

Health System Specialty Pharmacy: How Data Analytics Drives Clinical Care

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Objectives

- Overview of the specialty pharmacy landscape from a health-system perspective
- Unique capabilities of health-system specialty pharmacies
- Key clinical and business applications for informatics as it pertains to health-system specialty pharmacy practice
- Dynamics of how specialty pharmacy and HealthIT can work synergistically to improve patient care

VUMC Overview



Vanderbilt University Medical Center

- **4 VUMC Hospitals:**
 - Vanderbilt University Hospital
 - Monroe Carell Jr. Children’s Hospital
 - Vanderbilt Psychiatric Hospital
 - Stallworth Rehabilitation Hospital
- **1,129** beds (+ Children’s expansion)
- **\$4B+** annual operating revenue
- **23,434** employees
- **2.2 million** annual ambulatory visits
- **123,00** annual ER visits
- **59,241** annual surgical operations

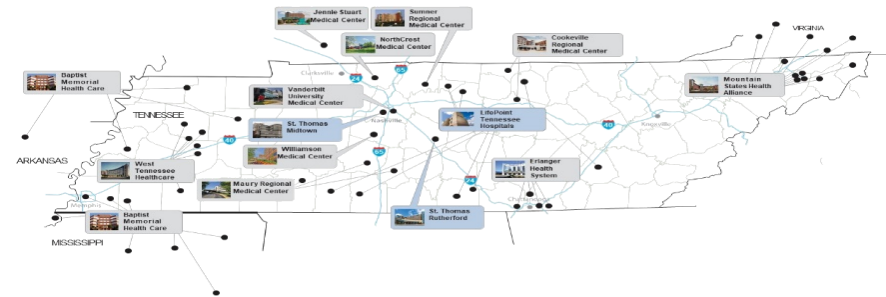
VUMC Overview

The Vanderbilt University Medical Center footprint extends beyond the four walls of the main hospital to health systems across the Southeast.



Vanderbilt University Medical Center

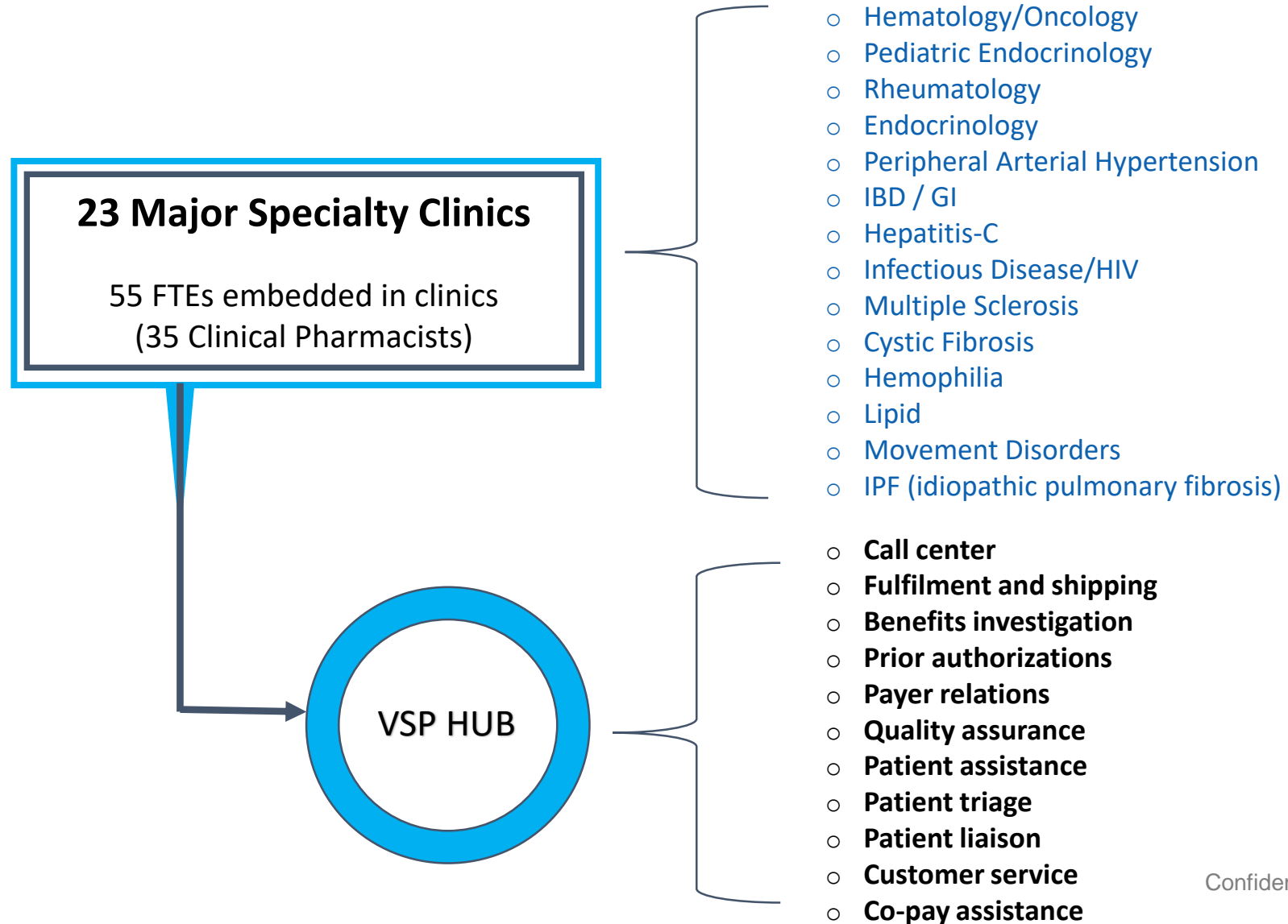
- **4 VUMC Hospitals:**
 - Vanderbilt University Hospital
 - Monroe Carell Jr. Children's Hospital
 - Vanderbilt Psychiatric Hospital
 - Stallworth Rehabilitation Hospital



Vanderbilt Health Affiliated Network

- **13** health systems across Tennessee and surrounding states
- **66** hospitals
- **350** physician practices
- **113** walk-in, urgent care, and retail clinics
- **5,204** total participating providers

