

## Effective Enterprise Resource Planning for Healthcare

Today, healthcare provider organizations do not have effective resource planning tools. Effective resource planning is common in other industries, especially manufacturing, distribution and retail. It is time for healthcare to adopt these techniques. Optimal Care Software’s focus is the delivery of effective enterprise resource planning to healthcare providers.

### Healthcare Resource Planning

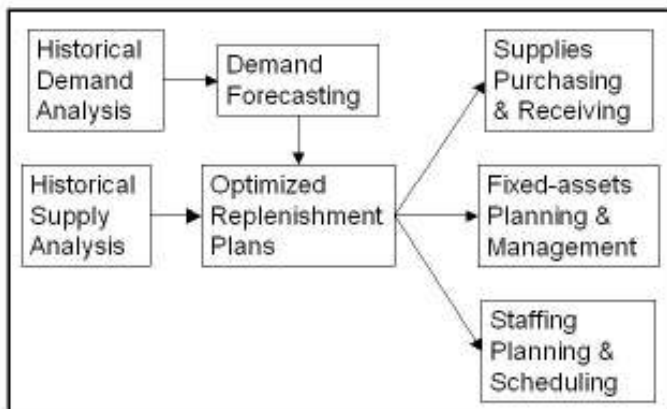
Resource planning achieves critical organization goals, including:

- Increased availability of resources, which improves quality of care and outcomes
- Decreased resource costs and efficient use of capital
- Improved disaster preparedness at a manageable cost

*“It is amazing how the lights went on when we determined that by eliminating stock-outs, we actually reduced the burdens and distractions nurses have in taking care of patients. That is what Mercy is all about. We are not in the supply chain business; we are in the healthcare business.”*

Vance Moore  
President of Mercy ROi

There are four components to effective resource planning: historical demand analysis, historical supplier analysis, short-term demand forecasting, and optimized replenishment plans. This allows for effective resource management, including supplies purchasing & receiving, fixed-assets scheduling & management, and staff scheduling and planning.

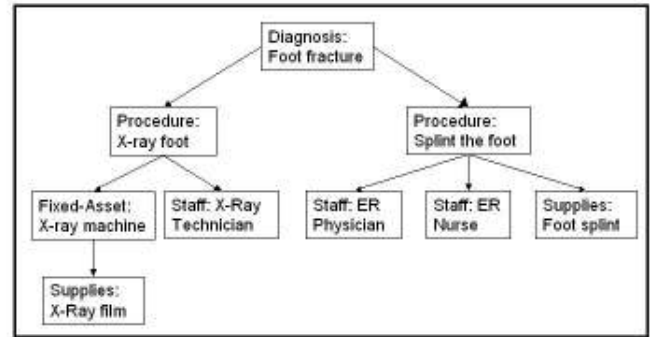


Historical analysis utilizes proven statistical analysis techniques, including variance analysis, outlier analysis, and seasonality / trending analysis. Results are presented with highly interactive reports, graphs and tables that support both high-level and detailed review.

### Historical Demand Analysis

Historical demand analysis tools that provide:

- ✓ An understanding of the typical resources required for every procedure and diagnosis
- ✓ Usage patterns for every resource, such as seasonal demand, weekend demand, trending, etc.
- ✓ The typical total costs for every resource, procedure and diagnosis
- ✓ The historical availability (service level) for every resource
- ✓ The typical and exceptional historical demand levels by resource



### Historical Supplier Analysis

Historical supplier analysis tools can:

- ✓ Determine typical and exceptional lead times for acquiring resources
- ✓ Plan for variability in lead times and yield
- ✓ Determine ordering and handling costs for supplies
- ✓ Determine utilization and availability (yield) for fixed assets
- ✓ Determine task / skills / position match-up for staff
- ✓ Determine billing / non-billing profile by position and staff member



## Short-term Demand Forecasting

Using the Box-Jenkins Forecasting methodology, 12 months of weekly future demand are forecast for every resource (supplies, medications, fixed-assets and staff) in every location.

The last 3 years of history are used to determine the best-fit forecasting model for each resource by using the two oldest years of data to select candidate models, then calculating each candidate model's forecast error against the most recent year.

Iterative proportional fitting is applied to smooth local variance, and provide forecasts at a weekday, or even shift level.

Declared minimal service levels (e.g. 97.5%) for each resource at each location are used to determine reserves needed. Aggregate service level optimization can be applied to determine the optimal mix of resources to maximize service levels for any target budget.

The dependent demand for supplies, medications, fixed-assets and staff are tied to their related clinical events (diagnosis & procedures), as determined during the historical demand analysis. Any additional historical demand is treated as independent demand. This allows for powerful 'what-if' scenario modeling based on changing clinical or demographic market conditions.

These forecasts can be combined with longer-term demographic and clinical trending information to produce effective longer-term demand forecasts.

## Optimized Replenishment Plans

Based on the 12 month demand forecast, optimized replenishment plans are generated, including staffing plans, supplies and medications purchasing recommendations, and scheduling of elective procedures and maintenance for fixed assets.

When additional extrinsic information is available to improve the forecast further, manual correction of the forecast is supported and encouraged before the replenishment plan is generated. For supplies and medications, optimal replenishment quantities are then determined, to minimize total costs (including price break data).

The lead-time and yield metrics (from the historical supplier analysis), on-hand quantities and existing orders are then combined with the forecasted demand to provide a replenishment plan that assures maximal availability at minimal cost. This cost calculation includes ordering, handling, carrying, spoilage, expediting, and substitution costs.

'What-if' analysis is also available to determine costs related to disaster preparedness, increased or decreased service offerings, etc.

## Other Key Features

- ✓ High-performance Data Warehouse engine
- ✓ Scheduled status reports
- ✓ Interactive dashboard reports
- ✓ Sarbanes-Oxley reporting
- ✓ HIPAA compliance
- ✓ Data sharing & integration with other enterprise application providers, such as Kronos, McKesson, Cerner, and DSSI
- ✓ Modular implementation & standards-based data integration allows best-of-breed deployment.
- ✓ Audit Trail
- ✓ Scalable, Highly-available architecture
- ✓ Web-based thin clients
- ✓ Strong, LDAP-enabled security.
- ✓ Software-As-A-Service approach, providing flexible, low-cost pricing & delivery

