 5.86 MILLION UNITS/G of POWDER

## Coming this Winter.....

- December 2022 - work package to complete outstanding updates
-



# Comparing Processes

Electronic/Connect Care	Manual/Legacy
Ordering of chemical through CC → interface to oracle	Ordering of chemical through Oracle

Inventory: LOCATION

Inventory Name	In Stock	On Order	Par	Crit	Opt	Max
NYSTATIN, CAS: 1400-61-9 POWDER 35.16 MILLION UNITS/G of POWDER, 6G	10 packag es					
NYSTATIN, CAS: 1400-61-9 POWDER 35.16 MILLION UNITS/G of POWDER (WRAPPER)	958.82 million units		500 millio n units		1000 millio n units	

# Matching EPIC to Oracle

AHS Oracle On Contract – Effective [MONTH YEAR]

**[Contract #]** 1000 million units bottle [MANUFACTURER]

Supplier ID: XXXXXX

Price: XX.XX/1 x 1000 million units bottle

---

**[Contract #]** 100 million units bottle [MANUFACTURER]

Supplier ID: XXXXXX

Price: XX.XX/1 x 1000 million units bottle

---

**[Contract #]** 500 million units bottle [MANUFACTURER]

Supplier ID: XXXXXX

Price: XX.XX/1 x 1000 million units bottle

# Oracle

NYSTATIN 500MU USP POWDER CAS# 1400-61-9

Quantity  EACH

This item is internally stocked.

---

NYSTATIN 1000MU USP POWDER CAS# 1400-61-9

Quantity  EACH

This item is internally stocked.

---

NYSTATIN 100MU USP POWDER CAS# 1400-61-9

Quantity  EACH

This item is internally stocked.

---

# Healthpro Contract

NPN	Member Stock No	Brand Name	Product Description
		Nystatin USP 5...	NYSTATIN, PWD, USP (CAS# 1400-61-9)
		Nystatin USP 1...	NYSTATIN, PWD, USP (CAS# 1400-61-9)
		Nystatin USP 1...	NYSTATIN, PWD, USP (CAS# 1400-61-9)

---

---

# Comparing Processes

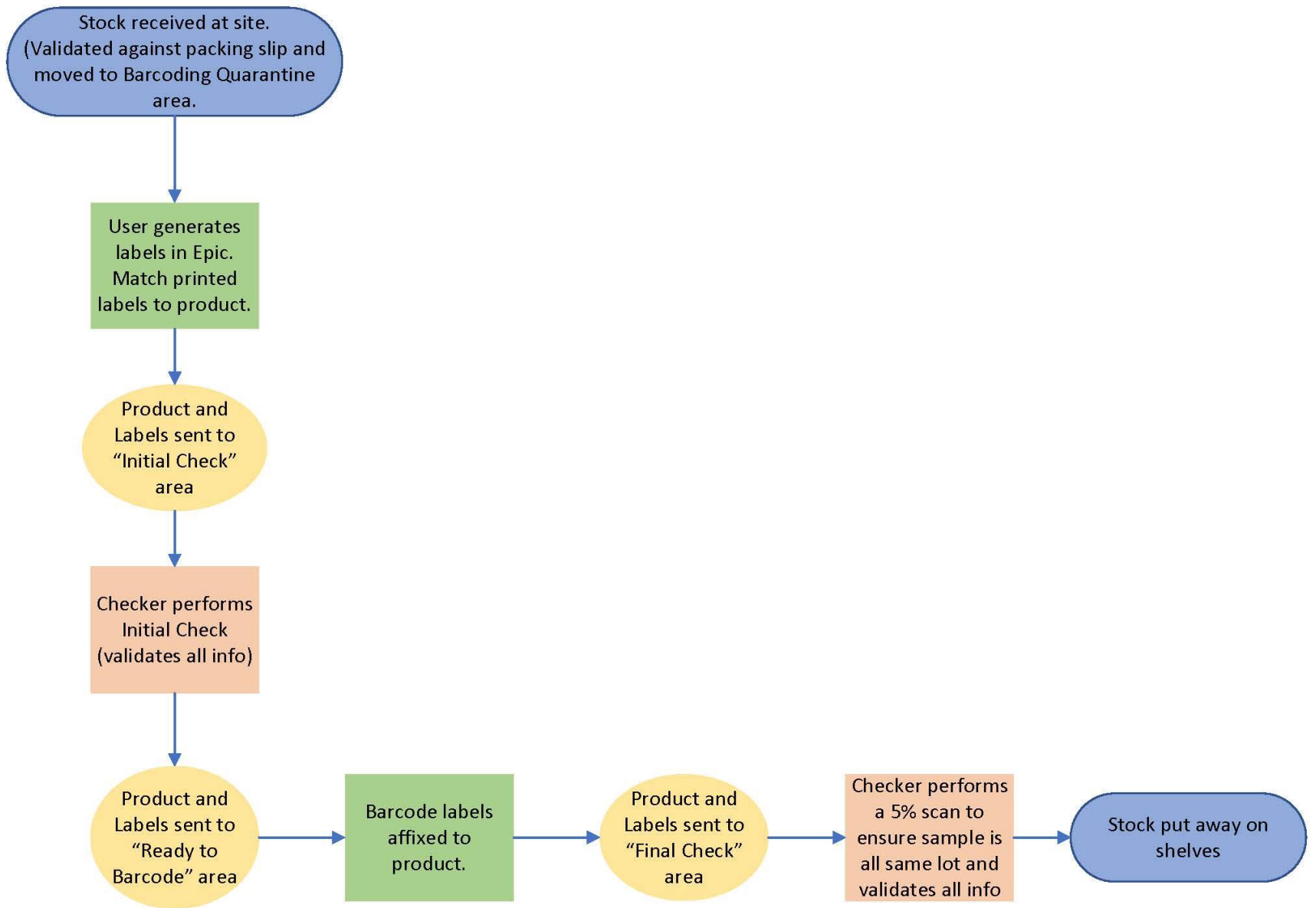
Electronic/Connect Care	Manual/Legacy
Receiving, quarantine and barcoding; visual. Dispersal to compounding area	Receiving; visual. Dispersal to compounding area
Repackaging (if required) using CC record; barcode scanning and visual; checked; labelled	Repackaging (if required) using Insite worksheet; visual; checked; labelled

