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*July 27, 2021*

# Supplies Expense Forecasting: Creating an Operator-Focused Dashboard to Impact In-Period Performance

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## | Disclosures / Potential Conflicts of Interest

The presenters have no real or perceived conflicts of interest related to this presentation

Note: This program may contain the mention of suppliers, brands, products, services or drugs presented in a case study or comparative format using evidence-based research. Such examples are intended for educational and informational purposes and should not be perceived as an endorsement of any particular supplier, brand, product, service or drug.

## Learning Objectives

*At the end of this session, participants should be able to:*

1. Describe leading indicators, such as specific product purchases, that consistently correlate to reported results
2. Identify the best methodologies to project leading indicator activity during a specific financial period and develop a tool that uses the leading indicator to accurately project a final result, such as supplies expense, within a reasonable margin of error
3. Explain the role operators can play if provided these tools and the actions they can take to positively impact results



The background of the slide is a blurred photograph of a hospital hallway. In the foreground, on the left side, there is a clear plastic IV drip chamber hanging from a stand, with a clear plastic tube leading down. The hallway in the background shows a series of white doors and a person walking in the distance, all out of focus. The overall color palette is a cool, muted blue.

# “Impacting the News”

# Supplies Expense Forecasting

“We do a great job of reporting the news. We need to do a better job of impacting the news.” – Ed Jones (HTU 2019)

In March and April 2020, numerous states implemented public health emergency orders that regulated, to varying levels, access to medical care that was deemed “non-essential.”

- Supplies Expense is generally the 2<sup>nd</sup> largest expense for hospitals after labor.
- How do we forecast Supplies Expense if our models rely heavily on historical data that is not relevant to a new environment?
- Is there a better way to forecast current period performance that also allows us to impact outcomes even in a post-COVID environment?





# Identify Leading Indicators to Forecast Performance

Audience Poll Question:

*From May 2020 through April 2021, of the choices below, what was the most consistent leading indicator of HCA Healthcare's Supplies Expense?*

- a. Non-pharmaceutical Purchase Orders by Hospitals
- b. Total Supplies Distributed from affiliated Warehouses
- c. Direct Pharmaceutical Purchase Orders from Primary Distributor
- d. Supplier Card Spend

