2025

MODELS OF VACCINE SUPPLY IN COMMUNITY PHARMACY

PHARMACY VACCINATIONS DEVELOPMENT GROUP

The Pharmacy Vaccinations Development Group (PVDG) was sponsored by GSK, MSD, Pfizer UK Ltd and Viatris in 2025, which included administration and secretariat costs, and the publication and launch of this report. The companies attended quarterly meetings and contributed to discussion.

The CCA created this report on behalf of the PVDG and are responsible for its contents.

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PVDG

THE PHARMACY VACCINATIONS DEVELOPMENT GROUP

The Pharmacy Vaccinations Development Group (PVDG) provides a dedicated forum for stakeholders involved in the design, manufacture, commissioning, and provision of vaccination programmes. The group's purpose is to improve access and uptake of vaccines across GB. The group is working to establish the model for commissioning, promoting, and delivering vaccination programmes in community pharmacy.

The objectives of the group are to:

1. Enhance access to the covid vaccine programme by including more pharmacies as the programme continues to move to 'business as usual' (i.e., a routine part of NHS vaccination programmes, rather than a unique time limited programme).
2. Raise awareness amongst decision makers as to the potential role of community pharmacy in increasing access to vaccines.
3. Advocate for the expansion of the vaccine offer to patients through additional NHS commissioned services in pharmacies.
4. Investigate (and if required collect) data from current community pharmacy vaccine programmes to highlight impact on uptake/access/inequalities.
5. Facilitate the introduction of new vaccines into the NHS.

COMPANY CHEMISTS' ASSOCIATION (CCA)

Established in 1898, the CCA is the trade association for multiple pharmacy operators in England, Scotland and Wales. The CCA membership includes ASDA, Boots, the Lincolnshire Co-op, Morrisons, Pharmacy2U, Rowlands Pharmacy, Superdrug, Tesco, and Well, who between them own and operate around 4,000 pharmacies across England, Scotland and Wales. CCA members deliver a broad range of healthcare and wellbeing services, from a variety of locations and settings, as well as dispensing 400 million NHS prescription items every year. The CCA represents the interests of its members and brings together their unique skills, knowledge, and scale for the benefit of community pharmacy, the NHS, patients and the public.

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EXECUTIVE SUMMARY

Robust and responsive vaccination supply chains are crucial to driving vaccination uptake and coverage.

With community pharmacy administering a wider range of NHS vaccines than ever before, and due to deliver further programmes, this report assesses the merits and suitability of three different models of vaccine supply:

1. **Push or allocation** - with commissioners responsible for ordering vaccines, a model used for many vaccines.
2. **Pull or drawn down** - with providers responsible for procuring vaccines which are delivered by wholesalers, a model used in the NHS flu vaccination programme.
3. **Inventory control or hybrid models** - a hybrid model involving allocation of stock and the ability of providers to order additional vaccines based on demand.

- Providers and commissioners need up to date information to give confidence that vaccine will be available where and when it is needed.
- Simple processes are often key to success, but many different factors influence the 'ideal' model.
- Each model has different advantages, influenced by the vaccination programme, the programme ambitions, and providers requirements.
- Understanding 'demand signals' is a critical part of supply chains, both ensuring sufficient supply ahead of vaccination, but also responding to changing demand.

Future developments to vaccine supply chains should:

1. Integrate proprietary booking systems with public booking portals (such as the National Booking System in England). This will simplify processes and provide better information for commissioners.
2. Ensure the impact on private vaccination activity is considered when planning NHS vaccination supply chains.

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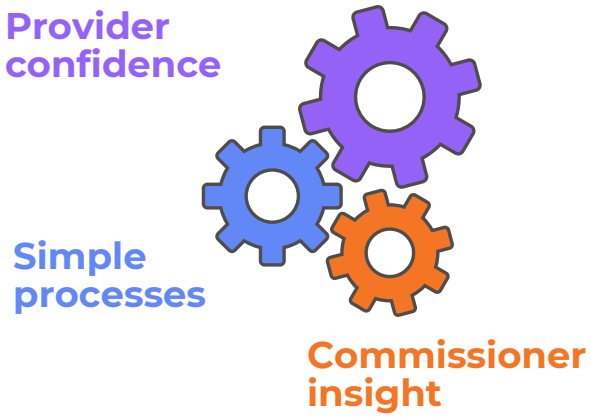
SECURE AND EFFICIENT VACCINE SUPPLY IS ESSENTIAL TO UPTAKE RATES