---

---

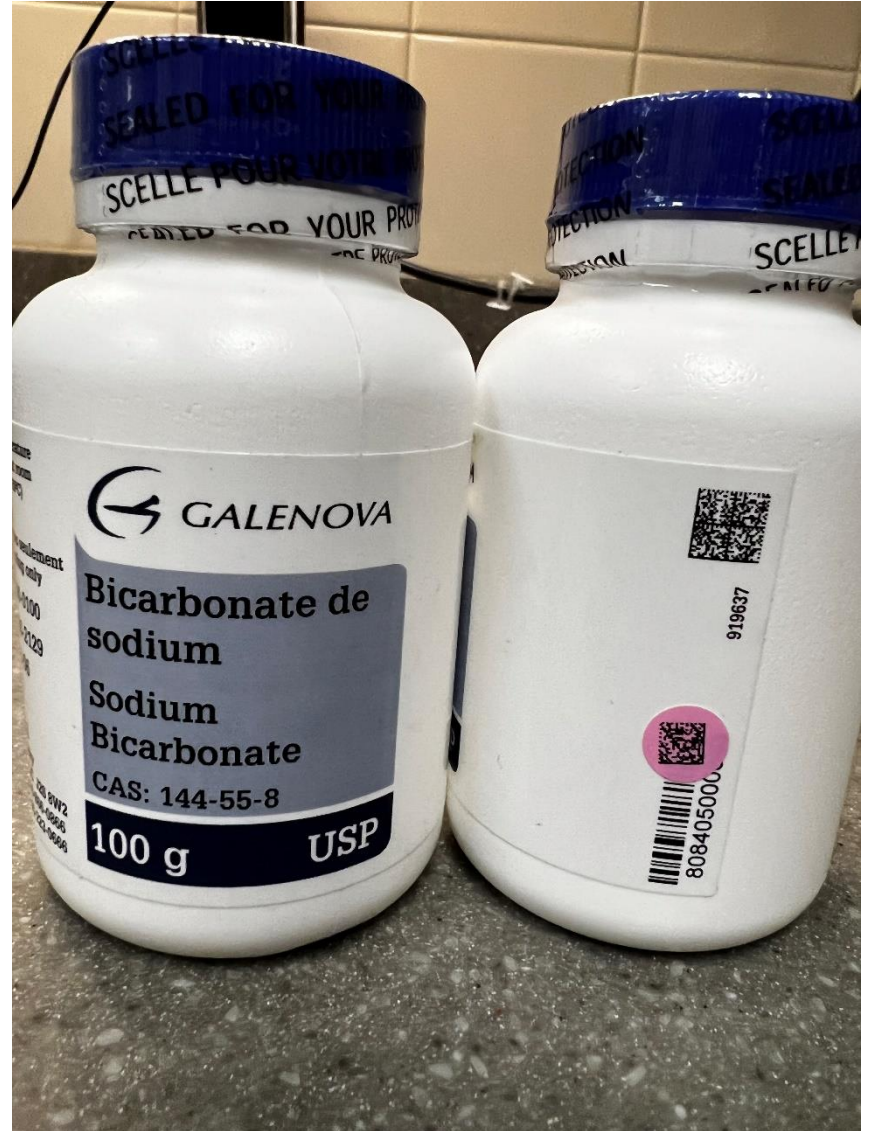
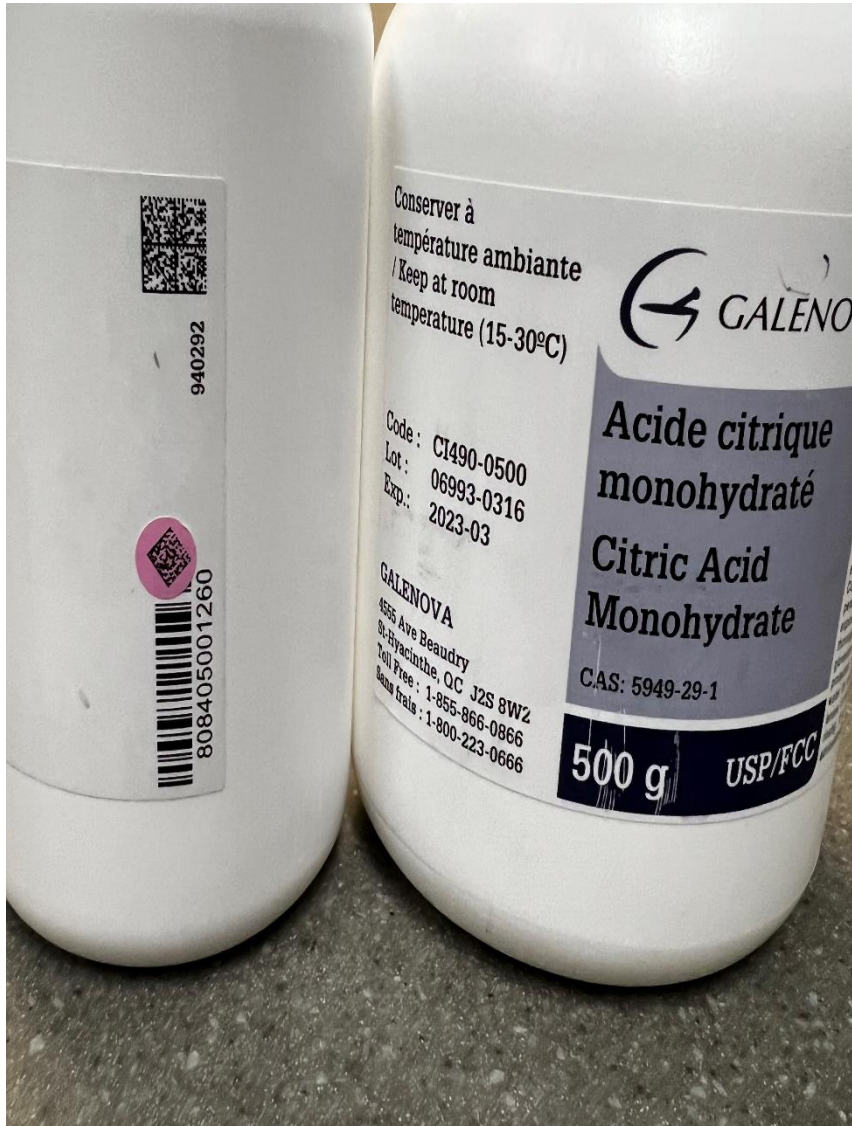
# Barcoding

- Each CAS# assigned unique AHS NDC/GTIN (999 number)
  - Specific barcoding workflow
  - Pink barcode affixed
  - 5% of these are checked from that batch (random selection)
-



	NDC Code	Count	Package Size	Description	Manufacturer	Medication
	999XXXXX		100 million units	bottle	[MANUF]	NYSTATIN, CAS 1400-61-9 POW
	999XXXXX		100 million units	bottle	AHS	NYSTATIN, CAS 1400-61-9 POW
	999XXXXX		500 million units	bottle	[MANUF]	NYSTATIN, CAS 1400-61-9 POW
	999XXXXX		500 million units	bottle	AHS	NYSTATIN, CAS 1400-61-9 POW
✓	999XXXXX		1000 million units	bottle	AHS	NYSTATIN, CAS 1400-61-9 POW
✓	999XXXXX		1000 million units	bottle	[MANUF]	NYSTATIN, CAS 1400-61-9 POW





---

# Comparing processes

Electronic/Connect Care	Manual/Legacy
CPOE order entry; pharmacy verification of order	Legacy order placed (paper or computer); pharmacy verification of order
Compounding of product using CC recipe in queue; barcode scanning and visual; checked; labelled	Selection of worksheet from Insite database; compounding of product; visual; checked; labelled
Delivery to unit. Administration → Barcode scanning of wristband and product and visual check of right patient, right drug	Delivery to unit. Administration → visual check of right patient, right drug