Vanderbilt Specialty Pharmacy



Specialty Medications Defined

Complexity

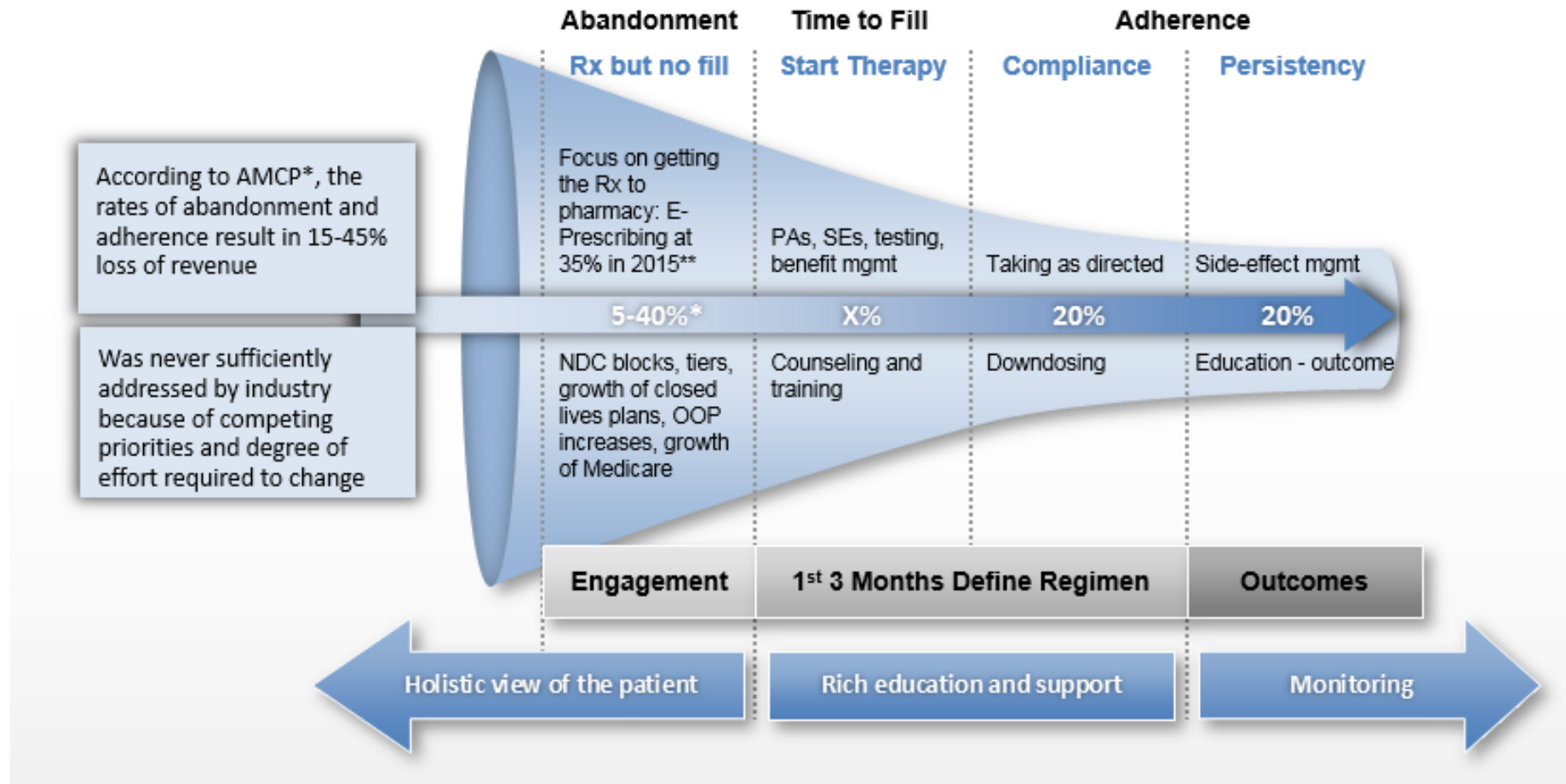
Storage, handling,
and delivery
requirements