There are many ways vaccine stocks can be distributed to where they need to be administered. Whilst all models of distribution will have strengths and areas of development, it is recognised that all supply chain models must meet several core needs:



1. Provider confidence

For vaccine programmes to be successful providers and patients need to have confidence that the vaccine will be available when and where it is needed. Without this, professionals may feel the need to 'work around' the system to ensure their patients' needs are met. **A responsive system**, ideally where vaccines are delivered either the same day or next day will help to instil confidence, by allowing professionals to react quickly to changing patient demand. In many cases this is influenced by the vaccine itself, such as its shelf life or storage requirements.

Confidence in the supply system is linked to the financial risk upon providers, depending on the level of investment or how vaccine purchasing/procurement occurs. Providers need information to commit the investment needed to provide a successful service.

There is a need for visibility in the process, so that professionals know how and when vaccines will be made available. Finally, professionals need to have trust in the supply chain, knowing that the processes will work. This prevents professionals from over ordering stock, to be held 'just in case'.

"...providers and patients need to have confidence that vaccine will be available when and where it is needed."

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2. Commissioner insight

Commissioners need to carefully balance the distribution of often limited vaccine stock against ensuring sufficient and equitable vaccine uptake across the entire country or commissioning geography. This also needs to consider overall population uptake and uptake in different cohorts.

This requires an **understanding of demand** and being able to predict where and when vaccine will be specifically needed (often months ahead of time). To do this, in addition to existing insights and data, providers need to share their local insights to help build a clear national picture. There is a need for clarity of the **demand signals**. There is sufficient capacity in existing wholesale networks to deliver vaccine supplies across the country, but those co-ordinating this resource need to know where and when the vaccine is needed. The National Booking Service or similar online booking portals are one way of having a clear view of future demand.

"Commissioners need to carefully balance the distribution of often limited vaccine stock against ensuring sufficient and equitable vaccine uptake across the entire country."

The National Booking System is a patient facing online portal used in England, allowing the booking of vaccines in the location of their choice. Pharmacies add appointment times and patients can choose from any eligible provider.

Accurate forecasting and the use of allocation quotas are important tools for ensuring vaccine supplies are in the right place at the right time. Data from previous years offers an important starting point but there are other factors to be considered when predicting likely need. One of the key advantages community pharmacies offer is their ability to vaccinate people without a previously booked appointment.

However, a high number of opportunistic vaccinations ('walk-in appointments') can also make accurate forecasting difficult. There are also changes in demand, which can be caused by factors such as a local promotion campaign, or interest from local/social media. Local providers will have some insight into such factors and can use this insight to help commissioners forecast future need and react to change. Supply can often be flexed to meet demand, if insights are captured and shared in good time.

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3. Simple processes

Minimising **wastage** is vitally important for any vaccine programme – both to ensure availability and avoid wasting taxpayers' money. Ideally, vaccines should be available to order as single individual vaccines. This isn't always possible, but a clear understanding of where vaccine is held can help minimise wastage. Where possible providers should be able to **move vaccines between sites** to minimise wastage. Some supply models can make the post-delivery movement of vaccine stocks difficult (even when accounting for current regulations).

"Minimising wastage is vitally important for any vaccine programme."

The **simplicity of the ordering process** itself is also important. Professionals need to be able to access and order vaccines easily. Ideally, this will align with other processes such as that used for ordering sundries, or existing processes and systems for medicine orders.

There should also be **clarity** in the processes and responsibilities, with all parts of the supply chain having sight of what decisions are made, and by whom. For example, if vaccine is allocated, what are the assumptions and data sources used to make those decisions. **Equity** of access to supply is equally important. Different providers must be treated equally whilst accounting for individual requirements.

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VACCINE SUPPLY MODELS

There are broadly three models for vaccine supply:

1.Push or allocation
2.Pull or draw down
3.Inventory control or hybrid models

Each has relative advantages and disadvantages.

