Good morning and thank-you Chairs Metcalf and Rapp and thank you to the members of the Environmental Resources and Energy Committee and the Health Committee for the opportunity to speak today on the important and complex issues healthcare supply chain professionals are challenged with on a daily basis.

I am Patrick Flaherty and I am a Vice President in UPMC's Supply Chain Management department with operational oversite responsibilities for Healthcare Technology Management, Systems and Analytics, Strategic Decision Support, and SCM Resiliency, Security, and Sustainability. Additionally, I am a member of several enterprise committees within UPMC and several strategic groups within the national supply chain community.

In my role I, like many of my colleagues, are confronted with the very real and omnipresent issue of supply chain disruptions. No one should operate on the illusion that the healthcare supply chain has returned to a pre-pandemic level of operational normalcy based on the recovery of PPE products to manageable levels. In fact, the PPE situation has led some to conclude incorrectly that the pandemic was the sole cause of the situation we are confronted with today. While the pandemic exposed in a very visible way the fracture-points in the healthcare supply chain, it did not cause them. The operational breaks in the healthcare supply chain are now manifesting in different categories than PPE but their functional origins stem from the same sources.

The main structural issues are found in basic supply chain concepts related to manufacturing capacity and control, access to raw materials and labor, and operational and inventory redundancies. Each of these elements within the non-healthcare supply chain have been managed transparently and collaboratively by the industrial community while their healthcare counterparts have been literally left in the dark by the adversarial and cartel-like behaviors of medical suppliers. Additionally an, at times, overly burdensome regulatory environment coupled with the critical need to lower domestic healthcare costs have led manufacturers to pursue lower manufacturing costs the pursuit of which has driven the production of critical pharmaceuticals, energy, and supplies to low-cost labor nations substantially increasing vulnerability of domestic supply-chains and negatively impacting total cost, as evidenced by the current conditions. These topics are now, thankfully, the subject of deep discussion among the more progressive members of the healthcare value-chain. Despite the satisfaction present in seeing the healthcare supply chain lurch forward towards 21st century Supply Chain best practices, the pace is too slow and the participants too few. What remains is a hodge-podge of rolling disruptions that present themselves too frequently without warning effecting both specific SKUs as well as broad categories of products, leaving clinicians and supply professionals scrambling for acceptable alternatives.

The list of disruption related challenges is too long to recite in this forum, but I think it is important for you to hear a small sampling of the challenges of the last week. Product categories that are currently materially impacted include but are not limited to:

- Contrast Media
- Fetal Monitors and supplies
- Adult and Infant Nutrition
- Helium
- Integrated Chips and assorted IT components
- Odor Eliminators
- Patient Electrodes

- Dialysis Solutions
- Suction Cannisters
- Blood Collection Tubes
- Warming Blankets
- Surgical Tape
- Hypodermic Needles

This small sample is just a dip into the pool of disruptions dealt with on a daily basis. The years-long issue of drug shortages and the less well known but equally problematic shortages of parts and components for clinical equipment are, in retrospect, harbingers of the disruptions we are now experiencing.

There is now a growing community dedicated to rationale expansion of supply resiliency and responsible inventory management strategies within healthcare but, in order to succeed, many things need to change. Suppliers must move towards a more transparent business model that permits providers to evaluate manufacturing and logistical risks at an exponentially better level than currently possible. Monopolistic or Duopolistic ownership of global and hemispheric manufacturing for critical products must be better addressed to ensure appropriate competition is possible and rational inventory levels are maintained to sustain critical care during regional and global situations causing spikes in demand.

Care should be taken not to overly-simply the problems we are discussing. The need for healthcare costs to reduce have led to the outsourcing of manufacturing, this outsourcing is now manifesting in negative ways but it has contributed to lower costs for years for simple and complex products. Clearly a different approach is called for that creates increased access to critical products in a cost-effective model. Competition is essential for both clinical and economic innovation but considerations are also necessary to appropriately address the wide-variety of high-volume low-margin product categories upon which healthcare is reliant.

In conclusion, thank-you for the opportunity to address this committee and I am happy to answer any questions.