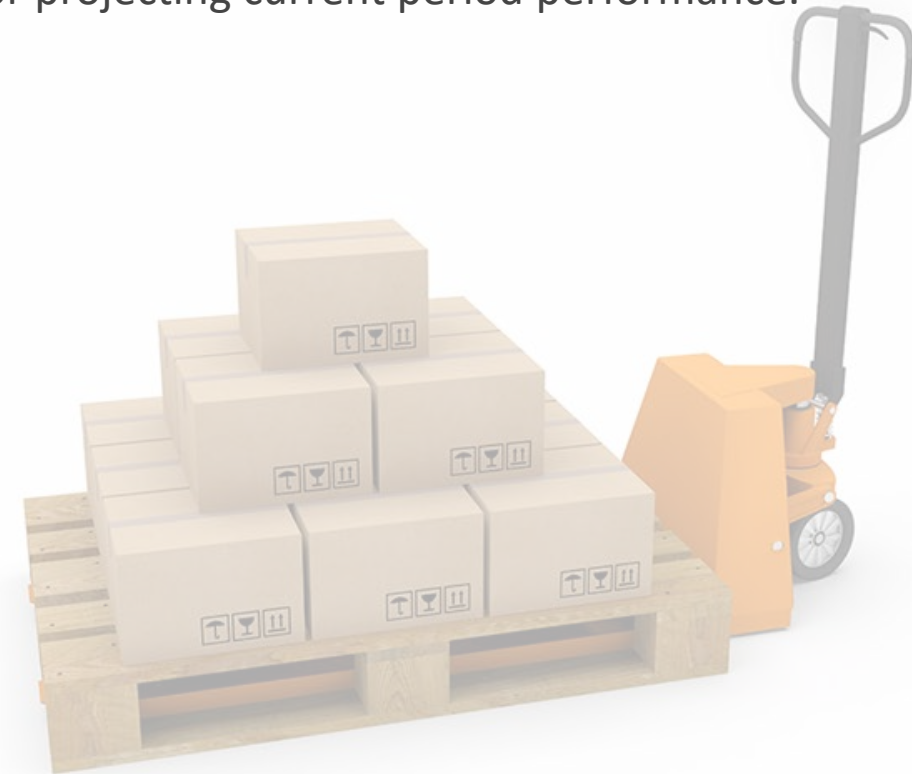
# Identifying Leading Indicators

What is Supplies Expense comprised of?

- Ideally there would be a 1:1 relationship between supply ordering and final supplies expense.
- In reality we have both adjustments and unknowns (accruals for example).
- However, we can use the correlation of ordering to final supplies expense for projecting current period performance.

## Supplies Expense Activity Indicators:

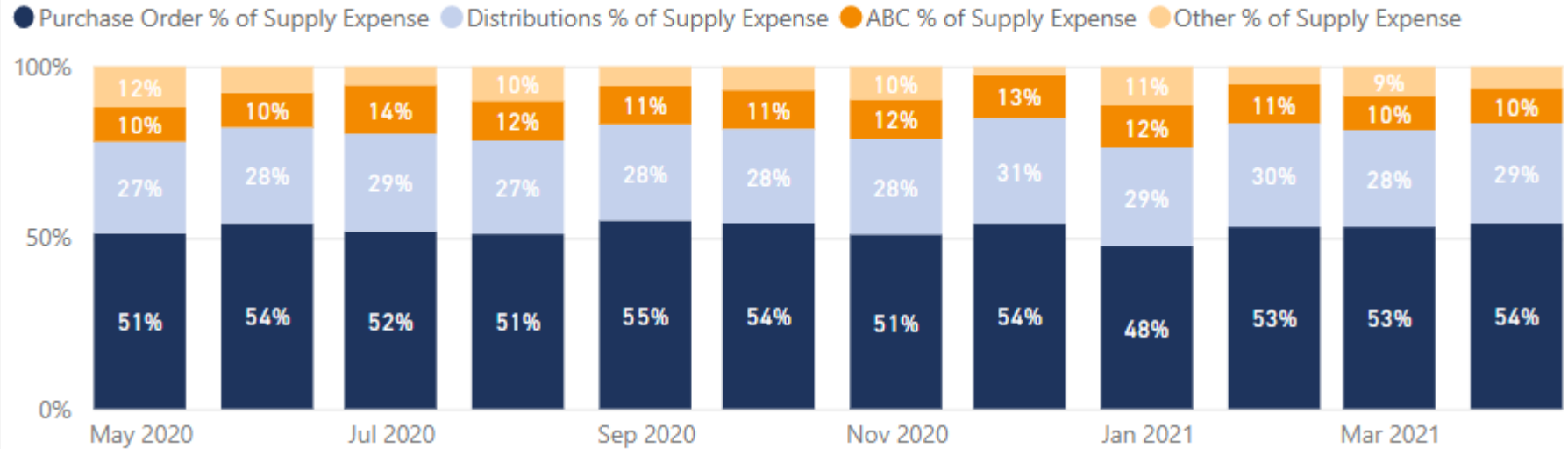
- Purchase Orders
- Warehouse Distributions
- Non-Purchase Order Spend (Food, Linen, Blood, etc.)
- Supplier Card Spend (office supplies, computer equipment, etc.)
- Rebates
- Accounting Entries
- Inventory Adjustments
- Other





# Identifying Leading Indicators

12-Month Supply Expense Breakdown



- Non-pharmaceutical Purchase Orders correlate to more than half of total supplies expense
- Yet, warehouse distributions are the most consistent leading indicator of current period supplies expense

# Using In-Period Data to Forecast Results

# | Supply Expense Projections

## Methodology

Simply stated:

If total warehouse distributions correlate to 30% of Supplies Expense consistently each period and we can accurately forecast warehouse distributions during the period, then we can use warehouse distributions as a leading indicator to accurately forecast Supplies Expense.