---

# NYSTATIN TOPICAL POWDER IN MAGNESIUM CARBONATE 100,000 UNITS/GRAM (COMPOUND) MFG

Route:

Admin Instructions:

Frequency:

Starting:

Priority:

First dose:

Final dose:

Admin times:

Dispense from: Main Pharmacy

Product: NYSTATIN TOPICAL POWDER IN MAGNESIUM CARBONATE 100,000 UNITS/GRAM (COMPOUND) MFG

Dispense code: Bulk

# NYSTATIN TOPICAL POWDER IN MAGNESIUM CARBONATE 100,000 UNITS/GRAM (COMPOUND) MFG

Amount to Produce: 150g x 1 = 150g bottle  
Repackage Size:  
Repackaged Produce: 999XXXXX

Pharmacy: [Pharmacy]  
Shelf Life: XXX days  
BUD: [date]

## Scan Ingredients

nystatin, CAS: 1400-61-9 5.86 million units/g of powder (topical)

Qty needed: X g  
Qty used: 0 g

Magnesium carbonate powder (PO)

Qty needed: X g  
Qty used: 0 g

## Recipe

Directions:

Notes:

Risk Level:

Packaging: plastic bottles

Labels: External use only  
Store at room temperature.

Storage BUD:

Type: Standard Recipe

Population: Adult, Pediatric, Neonates

References:

# NYSTATIN TOPICAL POWDER IN MAGNESIUM CARBONATE 100,000 UNITS/GRAM (COMPOUND) MFG

Amount to Produce: 150g x 1 = 150g bottle  
Repackage Size:  
Repackaged Produce: 999XXXXX

Pharmacy: [Pharmacy]  
Shelf Life: XXX days  
BUD: [date]

Scan Ingredients

✓ nystatin, CAS: 1400-61-9 5.86 million units/g of powder (topical)

Qty needed: X g  
Qty used: X g

Medication Used	Package	Manufacturer	Lot Number	Expiration Date
Nystatin CAS: 1400-61-9 5.86 million units/g of powder (topical)	999XXXXX	[manufacturer]		[date]

Magnesium carbonate powder (PO)

Qty needed: X g  
Qty used: 0 g

[Compounding and Repackaging](#) > [Browse Recipes](#) > Recipes

# Provincial Non-Sterile Compounding Recipe Database (CNR)

**Non-Formulary Recipes**





**High Alert Recipes**

nystatin

- >> [Browse CNSPs](#)
- >> [Submit New Request](#)
- >> [Embedded Worksheets](#)
- >> [Search Requests/Responses](#)

---

- >> [Admin Login](#)

ERX#; NS ID	Recipe  	Concentration	Quantity	Type	Population	Revised  
1. <a href="#">8001662</a> ; <a href="#">6003882</a> <a href="#">(mfg)</a> ; <a href="#">CAV008</a>	<a href="#">hydrocortisone-lidocaine-</a> <a href="#">nystatin oral liquid</a> <a href="#">(akabutu's mouthwash)</a> <a href="#">(prepared with sodium chloride 0.9% for injection)</a>		200 mL	Alternate Recipe	Adult, Pediatric	18-Oct-2022
2. <a href="#">8001170</a> ; <a href="#">6002464</a> <a href="#">(mfg)</a> ; <a href="#">C008</a>	<a href="#">hydrocortisone-lidocaine-</a> <a href="#">nystatin oral liquid</a> <a href="#">(akabutu's mouthwash)</a> <a href="#">(prepared with sodium chloride 0.9% for irrigation)</a>		200 mL	Standard Recipe	Adult, Pediatric	18-Oct-2022
3. <a href="#">8000958</a> ; <a href="#">C366</a>	<a href="#">nystatin topical powder in</a> <a href="#">magnesium carbonate</a>	100,000 units/gram	150 g	Standard Recipe	Adult, Pediatric, Neonates	22-Jun-2022



Initials	Date
Inventory Charges	

## Recipe - Compounding Worksheet

FOR ALBERTA HEALTH SERVICES USE ONLY. Unauthorized distribution, copying or disclosure prohibited. These recipes are intended for use by the pharmacy manufacturing departments only.

nystatin topical powder in magnesium carbonate 100,000 units/gram

Lot #	Manufacturer	Ingredients	Strength	Form	Quantity Required	Compounder	Checker
		nystatin, USP CAS 1400-81-9	5000 units/mg	PWD	2.5 g		
		magnesium carbonate, USP CAS 23389-33-5		PWD	147.5 g		
Recipe Total Quantity:					150 g		

---

# Lessons Learned

- Need a formulary of compounds that your organization makes
  - Need a formulary/standardized list of CAS identified chemicals
  - Bring in new stock
  - Complete the implementation at once if possible
  - Pink barcode is so important
  - System cannot flag us on the new BUD once product opened
-



# Questions