

Abstract

The U.S. Navy’s Pacific Fleet (PACFLT) faces slow and variable Class VIII(a) medical supply procurement and transshipment timelines, posing risks to operational readiness in the Indo-Pacific. This research mapped the end-to-end medical supply chain to identify process ownership, bottlenecks, and performance drivers. Using benchmark timelines and transshipment performance data, the study quantified total system velocity and revealed key sources of delay. Findings highlight opportunities to increase supply chain speed and capacity particularly through improved procurement alignment and enhanced transshipment throughput to better support fleet medical readiness and operational demands.

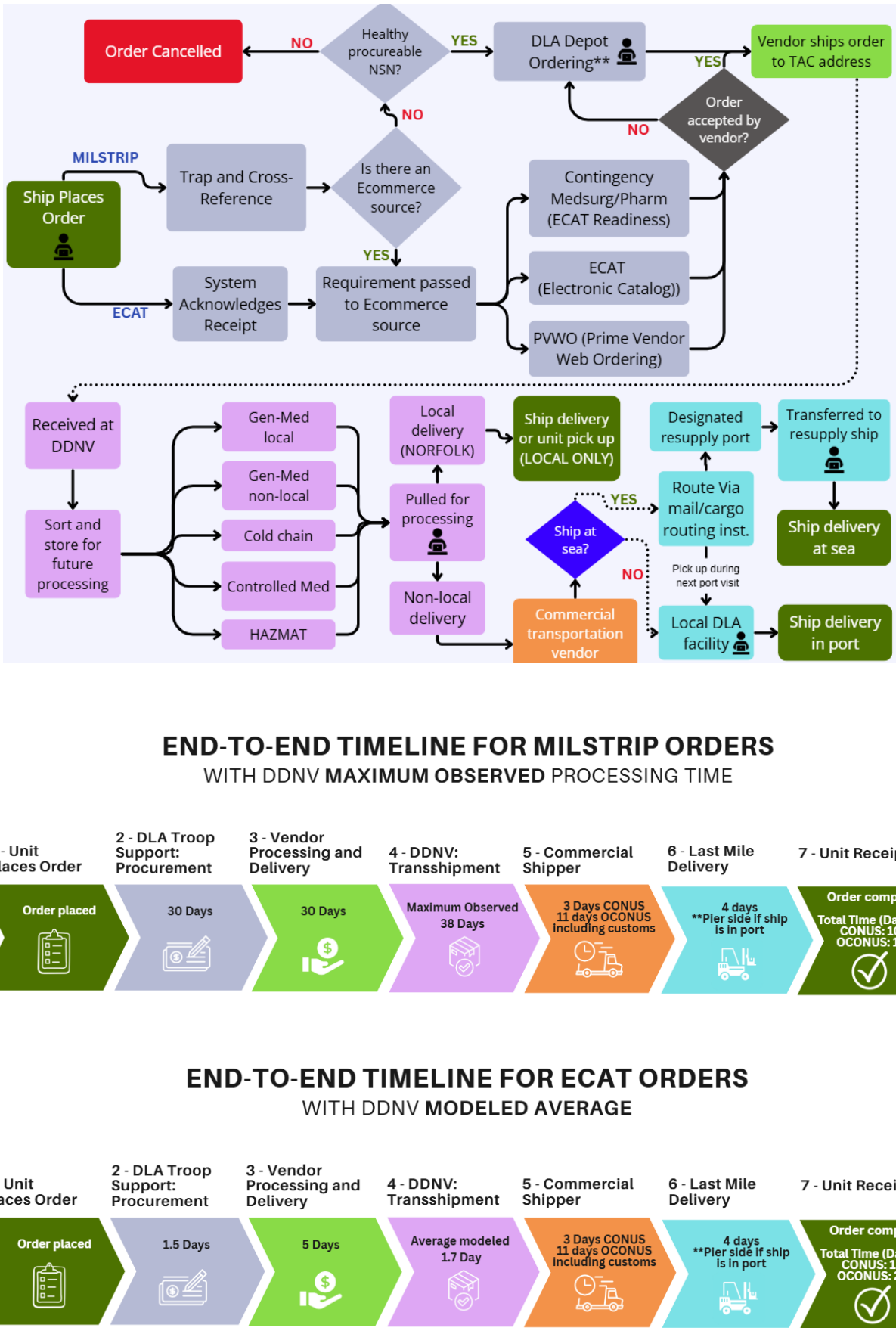
Methods

- Process Mapping:** Developed a comprehensive end-to-end Class VIII(a) supply chain process map using stakeholder interviews, document review, and site observations.
- Qualitative Data Collection:** Conducted semi-structured interviews with PACFLT, TYCOMs, DLA Troop Support, NMLC, and DDNV personnel; supplemented by field observations during a two-day site visit to DDNV.
- Quantitative Data Analysis:** Analyzed DDNV daily processing data (Jan 2023–Sep 2025) to assess backlog duration, throughput, capacity utilization, and variability.
- Comparative Modeling:** Modeled and compared ECAT vs. MILSTRIP procurement timelines and evaluated impacts of transshipment performance on total supply chain velocity.
- Alternative Architecture Assessment:** Modeled a dual–transshipment-center scenario to evaluate cost, responsiveness, and capacity trade-offs.



Results & Impact

- Procurement pathway was the largest driver of delay:** ECAT reduced lead times by 53.5 days compared to MILSTRIP, accounting for up to 68% of total supply chain duration.
- Transshipment bottlenecks significantly slowed delivery:** DDNV’s capacity (240 orders/day) lagged behind receipts (308) orders/day), creating persistent backlogs of 11-38 days.
- Increasing staffing to 10 processor FTEs dramatically improved performance,** cutting modeled processing time from 5.5 to 1.7 days and reducing overtime and backlog volumes.
- A second transshipment center increased costs without improving speed,** generating 39% more total backlog and requiring \$234K-\$280K more annually in manpower.
- Aligning AMAL items with e-commerce contracts and establishing fleet performance standards** offers major opportunities to improve supply chain velocity and afloat medical readiness.



Future Research

- Explore integration of current procurement methods with predictive supply models for Class VIII(a) material.
- Assess information system modernization opportunities, to improve documentation integrity and automated data transfer across procurement and transshipment systems.



Matthew Bauer, LT, USN
Advisors: Dr. Geraldo Ferrer
Dr. Eva Regnier