Our Model:

Supplies purchase orders and warehouse distributions consistently account for 92% of Supplies Expense each month. Therefore, by tracking and projecting purchase order activity and warehouse distributions, we can accurately forecast Supplies Expense based on in-period data...and allow our operators to act on that information.

# Requirements (and Benefits) of using In-Period Data for Leading Indicators

- Accurate
  - Data set must be complete and accurate.
  - Tested accuracy of data sets for six months by piloting methodology across two divisions.
- Available & Reliable
  - Data set must be available with a reliable frequency, preferably daily.
  - Data must be timely and consistently available (i.e. “as of”)
- Relevant
  - Data set must be related to the activity you are trying to forecast.
- Reliable
  - The reliability of the data is imperative to the accuracy of the forecast.
  - Hawthorne Effect – Observing daily purchase order activity allowed us to identify common issues with the accuracy and reliability of the data (unit of measure issues, order keying mistakes, standing orders, etc.)













A blue-tinted photograph of a business meeting. In the foreground, a person's hands are visible, one holding a tablet. On the table, there are documents with charts, a pair of glasses, and a pen. In the background, another person in a suit is partially visible, looking at the tablet. The overall scene is professional and collaborative.

# Provide Operators Tools to Impact In-Period Performance



# Supply Expense Projections Tool

Providing Operators Tools to Impact Performance

 <p>OSG - Daily Imaging Dash... JUN 4, 2021</p>	 <p>OSG - OR Tech Bundle Ana... MAY 31, 2021</p>	 <p>OSG - Surgery - Replenish... AUG 6, 2020</p>	 <p>OSG - Surgical Volumes Da... JUN 4, 2021</p>
 <p>Pharmacy Diversion Suppo... JAN 5, 2021</p>	 <p>Pharmacy – INNV – SCBI MAY 26, 2021</p>	 <p>PI - LSS - QA JUN 3, 2021</p>	 <p>Procure to Pay – INNV – S... JUN 5, 2021</p>
 <p>SICAM to WebTool Variances MAY 17, 2021</p>	 <p>Supply Charging Reports - ... MAY 14, 2021</p>	 <p>Supply Expense Managem... JUN 4, 2021</p>	 <p>Financial Operations Supply Expense – INNV – S... JUN 3, 2021</p>



# Supply Expense Projections Tool

## Providing Operators Tools to Impact Performance – Read Me Tabs

- PowerBI dashboards have “Read Me” tabs.
  - Please do not try and read the image below 😊.
- Strongly suggest reading the “Read Me” tab before you work with and use information in an application.
- These guides typically provide useful information about the data in the tool, including sources, timing, parameters, limitations, and helpful hints to improve their utilization.

This report is designed to estimate month end financial metrics using the current month-to-date values. The primary function of the dashboard is to provide financial and operations staff with an preliminary view Supply Expenses usually only available after the current month is completed. Please note, the dashboard contains a mixture of actual month-to-date data, along with projected data. The projected data should be used as a guide, not as the final (actual) values. This dashboard should not be used on the 1st or 2nd day of the month, as no current month data will be available at that time.

The data reflected in this report is not limited by lines of business, will be refreshed daily at noon, and will retain all historical data, dating back 12 months.

Data is further identified according to the following parameters:

- Pharmacy Invoice Spend (Data Source Code 0100 prior to Nov 2020, then 0100 and 0200)
- Dist Spend (Distributions from HCA warehouses to HCA facilities)
- PO Spend (Facility direct from vendor purchase orders)
- Total Spend (the sum of the 3 prior bullet points)
- Adjusted Admissions (AA)

**Please note:** The following metrics are not available before month-end close and are projected. The project values are based on related data attributes which are available mid-month. The average relationship between the projected and known attributes is evaluated using historical data.

