

## 28.15. Wastage Prediction due to expiry when ordering

### The problem

Prior to mSupply v7.12, when ordering or reporting on suggested ordering, you could simply tell mSupply to ignore stock that was going to expiry in three or four months time. mSupply would then lower its stock level and order according to usages.

However due to popular demand with mSupply v7.12 we have tried to do a better job of predicting stock wastage due to expiry. Using the consumption data that we have, we have travelled into the future and worked out the likely wastage stock. This page describes the workflow.

### Suggested Order reports

Lets look at a report in mSupply v7.12 or later.

From mSupply activate the menu :

- Report > Purchasing > Suggested Order quantities...

The screenshot shows the 'Report options' dialog box. At the top, it says 'Suggested ordering (Excel) report'. Below this, there are several sections for filtering items. The 'Include items whose...' section has fields for 'Item code', 'Category 1', 'VEN Category', 'Department', and 'is on Master List'. The 'Unit Price' section has radio buttons for 'Last price paid', 'Average price', and 'According to supplier quote'. The 'Builds...' section has a checkbox for 'Include planned builds' and a field for 'Make sure planned builds will be covered'. The 'Only include items whose stock cover (in months) is less than' section has a field set to 9. The 'Base analysis on' section has a field set to 6 'Months of usage data'. The 'Months stock required' section has a field set to 3 and a 'Calculate' button. The 'Expected delivery' section has a field set to 15/02/2024. The 'Exclude' section has several checkboxes: 'Include usage for build ingredients' (checked), 'Include items with suggested zero order quantity' (unchecked), 'Exclude transfers from usage calculations' (unchecked), 'Exclude Ad hoc and non stock items' (unchecked), 'Exclude items if "never order" is checked' (checked), and 'Exclude stock that will expire within months of projected consumption date' (checked, highlighted with a red box, with a field set to 3). At the bottom, there are buttons for 'Complex Find', 'Open report in Excel', 'Cancel', and 'OK'.

The Suggested ordering report now has a new/updated expiry filter checkbox : *Exclude stock that will expire within 3 months of projected consumption date*

This checkbox accurately takes into account the likelihood of current stock expiring in the future based on the monthly calculated consumption for an item while determining the suggested order quantities. Previously you could tell mSupply to ignore stock that was close to expiry by say 3 or 6 months when calculating quantities, however this is approximate.

With mSupply version v7.12, mSupply has the option to accurately analyse the stock quantities that

can't be distributed due the consumption rate and the expiry date of the stock. This results in a more accurate estimate of the suggested order quantities.

### The workflow :

Imagine we have the following batches for an item.

Item	Batch	Stock	Expiry
Amoxycillin/ Clavulanic acid 30mg	b12-2023	500	12/2023
Amoxycillin/ Clavulanic acid 30mg	b06-2024	550	06/2024
Amoxycillin/ Clavulanic acid 30mg	b06-2025	100	06/2025

- Imagine the current date is 1/1/2024
- Imagine the AMC is 50
- Imagine you need stock for 12 months.
- When running the report this is checked : **Exclude stock that will expire within 3 months of projected consumption date**

When the above report is run, mSupply will immediately ignore the batch `b12-2023` as it has already expired as the current date is `1/1/2024`.

For batch `b06-2024` : mSupply works out that you can only dispense this batch till the end of April 2024, due to the set 3 months cut-off date for expiry. So the months that this stock can be dispensed are :

- January 2024
- February 2024
- March 2024
- April 2024

So the stock that can be used from batch `b06-2024` is :  $4 * 50 = 200$ . ( In the reports that you will see in the future, this is known as **effective stock**) So the wasted quantity for batch `b06-2024` is :  $550 - 200 = 350$  (This is expiring stock, 350 will need to be thrown away. In the reports that you will see in the future, this is shown as **Expiring stock** )

For batch `b06-2025` : So from May 2024, mSupply will need to start using this batch for distribution. So this is 8 months remaining from May 2024 - to December 2024. However with a stock of just `100` this item will be used up during the following two months :

- May 2024
- June 2024

So for batch `b06-2025` all the stock will be used up and they will be no wastage.

However we now have 6 months starting from July 2024 till the end of December 2024 where we don't have any stock, so mSupply will suggest a immediate order of :  $6 * 50 = 300$  to cope with the 12 months starting from `1/1/2024`

mSupply has effectively time travelled into the future to work out the **Effective Stock on hand (SOH)** and the order will be carried out based on this and not the current stock on hand.

## New Columns on Suggested order reports and changes

Now the suggested ordering reports will have two new column :

- Effective SOH (Stock on Hand) : From above this is the stock quantities that can be used before they expire.
- Expiring stock : This is the stock quantity that can't be used due to predicted expiry and cut-off date.

The `Effective Month of Stock` is now calculated from the `Effective SOH` and not from the `Stock on Hand`. The `Suggested order` is now calculated from the `Effective SOH` and the `Effective Month of Stock`.

Suggested ordering (Exact) report: for store(s) Pharmacy store, Exclude items if "never order" is checked														
Expiry Filter : Take account of stock that will expire within 3 months of being issued, Monthly stock required : 3. Based on last 6 months usage data.														
Store	Item Code	Item Name	SSN	Item category	Stock on hand	Effective SOH	Expiring stock	Stock on Order	AMC 12 mths	AMC 24 mths	Monthly usage for the last 6 months	Effective Month of Stock	Ordered quantity used	Suggested order
Pharmacy store	10000	Acetaminophen Tablet 500mg	N	20 Analgesics, Antipyretics, Antirheumatics, Muscle Relaxants	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10001	Aspirin Tablet 100	E	10-19 General Analgesic	100	100	0	0	10	20	10	1.0	0	0
Pharmacy store	10002	Aspirin Effervescent 100	E	10-19 General Analgesic	20	20	0	0	2	4	2	0.2	0	0
Pharmacy store	10003	Aspirin - 100mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10004	Aspirin 100mg/500mg powder for susp. 1000mg	N	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10005	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10006	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10007	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10008	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10009	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10010	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10011	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10012	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10013	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10014	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10015	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10016	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10017	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10018	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10019	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10020	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10021	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10022	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10023	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10024	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10025	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10026	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10027	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10028	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10029	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0
Pharmacy store	10030	Aspirin 100mg/500mg powder for susp. 1000mg	E	10-19 General Analgesic	0	0	0	0	0	0	0	0	0	0

## Generating a Purchase order and Tender

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