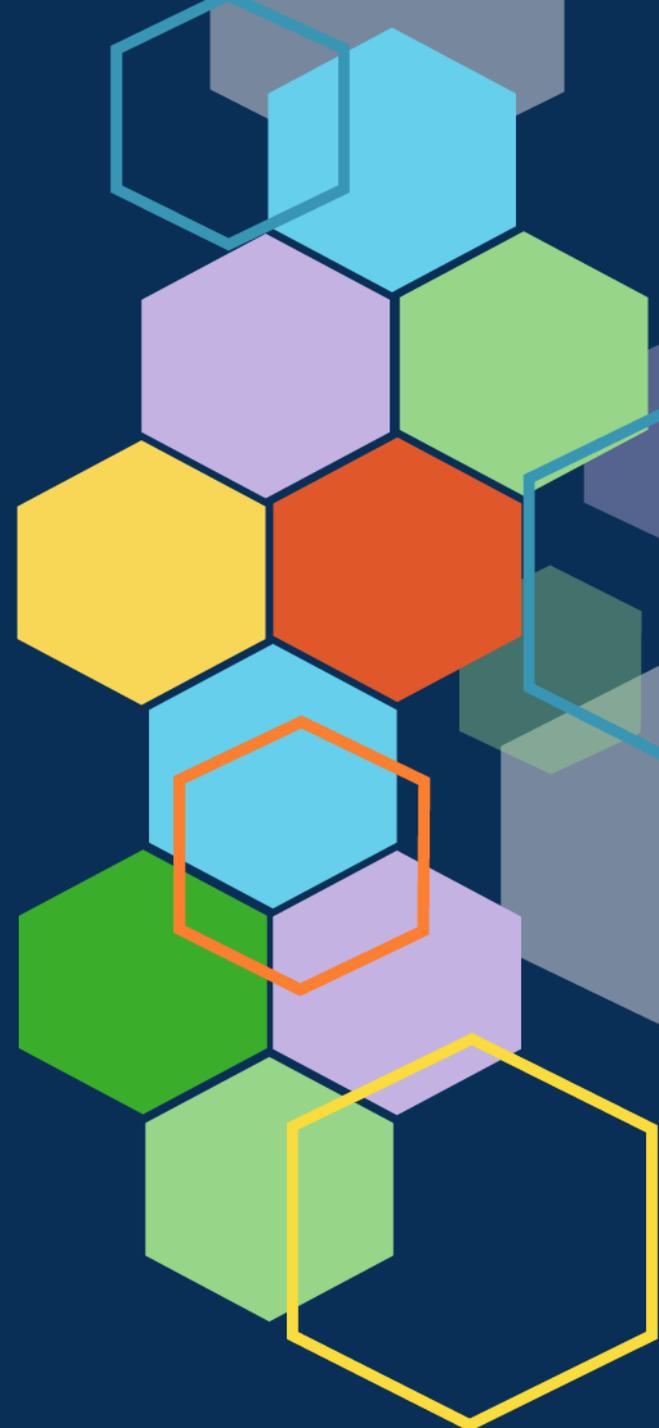


# TOPIC: SUPPLY CHAIN DISRUPTIONS AND RELATED INFLATION



# PRESENTERS



Jeff Lawrence  
VP Business Development  
Envi



Leslie Hanlon  
Manager, Presource SC Planning  
Cardinal Health



# AGENDA

- The supply chain shock
- Product price and wage inflation
- What can you be doing?



# WHAT HAPPENED?



Businesses started closing



Supply chain disruption



Product price increased



COVID patients kept showing up

# TAKE “INVENTORY” OF COVID-19

Patients want access to lower cost care outside of hospital.

Preparing for the next pandemic will drive system costs higher.

Fundamental changes in what it costs to provide care going forward that will push prices higher.

Competitors coming together to share proprietary information.

Reduce fixed asset investment, enable offsite access.

Supplier diversification  
82% of hospitals will increase domestic sourcing where possible.