- Supply Expense: Projected using month to date PO, Distribution, and Pharmacy (ABC) spend.
- Adjusted Admissions: Projected using month to date non-adjusted admissions
- Net Revenue: Projected using Adjusted Admissions projections

- Historical data within the dashboard is dynamic and will shift depending on the day of the month:
- If viewing the dashboard before the 12th of each month, prior month data will be the month two months prior (i.e. if viewing the dashboard on Oct. 5th, prior month will be Aug, as Sept data has not yet closed)
  - If viewing the dashboard on or after the 12th of each month, prior month data will act as expected (i.e. if viewing the dashboard on Oct 13th, prior month will be Sept, as Sept data is closed and available)

**Note:** Pharmacy data is currently undergoing data feed changes, and adjustments will be made to this dashboard as updates are made within the EDW. In addition, details/column names may differ from pharmacy built reports, as additional clean up is done within those. For questions around the pharmacy data, please contact [Jennifer.Wachsmann@Healthtrustpg.com](mailto:Jennifer.Wachsmann@Healthtrustpg.com)

Available Tabs:

- Summary: Full-month projections of the current month, along with prior year comparisons.
- Detail: 12-month historical trends for Supply Expense and Net Revenue mix along with line item spend data (month-to-date, not projected) for PO, Distributions, and ABC.
- 12-Month View: Provides a historical view of Supply Expense, Net Revenue, and Admissions metrics.



# Supply Expense Projections Tool

## Current Month Projections



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### Supply Expense Projections

Report Version: Version 1.0  
Last Refresh Date: 1/14/21

AVP / CIO: Supply Chain Analytics  
Dept / LOB: Corporate Supply Chain



Projections for: Jan-2021

Consolidated Code - Name

All

Division Name

All

COID - Name

All

● Non-Contract Purchases ● Contract Purchases

0% 50% 100%

\$640,156,648

Projected Total Purchases

\$689,704,690

Projected Supply Expense

\$4,372,107,844

CM NR Projection

15.78%

Supply Expense % of Net Revenue

\$2,520

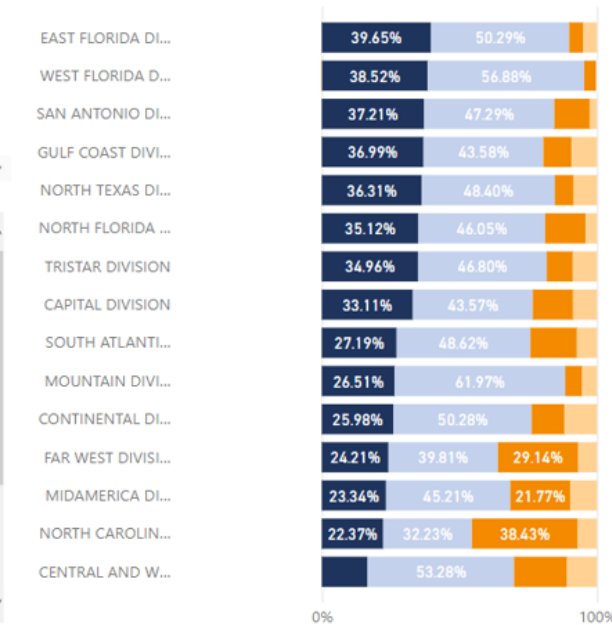
Supply Expense Per AA

12-Month Supply Expense % of Net Revenue (Historical)



Current Month Components of Supply Expense

● Distribution % of ... ● Purchase Order ... ● ABC % of Suppl... ● Unexplained ...

