Activity 1: Ordering and managing stock levels

You work in a hospital pharmacy. As a stock control manager, you are responsible for maintaining appropriate stocks of the chemical ingredients and ensuring that stock remains within its ‘use-by’ date.

You have the following data available to you for the ingredients used to make a liquid form of the painkiller aspirin, which details:

* how long each chemical can be safely stored for
* whether an ingredient is active (produces a positive health effect) or non-active (used to make the drug easier to consume, such as sweeteners or thickeners)
* the volume of solution contained in each bottle held in stock
* the volume used by your pharmacy each month
* the time required between placing an order for a chemical and receiving delivery.

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| **Chemical** | **Active/**  **Non-active Ingredient** | **Maximum storage time (months)** | **Volume per container (litres)** | **Volume used per month (litres)** | **Delivery time (months)** |
| Acetylsalicylic acid | Active | 15 | 2500 | 500 | 2 |
| Cellulose (liquid) | Inactive | 6 | 10 000 | 2500 | 1 |
| Carrageenan | Inactive | 12 | 6000 | 500 | 2 |
| Glyceryl triacetate | Inactive | 12 | 2000 | 1000 | 3 |
| Hypromellose phthalate | Inactive | 5 | 600 | 100 | 2 |
| E120  cochineal | Inactive | 18 | 2000 | 100 | 3 |
| E1200 polydextrose | Inactive | 5 | 250 | 50 | 1 |

Using information in the table above, answer the following questions:

1. Liquid cellulose is used to help the aspirin drug ingredients to mix correctly. How many months’ supply does the pharmacy hold of this chemical?

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1. Which chemical does the pharmacy hold the longest supply of, given the rates of use?

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1. (a) Which **two** non-active ingredients will run out exactly on their expiry date?

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(b) Explain why it would be inefficient for the pharmacy to maintain their stock of these chemical ingredients to more than one container at a time.

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1. If today was the 1 March, what is the last date a new container of hypromellose phthalate would need to be ordered by? Why?

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1. (a) Which **two** non-active ingredients will exceed their expiry date before being used?

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(b) Why will this affect the pharmacy’s budget?

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1. Explain why the pharmacy must hold a stock of more than one container of glyceryl triacetate at any one time.

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1. Acetylsalicylic acid is the active ingredient in aspirin; deliveries of this drug require a licensed pharmaceutical courier. Each delivery of acetylsalicylic acid costs the pharmacy £5000, on top of the cost of the chemical, to cover specialist delivery and insurance requirements. When re-ordering acetylsalicylic acid, how many containers should be ordered at one time to minimise delivery costs and maximise budget?

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1. Which of the following are reasons why it is important to carefully oversee the ordering and managing of stock for the manufacture of pharmaceuticals?

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| Ensuring chemical ingredients are always used within a month of opening |  |  |
| Ensuring a sufficient supply of required consumables and materials |  |  |
| Reducing the costs of excess stock |  |  |
| Increasing the delivery costs, which can be passed on to consumers |  |  |
| Improving productivity |  |  |
| Maximising the levels of wastage of chemical stocks |  |  |
| Ensuing that chemicals are used before the expiry date |  |  |
| Ensuring the safety of stocks of chemicals |  |  |