1. Push or allocation

Many vaccines are currently supplied via an allocation model. This is highly time intensive for the commissioner but reduces the burden of ordering on providers. Push models are often easier to manage logistically. Supply routes and volumes can be planned in advance, ensuring good and efficient coverage.

There have been some concerns that in a financially challenging environment, providers are attempting to limit their risk by only ordering the vaccine they 'will definitely use'. This has led to fears that people late to vaccination, often those more hesitant, will find providers have 'run out' of vaccination. An allocation model can move much of the financial risk away from providers and ensure that there is vaccine available for the entire eligible population throughout the programme.

Commissioners are required to predict where vaccine stock will be needed and allocate sufficient quantities to those locations. This requires strong data to allow for accurate modelling, but also an understanding of subsequent local demand signals. For example, a local campaign, or similar incident that raises awareness in a town will create additional demand not normally captured in national data sources. Additionally, decisions made by providers (such as increasing or reducing their appointment availability) or closures/openings of new providers will all impact vaccine demand. Allocation models can struggle with rapid changes in demand.

"Allocation models can struggle with rapid changes in demand."

Allocation requires a strong understanding of likely demand, both where and when. This can be difficult when new providers join a programme, as there is no history to understand this.

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Understanding of the size of sites, profile of other activity, and nearby sites can help mitigate this. “Demand signals” such as appointments booked through the National Booking Service offer some insight. However, many patients accessing pharmacies for their vaccination do so without appointment. Anecdotally, this can be as many as half of the patients vaccinated. This is more common with seasonal vaccination programmes. In Scotland, centralised procurement and allocation is used for the seasonal influenza programme, however most vaccines are provided through NHS immunisation centres rather than independent providers (such as GPs and pharmacies).

Case study – Introduction of influenza central procurement in Wales

The 2025/26 winter season will see the introduction of a central procurement route for the influenza vaccination programme in Wales. This has allowed the Welsh Government to procure sufficient vaccine for all eligible people, addressing previous concerns that providers were limiting the financial risk of unused stock by not ordering enough vaccines

The season has not finished yet, so the effectiveness is not yet understood. However, early feedback from pharmacies has shown challenges with different processes across various Health Boards. Regional variation and short deadlines have made engagement with the ordering process difficult. Fluctuating delivery schedules has also made planning difficult for providers.

2. Pull or draw down

The main route pharmacies currently access NHS influenza vaccines is through a pull model. Influenza vaccination in England is currently procured by providers themselves, as are all private vaccines. These are ordered by the provider and delivered by wholesalers – along with all of their other medicine orders. Previous initiatives to provide access to central influenza stocks also allowed pharmacies to order in this way.

A pull-down model places the burden of ordering vaccine on the provider, although forecasting can support these decisions. It may also place the financial risk upon providers.

"This may create a risk of people later in the season not being able to access vaccine."

Usually, providers buy vaccines and are reimbursed by the commissioner after vaccination – if the vaccine is not used then the provider must bear the cost. The volumes ordered likely reflect a combination of the demand providers know they will receive and the capacity they have available. This may create a risk of people later in the season not being able to access vaccine.

A pull-down model allows for greater flexibility by providers. They are ideally placed to be aware of factors that may impact patient demand, including additional clinics, local advertising, or a similar local change in awareness. If vaccine is procured at the providers cost, providers are more likely to take additional steps to minimise wastage. However, competing factors, such as discount rates or other commercial return agreements can also affect this. If centrally procured, then providers may be more confident in ordering vaccine for potential rather than just known demand. The flexibility of a pull model allows providers and commissioners to respond to peaks and troughs in demand.

One factor that can influence the success (or not) of this model is the implementation of quotas. Quotas place limits on volumes that can be ordered, to prevent high volume ordering by some providers leaving no vaccine for others. They can be used to control stock availability, ensuring good coverage across the country. Quotas can also create artificial bottlenecks, with successful providers discouraged from promoting vaccination if there is limited confidence sufficient vaccine will be available.