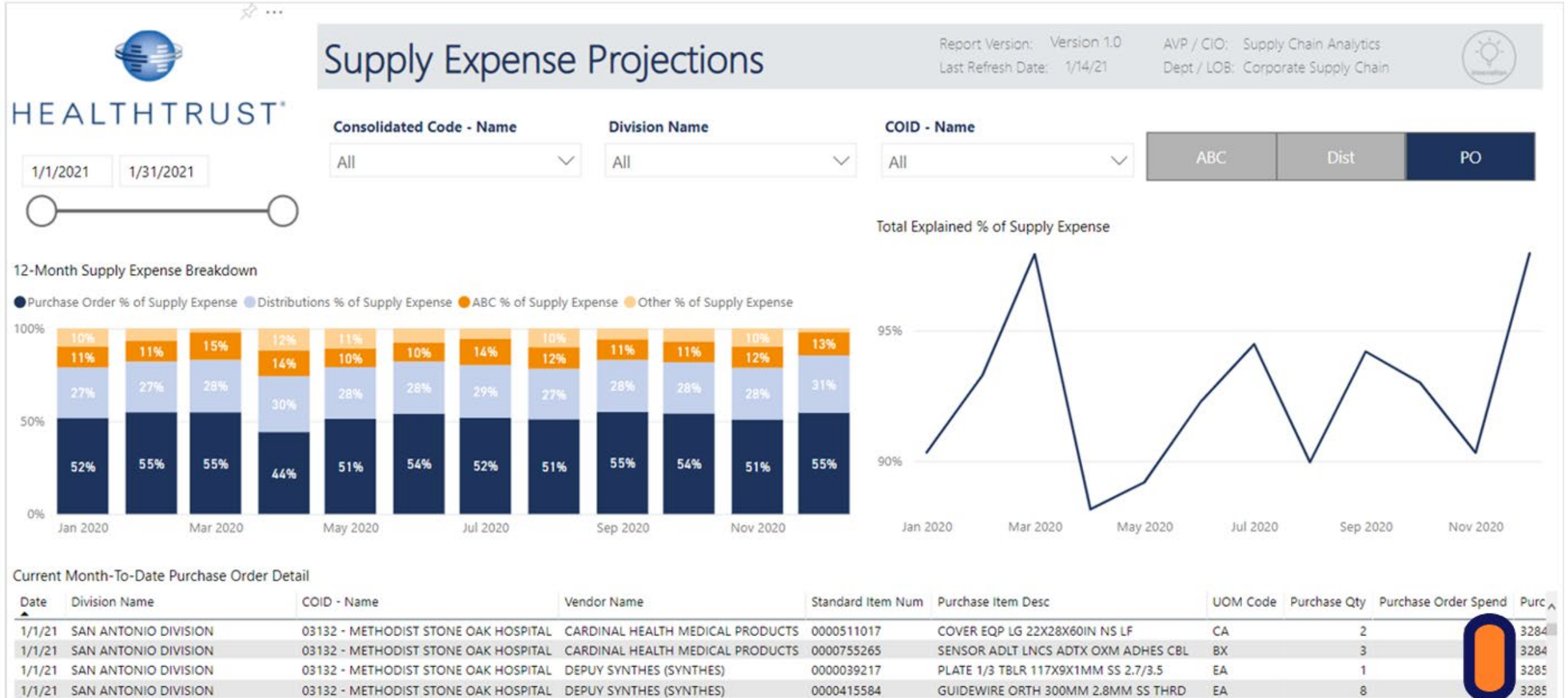


Current Month Projections vs. Prior Year Actuals

Group_Name	Projected Supply Expense	Projected Supply Expense Per AA	Projected Supply Expense % of Net Revenue	Prior Year Supply Expense	Prior Year Supply Expense Per AA	Prior Year Supply Expense % of Net Revenue
<b>AMERICAN GROUP</b>	<b>\$341,265,728</b>	<b>\$2,911</b>	<b>16.64%</b>	<b>\$357,515,703</b>	<b>\$2,604</b>	<b>17.67%</b>
AMERICAN GROUP UNASSIGNED DIV				\$476		952.96%
CENTRAL AND WEST TEXAS DIVISION	\$43,465,955	\$3,309	16.99%	\$46,358,314	\$2,890	19.14%
CONTINENTAL DIVISION	\$50,629,679	\$3,387	15.60%	\$55,721,675	\$3,094	16.78%
GULF COAST DIVISION	\$53,967,746	\$2,246	14.85%	\$57,539,062	\$1,934	16.16%
MIDAMERICA DIVISION	\$46,925,367	\$3,295	18.84%	\$49,461,794	\$3,106	19.32%
NORTH TEXAS DIVISION	\$55,532,246	\$3,111	15.52%	\$55,135,244	\$2,793	16.28%
SAN ANTONIO DIVISION	\$36,763,912	\$3,034	18.64%	\$42,995,086	\$3,099	21.73%
TRISTAR DIVISION	\$54,032,534	\$2,570	17.78%	\$50,304,051	\$2,102	16.76%
<b>NATIONAL GROUP</b>	<b>\$348,584,529</b>	<b>\$2,226</b>	<b>15.04%</b>	<b>\$377,066,596</b>	<b>\$2,116</b>	<b>16.14%</b>
CAPITAL DIVISION	\$52,132,414	\$2,194	15.56%	\$55,355,153	\$2,153	16.68%
EAST FLORIDA DIVISION	\$48,553,870	\$2,068	14.68%	\$51,158,103	\$1,829	14.83%
FAR WEST DIVISION	\$46,839,577	\$2,789	14.00%	\$53,040,623	\$2,585	13.96%