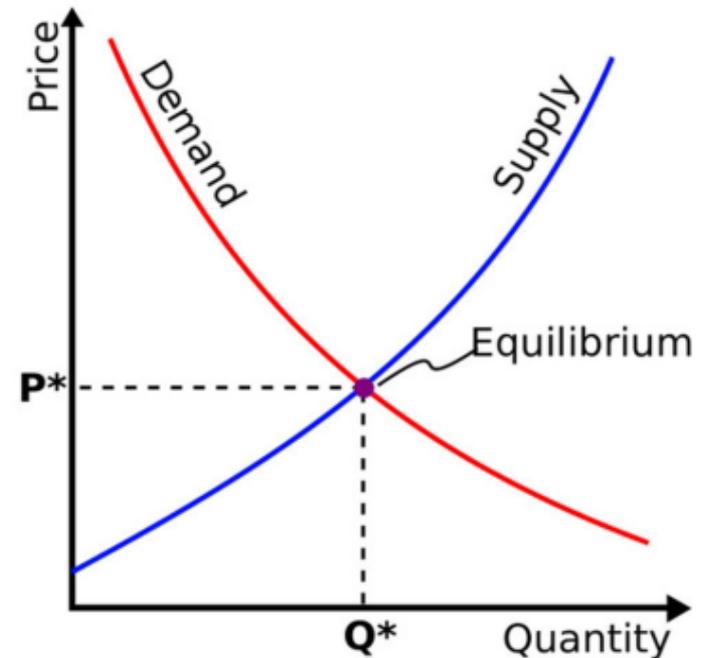
Hospitals are spending money on predictive modeling.

Providers need to rethink the patient experience.

# ECON 101 – SUPPLY & DEMAND

The theory defines the relationship between the price of a good and the willingness of people to either buy or sell it.

- The **law of demand** says that at higher prices, buyers will demand less of a good.
- The **law of supply** says that at higher prices, sellers will supply more of a good.
- These two laws interact to determine the actual market prices and volume of goods that are traded on a market

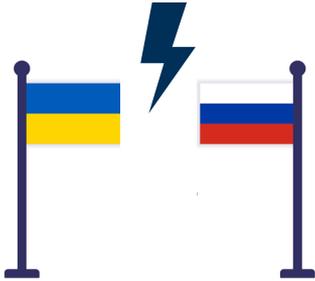


# INITIAL DISRUPTIONS

- **Record U.S. port congestion** due to massive consumer goods demand, exacerbated by seasonal purchasing trends
- **Record freight and transportation costs** coupled with global shipping container imbalances
- **Increased pricing and lack of raw materials availability** for manufacturers, including semiconductors and plastic resins
- Emerging domestic and international **natural disasters**
- Ongoing **national labor challenges** across industries, which is making it harder to find drivers and staffing at ports and warehouses



# IT'S COMPLICATED (POLITICAL)



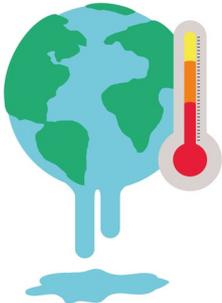
Ukraine Invasion



China



Green Movement



Global Warming



Labor Unions



Recession

# WHAT IS THE INDUSTRY DOING?

- Building relationships with suppliers
- Diversifying suppliers
- Forecasting products and materials
- Adjusting timelines
- Monitoring global events
- Managing inventories
- Sourcing domestic supplies
- Looking deeper into the supply chain
- Anticipate supply chain trends
- Guaranteed supply
- Owned stockpile
- Group purchasing organization



# ECON 101 - WHAT DRIVES INFLATION



Inflation is an increase in the overall price level. The official inflation rate is tracked by calculating changes in a measure called the **consumer price index (CPI)**. The CPI tracks changes in the cost of living over time.



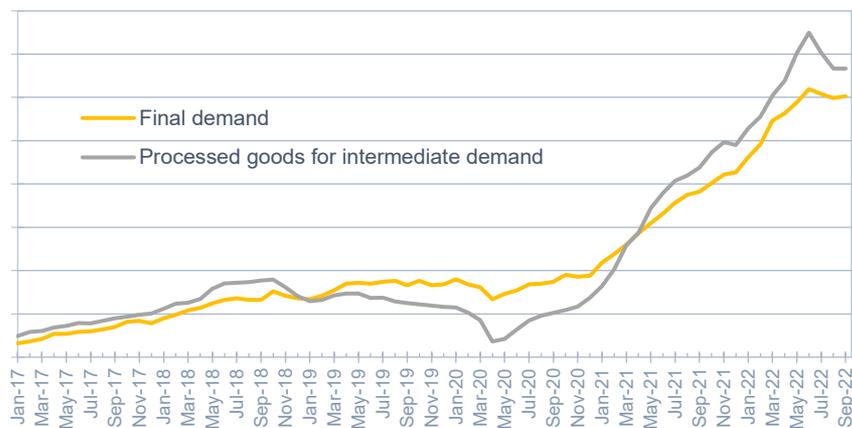
## *Three main theories of inflation:*

- **The Quantity Theory** – Inflation is caused by too much money in the economy.
- **Demand-Pull Theory** – Inflation happens when the demand for goods and services exceeds existing supply.
- **Cost-Push Theory** – Inflation occurs when the cost of producing goods and services rise and that cost gets passed on to the consumer through higher prices.