Comprehensive
patient
management

Manufacturer
restrictions

Cost

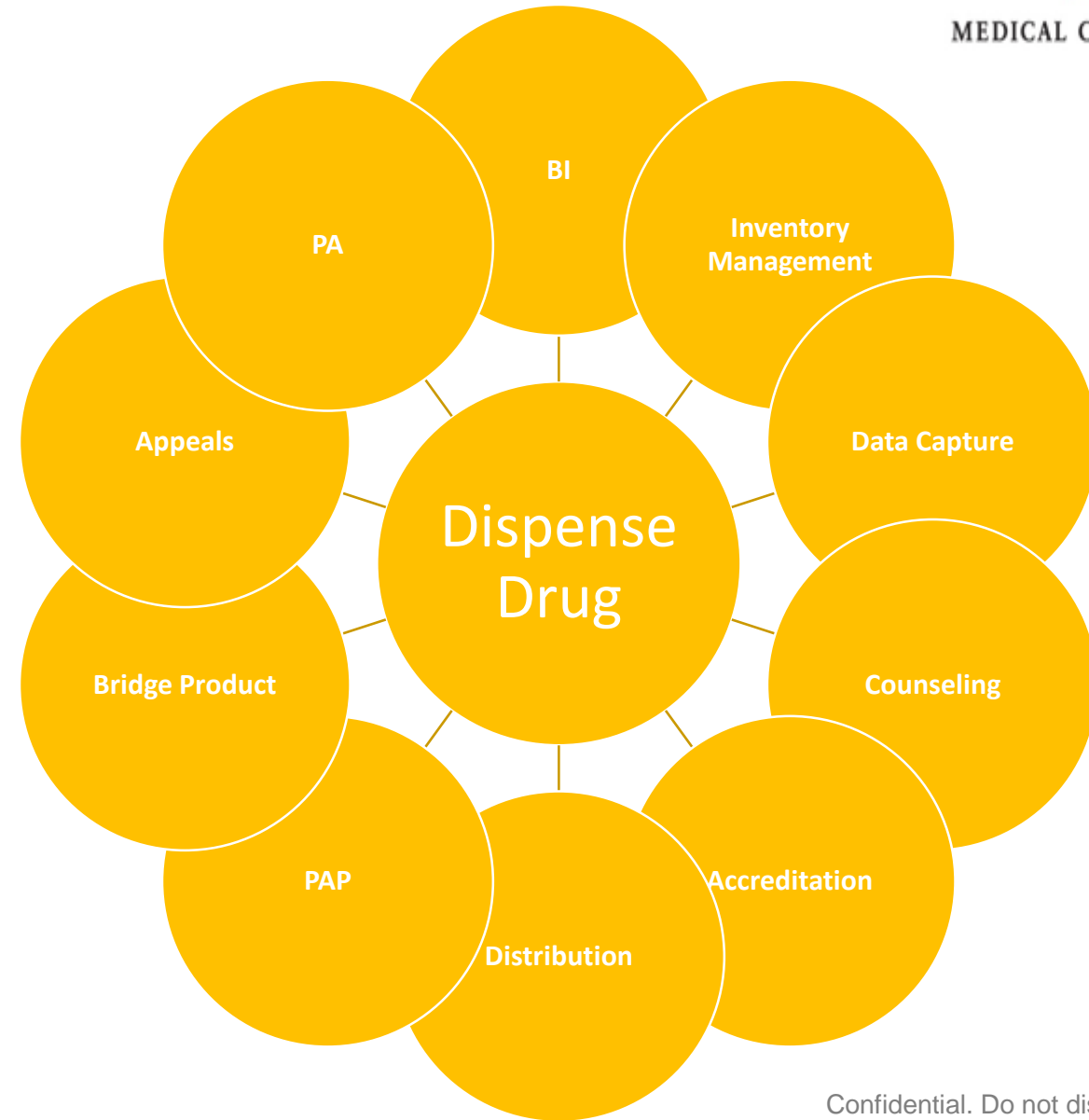
What Gave Birth to Specialty Pharmacy



Slide Courtesy of Bill Roth

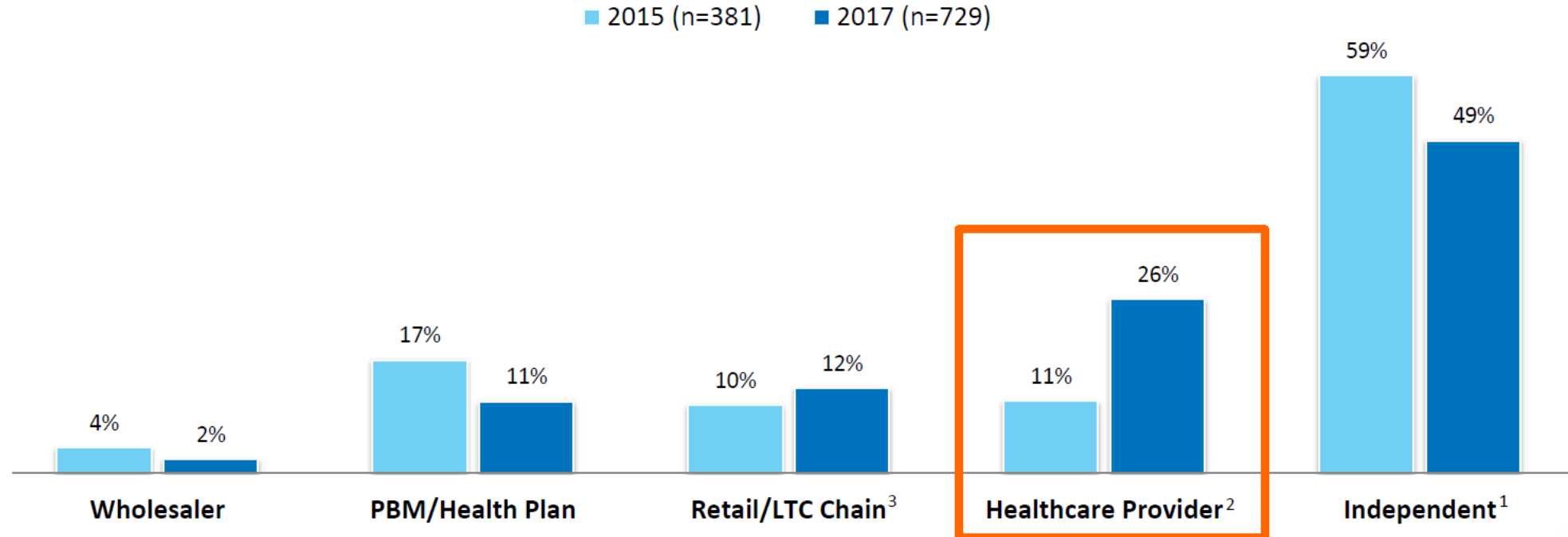
* AMCP JMCP 2015 adherence reports
** Surescript article August 2016

Specialty Services Surrounding Drug



Recent Growth of Health System SPs

PERCENTAGE OF PHARMACY LOCATIONS WITH SPECIALTY PHARMACY ACCREDITATION, BY CORPORATE OWNERSHIP



LTC = Long-term care

1. Includes private independent pharmacies, pharmacies owned by private equity firms, and independently owned franchise locations.

2. Includes pharmacies owned by hospitals, health systems, physician practices, and providers' group purchasing organizations.

3. Includes pharmacy locations owned by chain drugstores, grocery chains, and national long-term care pharmacy chains.

Source: [The 2018 Economic Report on U.S. Pharmacies and Pharmacy Benefit Managers](#), Exhibit 44. Figures show number of unique pharmacy locations accredited by ACHC, CPPA, and URAC at the end of the year. For comparability, data for ACHC and CPPA exclude certain accredited pharmacy spoke locations within retail chains. Figures exclude locations with provisional, conditional, and expected accreditation. Locations owned by manufacturers excluded for purposes of presentation

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Slide Courtesy of Adam Fein, PhD

Points That Favor Hospital Entry to Specialty Pharmacy

Specialty Growth	<ul style="list-style-type: none">• Industry estimates specialty drugs will account for 50% of all drug spending by 2020• All types of SPPs want their piece of this growth
Accountability	<ul style="list-style-type: none">• Growth of ACOs• Hospital re-admission penalties
Patient Journey	<ul style="list-style-type: none">• Theoretically maintain seamless experience for the patient• Services should be on par with traditional SPPs and HUBs• Captive provider allows for expedited speed to therapy
IDNs as HMOs/MCOs	<ul style="list-style-type: none">• Cost containment; strong regional payer coverage (UPMC, Geisenger)
DATA	<ul style="list-style-type: none">• Powerful data that allows greater access to risk and value based contracts• Potential to integrate longitudinal patient data
Economics	<ul style="list-style-type: none">• Systems looking to make their own supply chains more efficient• 340B pricing

Data Capabilities

Electronic Medical Record

- Discrete and non-discrete data fields
- Labs, imaging, provider notes, ED visits, hospitalizations
- All documented clinical activities

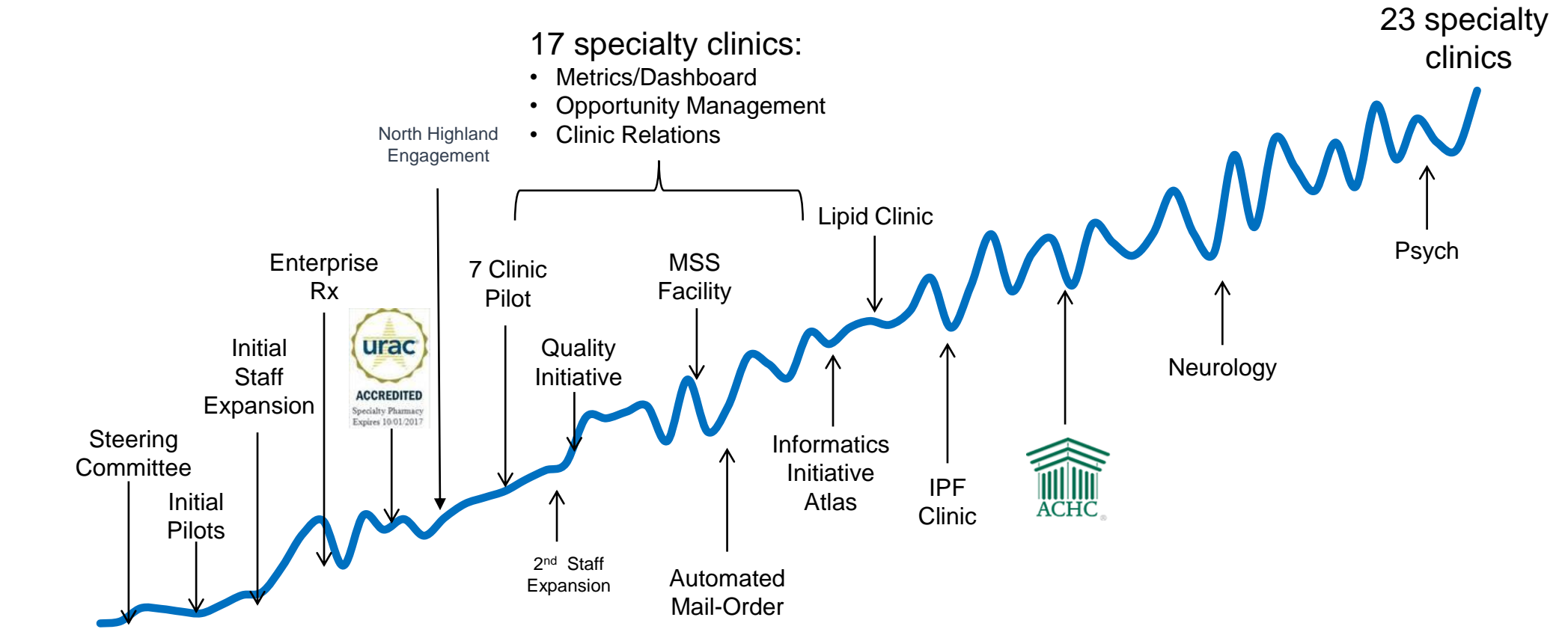
Specialty Pharmacy Patient Management System

- Discrete and non-discrete data fields
- Access process (time stamped): PA, appeal, approval
- Pharmacist interventions: counseling and education, changes to dose/regimen, therapy optimization

Pharmacy dispensing software

- Primarily discrete data
- Pharmacy claims: date of dispense, rate of adherence/persistence
- Financial information: assistance, out of pocket costs