MOUNTAIN DIVISION	\$45,622,811	\$2,663	13.77%	\$47,771,715	\$2,617	14.00%
<b>Total</b>	<b>\$689,704,690</b>	<b>\$2,520</b>	<b>15.78%</b>	<b>\$734,582,299</b>	<b>\$2,328</b>	<b>16.85%</b>

# Supply Expense Projections Tool

Detail Tab





# Supply Expense Projections Tool

Detail Tab (Continued)

- Warehouse Distribution Detail

Standard Item #	Facility Vendor Name	Vendor #	Transaction Type	Transaction UOM	Qty	Amount	Contract Compliance	GL Sub Account
0002759648	MEDTRONIC USA	938500	ADJ	EA	12	\$\$\$\$	C	443

- Pharmacy Detail

Mfg Name	RX Item #	RX Item Desc	NDC Current	UOM	Qty	Amount	Customer	Therapeutic Class Code & Desc.	Contract Purchase	GL Sub Acct	Pharmacy_Code_Desc
TEVA RX	10013514	PROGLYCEM 30 ML 50	00575620030	EA	-1	\$\$\$\$		682292 - ANTIHYPOGLYCEMIC AGENTS	Y	488	AMERISOURCEBERGEN

- PO Detail

Vendor Name	Standard Item #	Purchase Item Desc	UOM Code	Qty	PO Spend	PO #	PO Line #	Contract Compliance	GL Sub Account	Line Canceled	Non File	New Item
MEDTRONIC USA INC	0001124467	SYSTEM ATHRCM MECH DRCT HAWKONE	EA	3	\$\$\$\$	002119	4	C	443	N	N	N

### Export data

Which data would you like to export?

Summarized data  
 Underlying data

File format:

.xlsx (Excel 150,000-row max) ▼

Data exports with all applied filters.  
 For large data models, only a limited number of rows can be exported. [Learn more](#)