# A VIEW OF INFLATION

Inflation rates have begun declining and are trending down based on weakening demand that is moving us towards a global recession. This trend presents itself clearly in the one-month percent change column. Despite recent declines this table illustrates that labor, logistics and many raw materials remain elevated compared to pre-Covid price levels.

We don't believe a recession will significantly lower the primary contributors to current inflation; wages, diesel and natural gas will maintain elevated levels.



Inflation rates	One-month change, %	12-month change, %	January 2020 % change
PPI final demand	0.2%	8.5%	17.8%
PPI final demand goods – less food and energy	0.2%	7.2%	15.5%
PPI final demand - services	0.3%	6.8%	14.4%
PPI processed goods for intermediate demand	0.0%	13.1%	38.8%
Avg. hourly wages in manufacturing	1.0%	4.7%	12.7%
Wages & salaries service occupations	1.8%	8.5%	15.3%
High density polyethylene (HDPE)	-4.3%	-36.2%	71.8%
Polypropylene	-18.5%	-46.0%	50.0%
Cotton	-2.9%	-14.0%	27.7%
Paperboard	-0.1%	17.3%	37.9%
Steel	-6.7%	-14.3%	91.4%
Stainless steel	-3.4%	20.1%	51.3%
Aluminum	2.2%	-22.9%	28.6%
Diesel (cost/gallon)	-0.5%	47.5%	63.7%
Natural gas	-10.5%	52.7%	290.1%

# IS IT TRANSITORY OR NOT?

## Commodity prices driven by transitory shock:

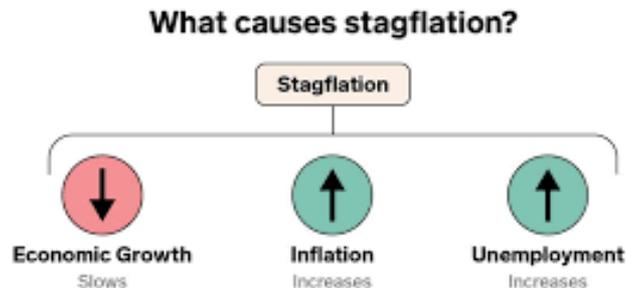
- Raw materials

## Some price increases appear more permanent:

- Labor costs
- Energy
- Domestic transportation costs

---

Stagflation is the simultaneous appearance in an economy of slow growth, high unemployment, and rising prices.



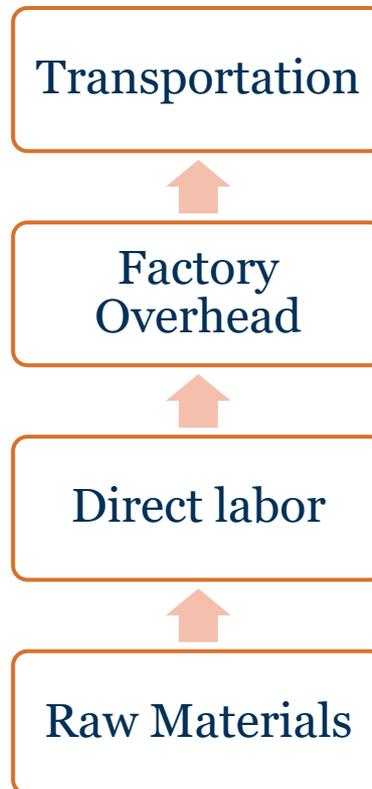
INSIDER

## What to do?

1. Increase interest rates to reduce inflation
2. Cut interest rates to reduce unemployment

# ECON 101 – SETTING PRICE FOR GOODS

To **maximize profits**, the **pricing** model is based on producing **a number of goods** at which total revenue minus total costs is at its greatest (**Revenue – Costs = Profits**).