Growth Milestones



HealthIT Partnership: A Multifaceted Collaboration

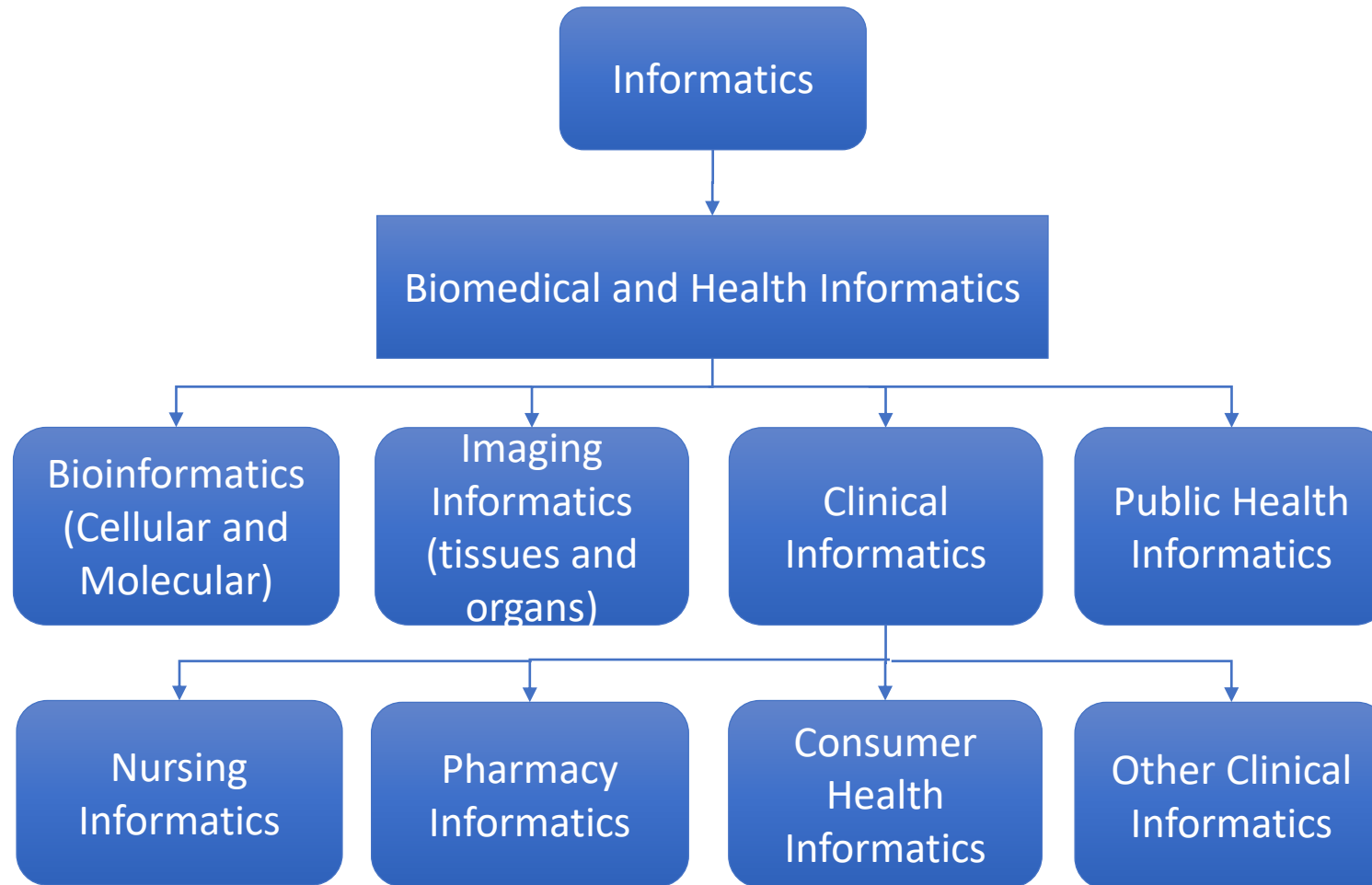
Operations

- Opportunity management
- Referral management
- Performance metrics
- Reporting
 - Internal
 - External

Clinical

- Data Collection
- Dashboards
- Outcomes Research

Informatics in HealthIT



What is pharmacy informatics?

- “Pharmacy informatics is centered on the effective management and delivery of medication-related data, information, and knowledge across systems that support the medication-use process.”

Building Core Competencies in Pharmacy Informatics, 2010.

AMIA Glossary <http://www.amia.org/glossary>

Am J Health-Syst Pharm 2007; 64(2): 200-203

Am J Pharm Educ 2008; 72(4):89

A Hitchhikers Guide to Bioinformatics. <http://www.slideshare.net/JTADrexel/bioinformatics-2512758>

ASHP Statement on the Pharmacist's Role in Clinical Informatics. <http://tinyurl.com/zq5sj38>

<https://www.himss.org/news/tiger-expands-integration-technology-and-informatics-international-competency-synthesis-project>



The 4-Legged Stool



Where does pharmacy informatics play a role in Specialty Pharmacy?



Business

Opportunity Management

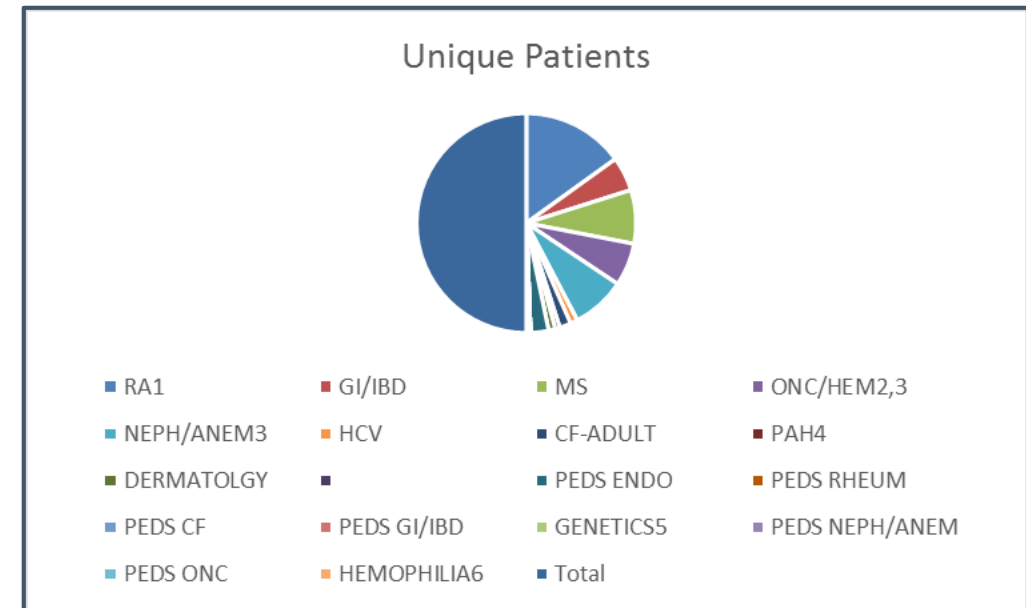
- What is the real opportunity?
 - How big is the pie?
- How successful are we?
 - Patient Eligibility (who can fill with us)
 - Market Share
 - Conversion
- Segmenting Opportunity
 - LDD Targets
 - Payer Targets



How can Informatics Help Business Operations?