Export
Cancel




# Supply Expense Projections Tool

## 12-Month View – Operating Indicators



# Supply Expense Projections Tool


## Prior Month Projections



### Supply Expense Projections (Prior Month)

Report Version: Version 1.0  
Last Refresh Date: 1/14/21

AVP / CIO: Supply Chain Analytics  
Dept / LOB: Corporate Supply Chain



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Consolidated Code - Name

Division Name

COID - Name

Projection
Details

All
All
All

\$787,681,393

Total Purchases

\$850,734,191

PM SE Projection

\$4,452,035,646

PM NR Projection

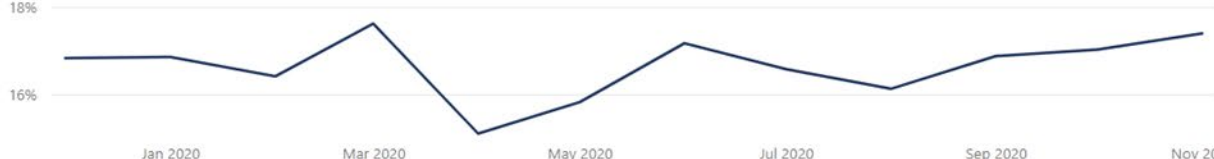
19.11%

PM SE % of NR

\$2,960

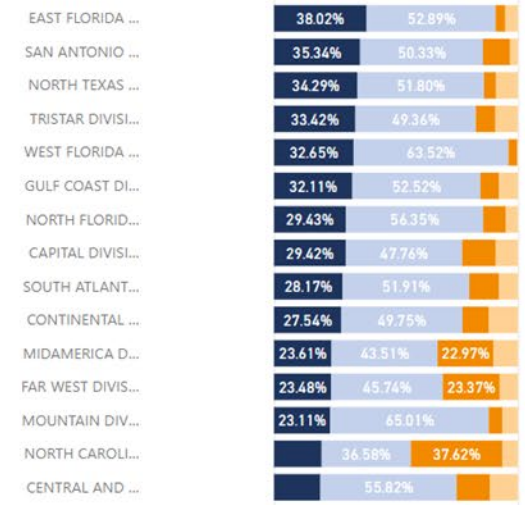
PM SE Per AA

PM SE % of NR Hist Chart



PM % of SE Chart


● PM Dist % of SE ● PM PO % of SE ● PM ABC % of SE ● PM Unexplained ...



Group_Name	PM SE Projection	PM SE Per AA	PM SE % of NR	PM PY Supply Expense	PM PY SE Per AA	PM PY SE % NR
<b>AMERICAN GROUP</b>	<b>\$419,685,900</b>	<b>\$3,372</b>	<b>19.88%</b>	<b>\$357,501,307</b>	<b>2,570.95</b>	<b>17.05%</b>
AMERICAN GROUP UNASSIGNED DIV				\$246		
CENTRAL AND WEST TEXAS DIVISION	\$54,917,336	\$4,005	21.60%	\$47,874,446	3,022.95	18.76%
CONTINENTAL DIVISION	\$60,571,576	\$3,851	18.45%	\$53,411,927	2,990.76	16.69%
GULF COAST DIVISION	\$69,327,319	\$2,648	18.30%	\$49,726,589	1,676.44	13.14%
MIDAMERICA DIVISION	\$55,749,763	\$3,791	22.56%	\$52,071,090	3,204.18	20.32%
NORTH TEXAS DIVISION	\$69,921,435	\$3,695	19.04%	\$59,725,471	2,886.40	15.82%
SAN ANTONIO DIVISION	\$46,608,189	\$3,548	22.67%	\$43,050,023	2,995.20	21.44%
TRISTAR DIVISION	\$62,505,524	\$2,845	19.09%	\$51,641,516	2,118.19	16.74%
<b>NATIONAL GROUP</b>	<b>\$431,171,512</b>	<b>\$2,645</b>	<b>18.43%</b>	<b>\$360,297,678</b>	<b>2,085.39</b>	<b>16.61%</b>
CAPITAL DIVISION	\$64,365,661	\$2,628	19.37%	\$52,094,723	2,118.10	16.15%
EAST FLORIDA DIVISION	\$59,675,377	\$2,460	18.02%	\$47,346,869	1,750.73	14.88%
FAR WEST DIVISION	\$61,070,739	\$3,407	17.44%	\$50,796,855	2,629.37	14.23%
MOUNTAIN DIVISION	\$22,217,553	\$2,104	17.33%	\$22,094,222	2,146.16	16.66%
<b>Total</b>	<b>\$850,734,191</b>	<b>\$2,960</b>	<b>19.11%</b>	<b>\$717,798,986</b>	<b>2,301.92</b>	<b>16.83%</b>

Read Me Current Month Detail 12 Month View Prior Month Projections Change Log Help

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Thank you...

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