# Demand Planning through Supply Chain Disruptions & Inflation

Leslie Hanlon, Supply Chain Manager

10 November 2022

# Financial Scenario Planning Becomes Essential

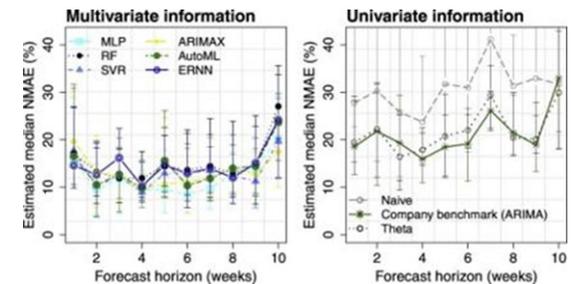
Goal: Execute financial scenario planning for products by identifying drivers and related actions across the supply chain continuum, to ultimately improve access of critical PPE products to our customers

## Univariate Demand Planning

- Inherently aligned to unit-level forecasting
- Does not predict market fluctuations or price elasticity
- Traditionally uses time-phased horizon only
- < 50% accurate during pandemic

## Multivariate Demand Planning

- Identifies data correlations
- Removes noise from data
- Models order attributes / types / patterns
- Predicts customer wins and losses
- Models safety stock consumption and lead time changes
- **Allows for data-based decision making**



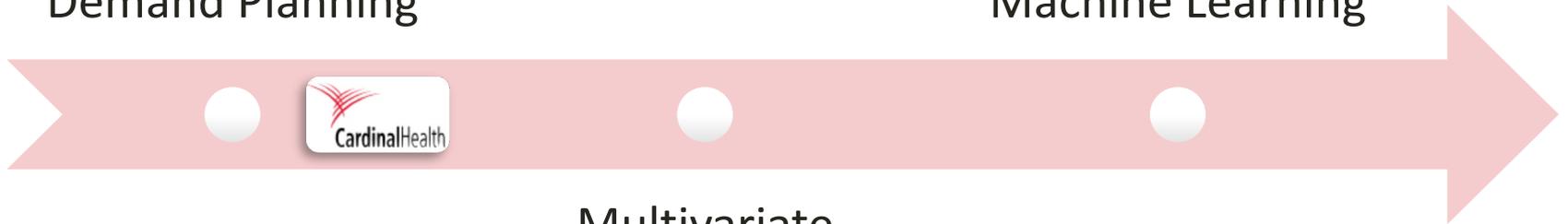
# Maturity Perception Versus Reality



Univariate  
Demand Planning



Aug Intel &  
Machine Learning



Multivariate  
Demand Planning



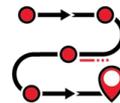
# Evolution to Multivariate Demand Planning & CPFR

## Where we were...



- 3 & 12-month demand planning at SKU level
- Lag reporting forecast accuracy and bias
- 12month finished goods cost at monthly SKU-level

## What's Next

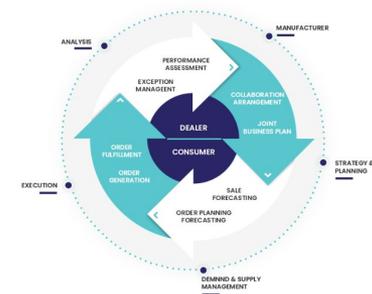


- **Extend** application to additional medical products to enhance current processes
- Selling **price** - identify drivers
- **Integration** - collaborate with functions to integrate into business processes
- **Freight** - international and domestic
- **Incorporate** demand sensing, analytics, purchasing, and deployment

## Our Approach



- Continuous feedback loops including idea discovery, hypothesis validation, and engineering studies.



# Flexal™ Exam Gloves Case Study



## FLEXAL™ Nitrile Gloves

Our best-selling exam glove provides tactile sensitivity and protects hands from potentially infectious materials.



## FLEXAL™ Touch

FLEXAL™ Touch offers both dependability and protection. Experience the protection of FLEXAL™ with the tactile sensitivity of FLEXAL™ Feel. It is also available in a premium packaging configuration- FLEXAL™ Touch with Dispensing film.