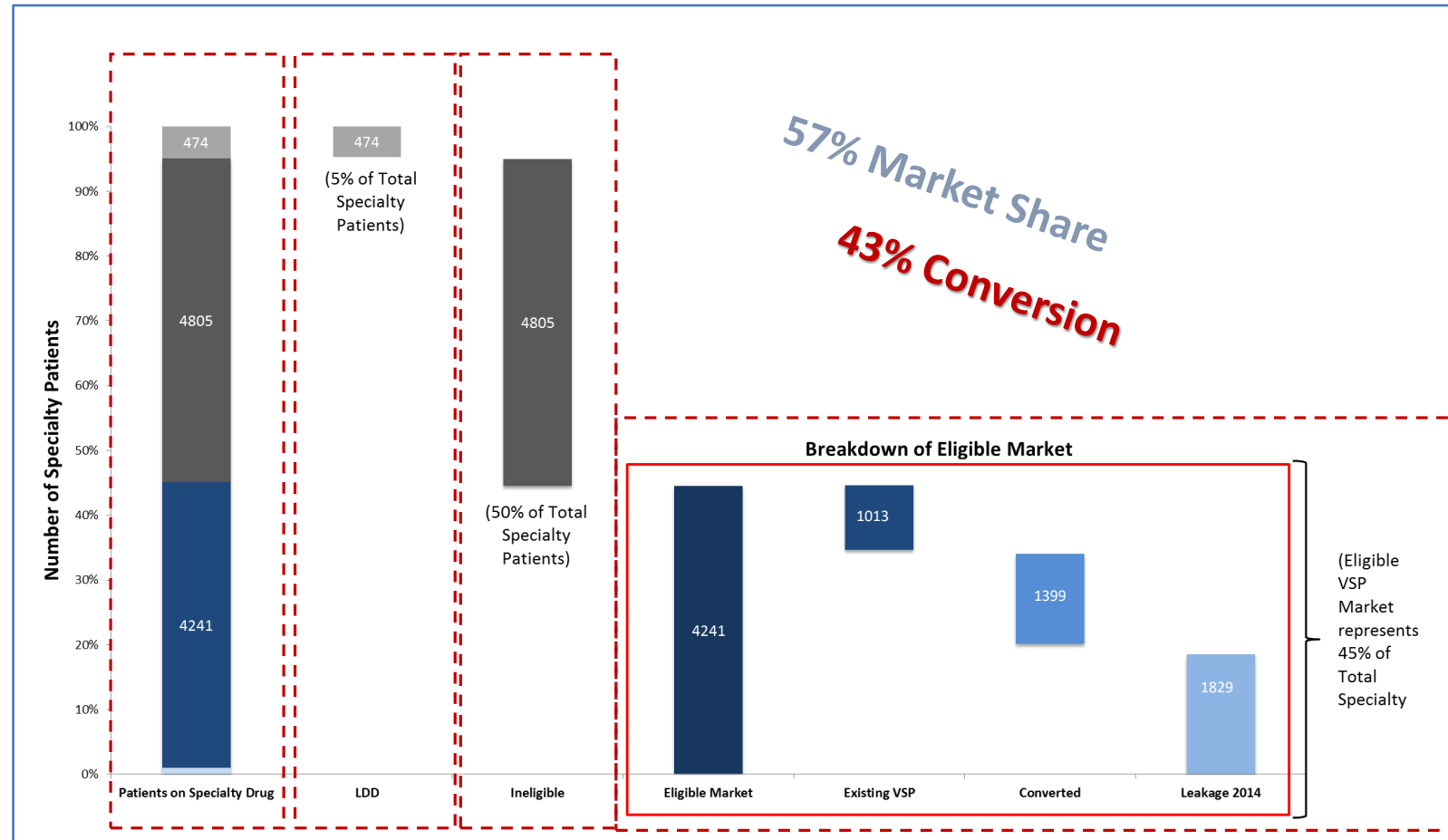
- What is the opportunity?
 - **Generate a report:**
 - **Electronic Medical Record (ICD10)**
 - **E-Prescribing**
- Where is the opportunity?
 - **Disease states**
 - **Limited Distribution Drugs (LDD) Targets**
 - **Payer Targets**
- How successful are we?
 - **Patient Eligibility**
 - **Conversion**
 - **Market Share**

MRN	PAT_NAME	PAT_DOB	PAT_ADD_LINE_1	PAT_CITY	PAT_STATE	PAT_ZIP	PAT_HOME	PRESCRIBE_MED_ID	MED_NAMI	RENEWAL	DOSE_#	DISPEN	REFILL_STA	PHARMAC	PRESCRIBER_I	PRESCRIBER_TYPE	
647362.00	Cash, Johnny	08-06-1938	5913 Old Harding	Williamson	Tennessee	37211	615-555-1	05-26-201	576500.00	Enbrel	RX_RENEVSyr	2	6.00	Walgreen	Case, A Jane	ADVANCED_PRACTICE_P	
958538.00	Reagan, Ronda	04-16-1934	2151 Hwy 70	Franklin	Tennessee	37232	615-555-1	03-06-201	247449.00	Enbrel	RX_RENEVSyr	2	3.00	Walgreen	Lane, Richard	ATTENDING_PHYSICIAN	
1141282.00	Kent, Clark	04-16-1934	2453 Big Springs	Franklin	Tennessee	37289	615-555-1	03-29-201	195545.00	Humira	NEW_RX	Syr	2	0.00	Walgreen	Hall, Reagan	ADVANCED_PRACTICE_P
1202506.00	Lane, Lois	08-15-1928	305 Mountainside	Springfield	Tennessee	37690	615-555-1	08-10-201	247449.00	Copaxone	NEW_RX	Syr	2	1.00	Wal-Mart	Young, Kisha	RESIDENT
1287127.00	Nelson, William	12-12-1932	Apt 915	Nashville	Tennessee	37019	615-555-1	01-10-201	222593.00	Tecfidera	RX_RENEVSyr	60	11.00	Walgreen	Miller, Matthew	ATTENDING_PHYSICIAN	
1619410.00	Simmons, George	12-12-1932	974 Fowler Ford	Nashville	Tennessee	37900	615-555-1	06-12-201	576500.00	Tecfidera	NEW_RX	Tab	60	0.00	Kroger	Na Kripalani, Saj	ATTENDING_PHYSICIAN
1648278.00	Hendrix, Jimi	12-12-1932	6632 Forrest Ln	Nolensville	Tennessee	37090	615-555-1	07-31-201	576500.00	Enbrel	RX_RENEVSyr	2	4.00	Humana	Franklin, Jeri	ATTENDING_PHYSICIAN	
1752682.00	Armstrong, Ne	03-19-1932	6632 Forrest Ln	Kingston Sprin	Tennessee	37082	615-555-1	03-02-201	576314.00	Humira	RX_RENEVSyr	2	0.00	Vanderbil	Mendes, Lisa	ATTENDING_PHYSICIAN	
1761436.00	Trunmp, Don	07-26-1947	8535 Poplar Cree	Nashville	Tennessee	32212	615-555-1	02-10-201	195545.00	Temodar	RX_RENEVSyr	14	5.00	Turenne	Naftilan, All	ATTENDING_PHYSICIAN	
1761436.00	Grant, Cary	08-18-1954	3810 Cravath Dr.	Nashville	Tennessee	32727	615-555-1	07-21-201	195545.00	Cimzia	RX_RENEVSyr	2	12.00	Turenne	Naftilan, All	ATTENDING_PHYSICIAN	
1877018.00	Bush, Jorge	08-18-1954	1626 Chickering F	Nashville	Tennessee	32568	615-555-1	06-29-201	178751.00	Zytiga	RX_RENEVSyr	60	3.00	Humana	Naftilan, All	ATTENDING_PHYSICIAN	
1907914.00	Wallbanger, t	10-23-1942	975 West Webb F	Goodlettsville	Tennessee	83390	615-555-1	05-17-201	247449.00	Kalydeco	RX_RENEVSyr	30	3.00	Walgreen	Ellis, Christo	ATTENDING_PHYSICIAN	
1910165.00	Collins, Tom	07-14-1936	3117 Langley Driv	Palmyra	Tennessee	37221	615-555-1	01-04-201	247449.00	Temodar	NEW_RX	Cap	14	5.00	Freds Pha	Byrd, Benjamin	ATTENDING_PHYSICIAN
1918325.00	Putin, Vladimir	10-15-1939	2230 Scott Ave	Nashville	Tennessee	37223	615-555-1	02-14-201	576500.00	Enbrel	RX_RENEVSyr	2	6.00	Green Hill	Abraham, Ro	ATTENDING_PHYSICIAN	
1920099.00	Roosevelt, Te	03-01-1945	3117 Langley Driv	Nashville	Tennessee	37278	615-555-1	02-06-201	568102.00	Rebif	RX_RENEVSyr	4	0.00	Wal-Mart	Walsh, Colin	ATTENDING_PHYSICIAN	



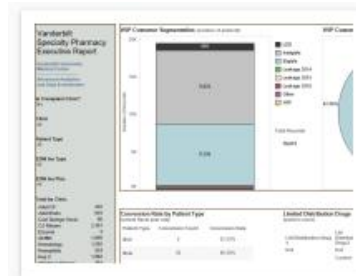
How can Informatics Help Business Operations?

