
Medical Supplies Demand Forecasting Course for Hospital Leaders: AI Models and Controls

1 – 5 March 2027
Madrid





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Programme Summary

Medical supplies demand forecasting is the subject of this one-week training course for hospital supply chain, pharmacy, procurement and operations managers, ending in a forecasting and stock policy pack for one supply category. Hospitals hold thousands of items with short shelf lives, uneven use and fragile supply routes. The programme moves from item priorities to forecast models, stock rules, shortage and expiry control and oversight of AI models, using cases from hospitals, pharmacies and distributors. Mars Training Centre UK delivers this programme on medical supplies demand forecasting to mixed-organisation cohorts.

The Business Case

A theatre short of one consumable, or a pharmacy writing off expired stock, shows how closely care and supply decisions are linked. Leaders who can test a forecast, set stock rules by item importance and plan for supplier failure spend less time on emergency orders.

- Stock-Out Risk: Falls as critical items receive stock rules tied to measured forecast error.
- Expiry and Waste: Falls as order quantities follow shelf life and actual consumption.
- Supply Continuity: Improves as supplier dependence and substitutes are mapped and rehearsed.

Principles and Evidence Base

- ABC Classification: Ranks items by value and clinical criticality to decide where forecasting effort and stock cover are applied in Sessions 1 and 3.
- Safety Stock and Reorder Point Logic: Links forecast error and lead time to stock levels and is applied in Session 3.
- Forecast Error Measurement: Provides the tests used to compare models and to monitor AI forecasts in Sessions 2 and 5.
- ISO 28000: Supplies the supply chain security and resilience management reference used in Session 4.

Intended Participants

- Hospital supply chain managers who set stock levels and order cycles.
- Pharmacy and central store leaders who control expiry, storage and issue.
- Procurement managers who negotiate supply and manage supplier performance.
- Operations and finance leaders who review stock investment and service levels.
- Digital and analytics leads who evaluate AI forecasting tools offered to the organisation.

Typical settings include hospital groups, public health systems and medical distributors.



Learning Outcomes

1. Participants will be able to prioritise supply items by clinical criticality, value and demand pattern.
2. Participants will be able to evaluate forecast models by their error, data needs and fit to each item group.
3. Participants will be able to construct stock and reorder rules from lead time, demand variation and shelf life.
4. Participants will be able to diagnose shortage, expiry and supplier risks in a medical supply route.
5. Participants will be able to justify controls and review cycles for AI forecasting models to a governing board.

Programme Structure

Day 1: Medical Supplies Demand Forecasting and Item Priorities

Which items matter most to care, and how does demand for them behave?

- Item Master Review
- Clinical Criticality Rating
- ABC and Demand Pattern Matrix
- Consumption Data Quality Check
- Service Level Targets by Item Group

Day 2: Forecast Models and AI Assurance

How accurate is a forecast, and when can an AI model be trusted?

- Baseline Forecast Methods
- Machine Learning Forecast Briefing
- Forecast Error Scorecard
- Bias and Drift Monitoring Log
- Model Approval Checklist

Day 3: Stock Rules and Replenishment Design

How much stock does each item need, and when is it reordered?

- Safety Stock Calculation Sheet
- Reorder Point and Order Quantity Table
- Shelf Life and First-Expiry Rotation Rules
- Ward and Store Par Level Review
- Replenishment Exception Report



Day 4: Shortage, Expiry and Supplier Resilience

What happens when supply fails or stock ages, and who decides?

- Supplier Dependence Map
- ISO 28000 Resilience Review
- Substitution and Rationing Rules
- Expiry Write-Off Analysis
- Shortage Escalation Protocol

Day 5: Forecasting and Stock Policy Pack for One Category

Do the earlier records form one policy that leaders can run?

- Applying the Session 1 Demand Pattern Matrix
- Testing the Session 2 Forecast Error Scorecard
- Checking the Session 3 Reorder Point and Order Quantity Table
- Reviewing the Session 4 Shortage Escalation Protocol
- Completing the Category Forecasting and Stock Policy Pack

Methodology

The programme uses a structured exercise method built on a shared case of a hospital group with recurring shortages and expired pharmacy stock. Participants work with prepared consumption tables and forecast outputs, then adapt each artefact to a category from their own organisation.

- Suggested activity: Scoring three competing forecasts against actual monthly use.
- Suggested activity: Setting reorder points for five items with different shelf lives.
- Suggested activity: Handling a supplier failure through a timed shortage escalation exercise.

Capstone Output

Each participant completes a forecasting and stock policy pack for one supply category. It holds an item priority table, a model comparison with error scores, stock and reorder rules, a shortage and expiry plan and a review calendar for AI models. The pack is used at work to brief finance and clinical leaders and to test a vendor's forecasting claims.



Frequently Asked Questions

Is medical supplies demand forecasting training suitable for managers without data science skills?

Yes. Medical supplies demand forecasting is taught through worked tables and cases. It assumes experience in hospital supply, pharmacy, procurement or operations, but no programming and no statistics beyond averages and percentages.

Which methods does medical supplies demand forecasting training rest on?

Medical supplies demand forecasting training rests on ABC classification, safety stock and reorder point logic and forecast error measurement, with ISO 28000 as the reference for supply resilience.

How is the pack from medical supplies demand forecasting training used at work?

You use the policy pack to set stock rules for a category, brief finance and clinical leaders and challenge an AI forecasting tool before adopting it.

How does medical supplies demand forecasting differ from general procurement and supply chain training?

Medical supplies demand forecasting addresses clinical criticality, shelf life, expiry and shortage handling in hospitals, while general procurement training centres on sourcing, contracts and supplier selection across industries.