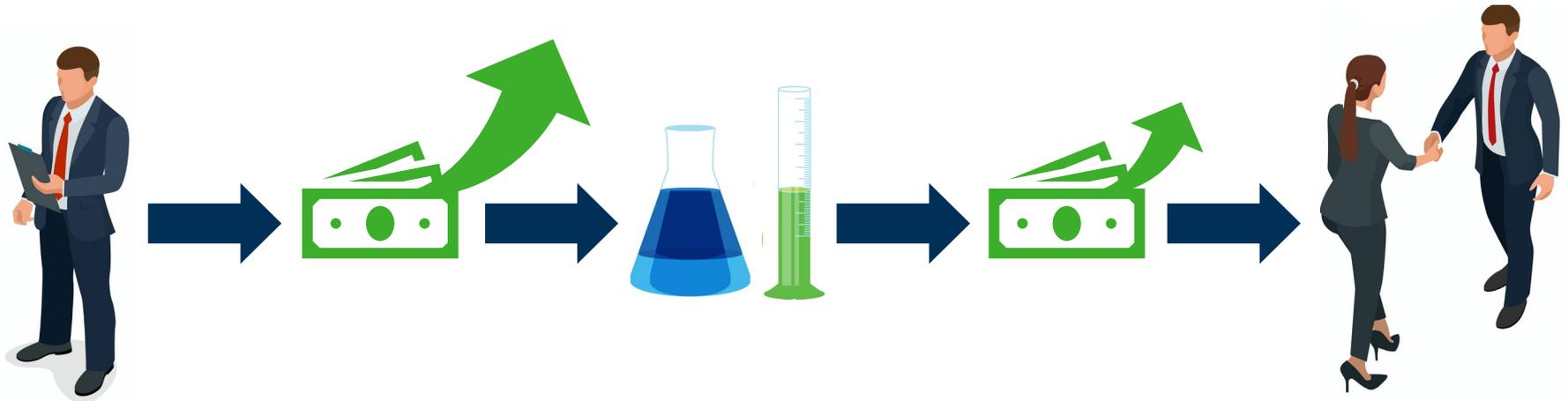
# A GPO'S RESPONSE



Dive deep into the components of product pricing and current trends

- Evaluate supplier price increases to help better gauge the ask
  - Understand the raw materials
  - Labor and transportation used in a product
- GPO needs to work with suppliers rather than against them

# A GPO'S RESPONSE - EXAMPLE



# EVOLVING SOLUTIONS FOR SUPPLY ASSURANCE

## Supply Chain Insights

regularly published market insights

- Economist and product engineer
- Understand cost indexes
- Monthly publications and webinars
- Incident monitoring

## Supply Access

rigorous sourcing strategies and strategic programs

- MFG facility locations
- Location and distribution redundancy
- Increase days on hand
- Supplier transparency and 24/7 event monitoring
- Failure to supply
- Made in USA portfolio
- NovaPlus expansion

## Supply Chain Enablement

actionable how-to's from our experts

- Vet alternative suppliers
- Product substitutes
- Conversion recommendations
- Update cross references
- Share best practices

## Advocacy and Collaboration

voice of the membership represented in outreach

- Maximize your network
- Attend association meetings

# NOVAPLUS – VIZIENT PRIVATE LABEL PROGRAM

## Branded Non-Contract

- No therapeutic alternatives – nearly all customers pay same price

## Branded Contract

- Therapeutic alternatives motivate suppliers to protect/grow market share

## Generic Injectables

- Several players with exact equivalents create a highly competitive market
- Segment hit hard by drug shortages
- *Vizient: created a shortage mitigation program*

## Generic Non-Injectables

- >5k generic orals, topicals, etc.

# NOVAPLUS<sup>®</sup> MITIGATES DRUG SHORTAGES

novaplus+



- Supply guarantee based on your usage
- Impact standardization/quarterly rebates
- **80%** compliance threshold

**190** drugs  
760+ NDCs

novaplus+

Enhanced Supply

- **Up to 6 months of additional inventory of product**
- **Essential Medications** (>211 drugs identified)
- **Pooled inventory** based on Vizion members total historical purchases
- Includes all of pharmacy spend (GPO, 340B and WAC)
- All inventory warehoused in U.S. by manufacturer

**104**  
**Million**  
vials available  
306+ NDCs

Launching in 2022!

novaplus+

Enhanced Supply Reserve

- **Dedicated inventory (member-specific)**
- Higher incremental rebates (4-5%)
- Expanded Failure-to-Supply terms
- **90%** compliance threshold

**2** suppliers  
180+ NDCs

# MY RUN IN WITH DISRUPTIONS



# SO WHAT DO YOU DO?

## Considerations

- Further develop relationships with Suppliers
- Work with your GPO
- Diversify suppliers
- Unique inventory disruption mitigation programs (Novaplus)
- Track inventory levels more closely (software)
- Embrace virtual work models to minimize internal admin resource disruption
- Collaboration with local hospital, associations, and/or competitors
- Move technology to the cloud





**QUESTIONS?**