- Total Number of Specialty Patients
- Ineligible LDD
- Ineligible Payer
- Eligible Market
 - Existing Patients
 - Converted
 - Leakage

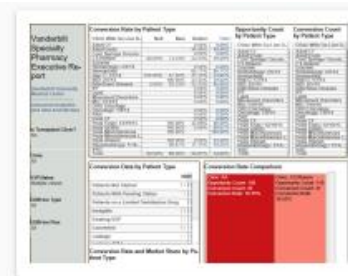


How can Informatics Help Business Operations?

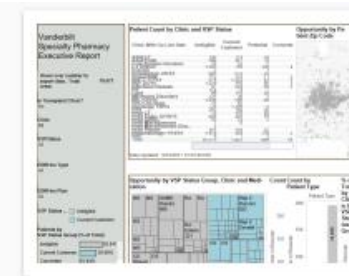
- Multiple Views
- Platform for C-Suite Dashboards
- Scorecards for Pharmacist
 - Conversion
 - Market Share
 - Patient Satisfaction



Executive Dashboard



Conversion Report



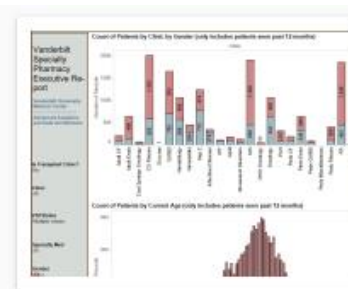
Specialty Pharmacy Dashboard



Geographic Analysis



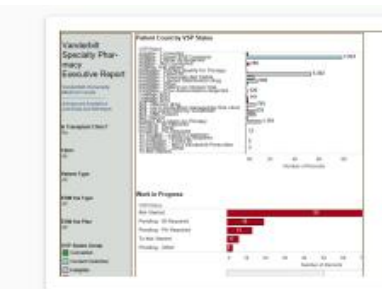
Geographic Analysis



Demographic Analysis



Insurance Plan



VSP Status Report



Stakeholders



Stakeholders

Stakeholders



Manufacturers

- Want Visibility?
- Maximize Opportunity
 - Adherence, Minimal Abandonment
- Patient Journey

Payers

- Financial Data
 - Copay Assistance?

How can informatics help Stakeholders?

- Medication Dispensing reports
- Rx Status reports
 - Incomplete referrals
 - Pending BI and Prior Authorizations
 - Pending Patient outreach
- Turn around times
 - Time to Clean claim
 - Time to Ship
 - Time to First Dose
- Call center metrics
 - Average speed to answer
 - Abandonment rate
 - Blocked calls
- Adherence metrics – PDC/MPR
 - Percent days in a month that a patient has medication in their possession to self administer

Specialty Pharmacy Trend Time to Clean Claim (Days) Trend FY 18

Specialty Pharmacy Trend Time to Schedule ShipMent (Days) Trend FY 18

Specialty Pharmacy Trend Time to Ship (Days) Trend FY 18

This report measures the time in days from when a referral image is received in Atlas to the time that it was shipped to the patient or dispensed in the clinic. This includes Prior Authorizations, test claims, scheduling delivery and waiting until the agreed delivery date to ship.

	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17
Adult RA	5.84	4.66	1.05	0.36	0.83	1.03	2.69	1.89	2.15	4.87	3.79
Cool Springs RA	2.24	1.21	1.27	1.59	0.33	1.30	1.02	0.22	2.05	5.09	6.22
Cool Springs Onc	1.33	1.58	1.57	0.46	2.12	0.53	1.62	0.01	5.62	4.02	5.62
Adult IBD	1.55	1.02	1.09	0.86	1.52	1.16	0.22	3.55	1.07	5.04	3.37
MS	8.00	3.06	1.58	1.53	1.11	3.95	6.16	5.17	5.56	5.39	6.92
Adult Heme/Onc	2.68	1.31	1.82	2.13	1.93	1.83	1.78	3.52	2.73	3.57	3.96
Hematology	1.24	2.16	2.33	2.41	1.70	1.72	1.21	1.88	4.38	3.61	5.29
Adult Endo	1.28	0.31	1.36	1.65	0.25	1.44	1.61	5.77	4.72	5.47	4.25
Adult CF	3.91	0.45	2.81	4.57	8.91	3.59	2.78	3.97	5.56	4.71	3.90
Hepatitis-C (HCV)*	2.04	1.28	1.50	1.75	2.49	1.32	1.34	1.88	2.26	3.98	4.98
Infectious Disease	7.01	2.14	1.33	0.91	2.01	1.51	0.88	1.27	2.89	2.40	3.55
IPF	-	2.82	7.03	5.92	5.95	4.42	6.02	6.04	0.12	3.06	3.80
Lipid	6.61	4.59	7.46	5.43	5.34	5.26	5.44	6.35	5.52	5.61	7.92
Neurology	8.12	4.89	1.86	4.77	3.01	6.07	0.67	4.92	1.77	5.21	4.66
Pulmonary Hypertension	0.87	1.01	2.23	2.39	0.12	3.45	5.97	2.02	3.09	3.24	7.08
Hemophilia	0.11	0.12	0.07	0.12	0.07	0.09	0.06	0.08	0.09	-	-
General/Misc.	9.94	4.37	2.60	4.78	3.36	0.14	4.81	5.45	1.70	4.76	3.96
Adult Total Avg. TAT	3.27	1.89	2.29	2.45	2.41	2.42	2.60	3.37	3.04	3.20	3.09
Peds RA	5.54	0.74	1.04	2.41	1.42	1.27	2.06	1.88	2.15	4.12	4.50
Peds Endo	1.31	2.91	2.28	1.03	2.15	1.42	1.78	2.49	4.29	3.29	3.53
Peds GI	5.03	0.08	0.15	0.08	2.69	3.87	2.55	0.08	3.39	3.34	5.19
Peds Hemophilia	0.15	0.13	0.80	0.34	0.15	0.16	0.19	0.14	0.08	-	-
Peds Heme/Onc	3.51	3.17	4.20	4.48	0.07	0.13	2.90	1.40	12.19	4.97	-
Peds CF	2.35	0.92	1.02	1.04	0.17	4.46	2.04	1.90	4.17	3.51	1.23
Synagis	0.02	0.10	0.01	0.19	0.03	-	-	-	-	-	-
Peds Total Avg. TAT	0.82	1.15	1.06	1.41	1.14	1.82	1.65	1.32	3.50	3.57	3.25
Overall Avg. TAT	3.03	1.80	1.68	1.93	1.78	2.12	2.13	2.34	3.27	3.38	4.09