3. Inventory control or hybrid

A hybrid model attempts to combine both push and pull, to take the strengths, and mitigate the risks of both. One way of doing this is to allocate stock to providers at the start of a season or period, based on expected demand. Providers can then order additional vaccine when they wish, based on local demand. This could be monitored via inventory control – where vaccine stock is monitored and 'topped up' as it is used.

This model works best for seasonal programmes, where there are expected surges in demand at the start of the season. Then demand is lower and more predictable through the rest of the season. Routine programmes that run throughout a year may make this model more administratively burdensome than required. However, this model is one of the more common models in supply chain operations outside of vaccination.

This model can demand a high administrative burden on commissioners to determine initial allocations, but then an equally high demand on providers to monitor ongoing inventory. However, applying learnings from other supply chains outside of healthcare, could change this in the future.

MATCHING CAPACITY AND DEMAND

Any supply chain model needs to balance capacity and supply, and demand, to ensure good coverage across the country. Oversupply risks wastage, whereas demand exceeding capacity risks sub-optimal vaccination rates.

Factors that influence capacity include the available logistics, IT capability, breadth of activity, and planning or oversight demands. Some of these become easier over time – especially as trends in demand are better understood. However, recent years have seen changes with public awareness and demand shifting during and following a pandemic, pharmacies being commissioned for new vaccination programmes, and new programmes (such as the Respiratory Syncytial Virus programme last year).

"Over supply risks wastage, whereas demand exceeding capacity risks sub-optimal vaccination rates."

Understanding current and future demand is key to successful supply chains. Demand is driven by a combination of public awareness and willingness to be vaccinated, and the health service ambition or targets and provider capacity. Enhancing vaccination rates above certain base levels of coverage can become increasingly inefficient. Policymakers need to balance the benefits increased uptake against costs of enhanced provision.

There are some factors that can help reduce risk of waste and cost. New pathways, such as the National Booking Service, provide a clear 'demand signal'. Commissioners and providers can see in advance when and where patients want vaccination. This can also help with guiding health promotion activity to increase uptake.

Many community pharmacies already offer private vaccination services, which have both a history of activity and future bookings to indicate likely NHS demand. There are examples of patients accessing private services, despite being eligible for NHS vaccination due to the convenience offered by private healthcare. Access to this data would greatly improve commissioners' understanding of past demand and support forecasting. **Integration of proprietary booking systems with the NBS** and other booking portals will be a crucial step – both to simplify the process of booking vaccines in community pharmacies, but also to provide a better overview of total demand.

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CONCLUSION

Different supply models have strengths and challenges for both commissioners and providers. There are key factors that influence the choice of model best suited to specific locations and needs, such as confidence and transparency in the system, cost effectiveness, and minimising wastage.

Each vaccination programme will have its own unique requirements – particularly seasonally focused programmes. Additionally, the availability of a vaccine can influence the preferred model. Low availability favours a model where vaccine is centrally held and allocated to where it is most needed. However, regardless of local variation, and unique availability levels, a single supply model for all vaccination programmes will aid with efficiency and reliability for providers and patients.

It is important to note that NHS supply models have an impact on private vaccination services, which also provide key element of national protection. Private services must also be carefully considered, especially regarding influenza – the largest private vaccination programme. Changing a well-established model may have unintended consequences alongside potential benefits.

Ultimately, a clear overview of demand by providers and commissioners is critical to the success of any supply chain. This allows more accurate forecasting and better availability of vaccine supply. Integration of NHS and proprietary systems is vital to this – allowing both to understand patient demand.

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Members of the PVDG include representatives from:

- AAH Pharmaceuticals
- Asda
- Alliance Healthcare
- Boots UK
- National Pharmacy Association (NPA)
- Numark
- Pharmacy2U
- Phoenix Medical
- Rowlands Pharmacy
- Royal Pharmaceutical Society
- Superdrug
- Tesco
- Well

The group is attended by representatives from sponsoring organisations:

- GSK
- Pfizer UK
- MSD
- Viatris

The group has also been attended by representatives from the following organisations, who have participated in the discussions but do not act as decision-makers on PVDG policy positions or endorse the contents of this report or its recommendations:

- Department of Health and Social Care
- NHS England
- UK Health Security Agency
- General Pharmaceutical Council

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