Accrediting Bodies

Business



Stakeholders

Accrediting
Bodies

Accrediting Bodies



Background

- Accreditations are required for health plans as part of the (ACA).
- To have access to limited-distribution drugs
- Payer coverage
- Accrediting Organizations
 - Utilization Review Accreditation Commission (URAC)
 - Accreditation Commission for Health Care(ACHC)
 - Center for Pharmacy Practice Accreditation (CPPA)
 - The Joint Commission

Compliance

- Incident Reporting Metrics
- Telephone Reporting Metrics
- IT Risk Assessment
- Quality Metrics reporting

How informatics helps with Accreditations

- Provide reporting and analysis
 - Call center performance
 - Turn Around Times
 - Dispensing Accuracy
 - Distribution Accuracy
 - Drug/Drug Interactions
 - Proportion of Days Covered (PDC)
 - Fulfillment of Promise to Deliver
 - Primary Medication Non-Adherence (PMN)



Clinical Outcomes



Clinical Outcomes



Goal

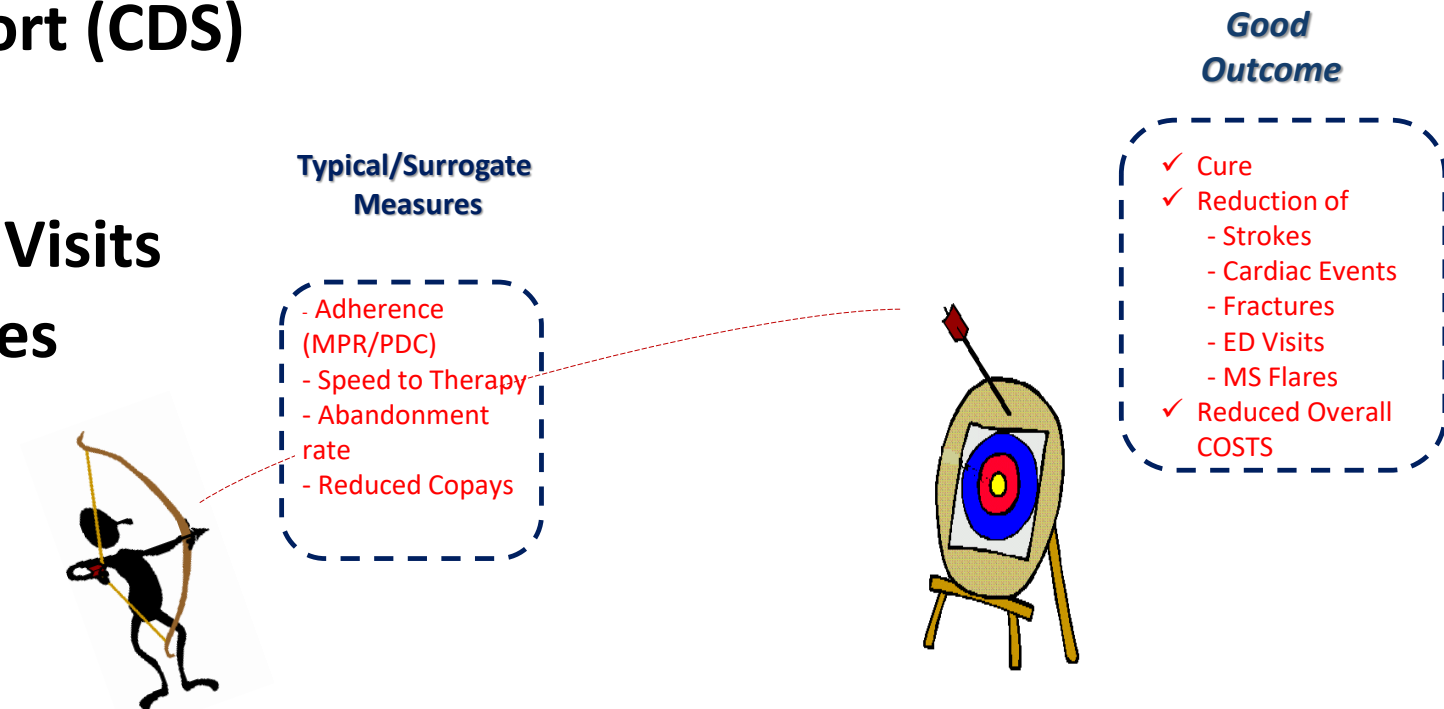
- To be able to demonstrate an impact to overall patient survival, disease progression or quality of life.

Impact

- Overall Healthcare Savings Impact
- Access Payer Contracts
- LDD Access
- Contribute to Science & Profession

How informatics helps Clinical Outcomes?

- Informatics can help direct care for better outcomes
 - Better Workflows
 - Clinical Decision Support (CDS)
- Success Measures
 - Re-admissions and ED Visits
 - Quality of Life Measures




How can informatics help Clinical Outcomes

Outcomes Data

In Print

- Posters and Publications
- Show Value
- Manufacturer
- Trusted & Safe Clinical Partner
- Contribute to Good Outcomes
- Payer
- Show Capabilities
- Not Just “pushing scripts”



Improving Adherence to Multiple Sclerosis Disease Modifying Therapies through an Integrated Specialty Pharmacy Model

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¹Vanderbilt Specialty Pharmacy; ²Lipscomb University; ³Department of Neurosurgery, Vanderbilt University Medical Center

BACKGROUND

- Disease Modifying Therapies (DMTs) have been shown to be effective for preventing relapses and delaying disease progression and disability.¹
- Prior studies have revealed adherence rates to DMTs range from 56-87%.^{2,3}
- Hanson et al. found an improvement in patient adherence to Multiple Sclerosis (MS) treatments when patients were enrolled in an integrated specialty pharmacy practice model, including an interdisciplinary team of physicians, pharmacists and nurses.⁴
- The Vanderbilt Specialty Pharmacy (VSP) has integrated two full time clinical pharmacists and two certified pharmacy technicians (CPhT) into the Vanderbilt University Medical Center Multiple Sclerosis (VUMC MS) Center who assist with coordination of care for patients being treated with a self-administered DMT. The goal of this “high touch” integrated model is to optimize treatment with MS therapies leading to reduced relapse rates and disease progression.

OBJECTIVE

- The objective of this study is to describe the dynamic role clinical pharmacists play in the multidisciplinary care of MS patients at the VUMC MS Center, along with present data on medication adherence rates of patients on self-administered immunomodulatory therapy using VSP.

METHODS

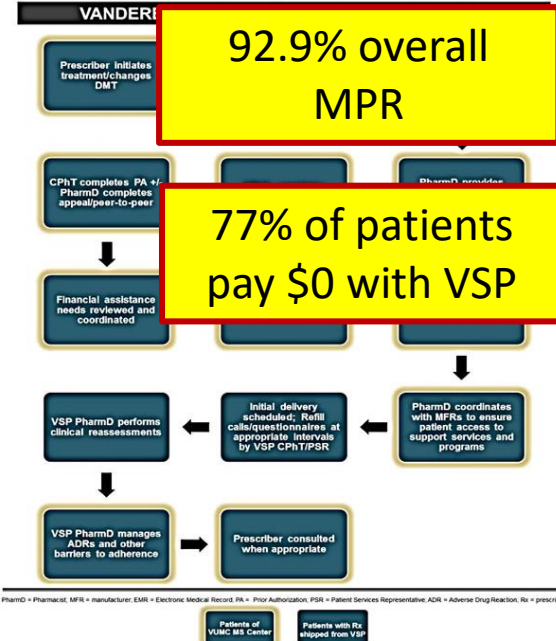
- This is a single-center, retrospective, cohort study of MS patients receiving a self-administered DMT through VSP between January 2016 and December 2016.

Endpoints

- **Primary endpoint:** Medication adherence, as measured by Medication Possession Ratio (MPR) and Proportion of Days Covered (PDC).
- **Secondary endpoints:** Percent of patients achieving adherence above the industry standard of 80%, and average patient out of pocket (OOP) cost for DMTs.

Study Population

- ICD-10-CM code of G35 (Multiple Sclerosis).
- At least three prescription claims through VSP for one or more of the self-administered DMTs between January 2016 and December 2016.



92.9% overall MPR

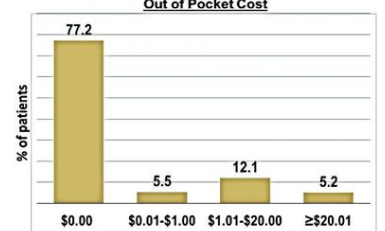
77% of patients pay \$0 with VSP

RESULTS

Adherence Data

	MPR (%)	≥80% MPR (%)	PDC (%)	≥80% PDC (%)
TOTAL (N=653)	92.9	88	94.25	89

Out of Pocket Cost



OOP Category	% of patients
\$0.00	77.2
\$0.01-\$1.00	5.5
\$1.01-\$20.00	12.1
≥\$20.01	5.2

CONCLUSIONS

- VSP clinical pharmacists play a unique role as care coordinators for patients in the VUMC MS Center. Additional analysis is ongoing to determine if OOP cost has a positive impact on medication adherence.
- The average overall MPR and PDC are 92.9% and 94.25%, respectively. These averages are higher than other published reports of adherence to DMTs in patients with MS, even among other specialty care programs.
- More than three-fourths (77.2%) of patients using VSP have a \$0 OOP cost for their DMT. For those patients who do incur OOP costs, the average is less than \$30 per fill.

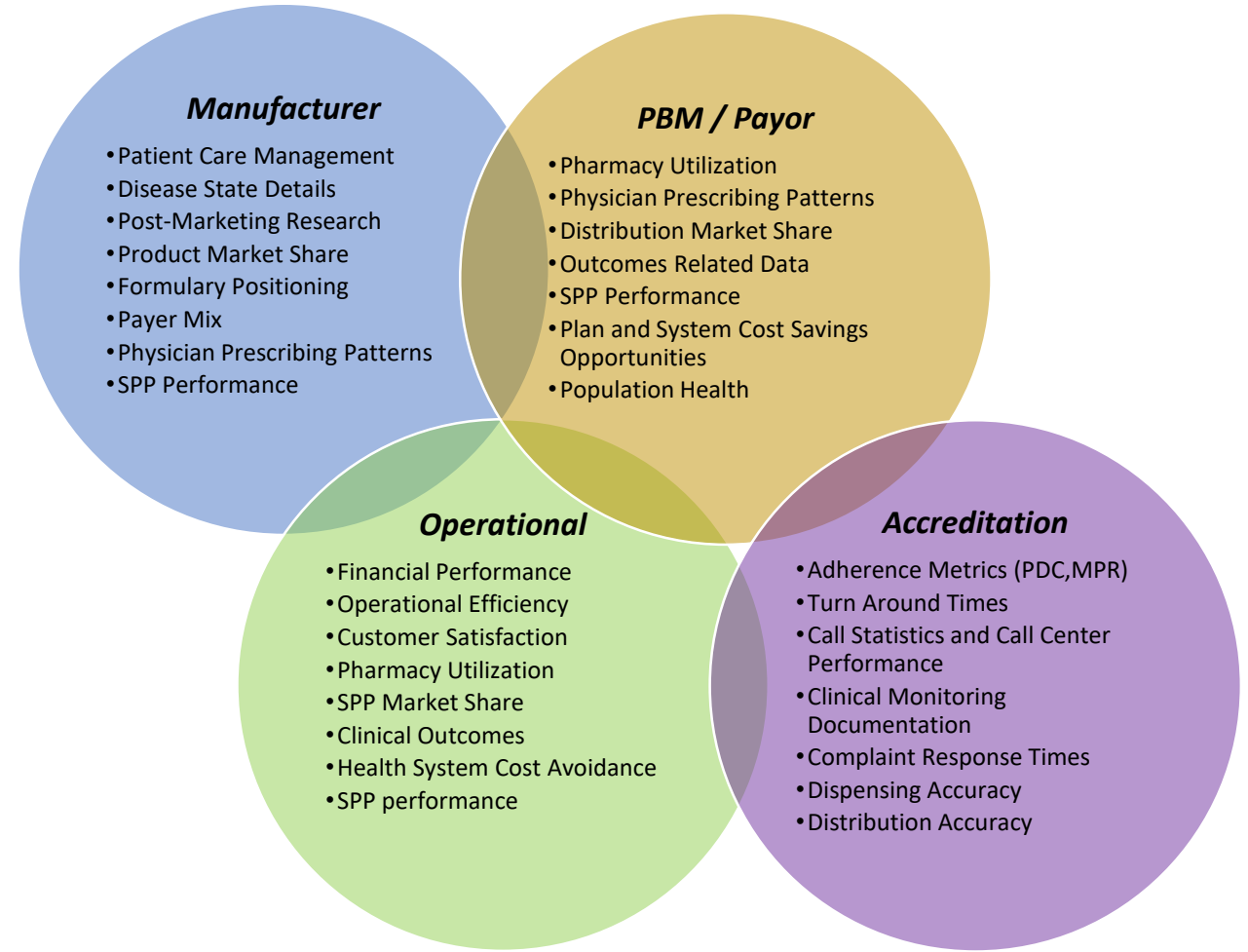
References

1. Fogarty E, Estroff S, Tubidy N, Walsh C, Barry M. Comparative efficacy of disease-modifying therapies for patients with relapsing-remitting multiple sclerosis: systematic review and network meta-analysis. *BMJ Open*. 2016;9(2):e005300.
2. Minton J, Cassin C, Nichols C, Uthoff LA, Freeman M, Pitt MM. Narrative review of the literature on adherence to disease-modifying therapies among patients with multiple sclerosis. *J Manag Care Pharm*. 2015;19(1):30-40.
3. Berenguer G, Rodriguez Y, Logan D, Williamson C, Treasaway K. Facilitating medication adherence in patients with multiple sclerosis. *Int J MS Care*. 2015;19(1):36-40.
4. Hanson RL, Hahn M, Khanna H, Abou S, Shalongo J. Integrated care and specialty pharmacy practice model for management of patients with multiple sclerosis. *Am J Health Syst Pharm*. 2014;71(9):63-69.

Data Reporting Needs – How to Operationalize?

Identifying Key Stakeholders Needs Prior to Data Collection

- ✓ Pharma Partners
- ✓ Operational Team
- ✓ Insurance Contracts
- ✓ Accrediting Bodies
- ✓ C-Suite
- ✓ Collaborating Providers
- ✓ Outcomes Development & Research



Data Meaningfulness

What does the data help us do?

- Is the data critical, or is it 'nice to have'?
 - Be prepared to prioritize operationally critical needs over exploratory ones.
 - Sometimes, exploratory items are exploratory for a reason.

Will the data be there when I need it?

- Data collection is not retroactive.
 - Plan far into the future to operationalize collecting important pieces of data before they are needed.
- We can't get what isn't there.
 - Don't assume that data are being collected simply because users are being asked to file it.

Feasibility & Extensibility

How realistic is collection of the data?

- How operationally burdensome is it to collect a particular piece of data?
 - Ensure the utility of the data exceeds the opportunity cost of collecting it.

What is the scope of the data you are collecting?

- More is not always better.
 - If the need cannot be verbalized, it may be that the data is not meaningful enough to be worthwhile to collect.

Systems Philosophy – What’s Important

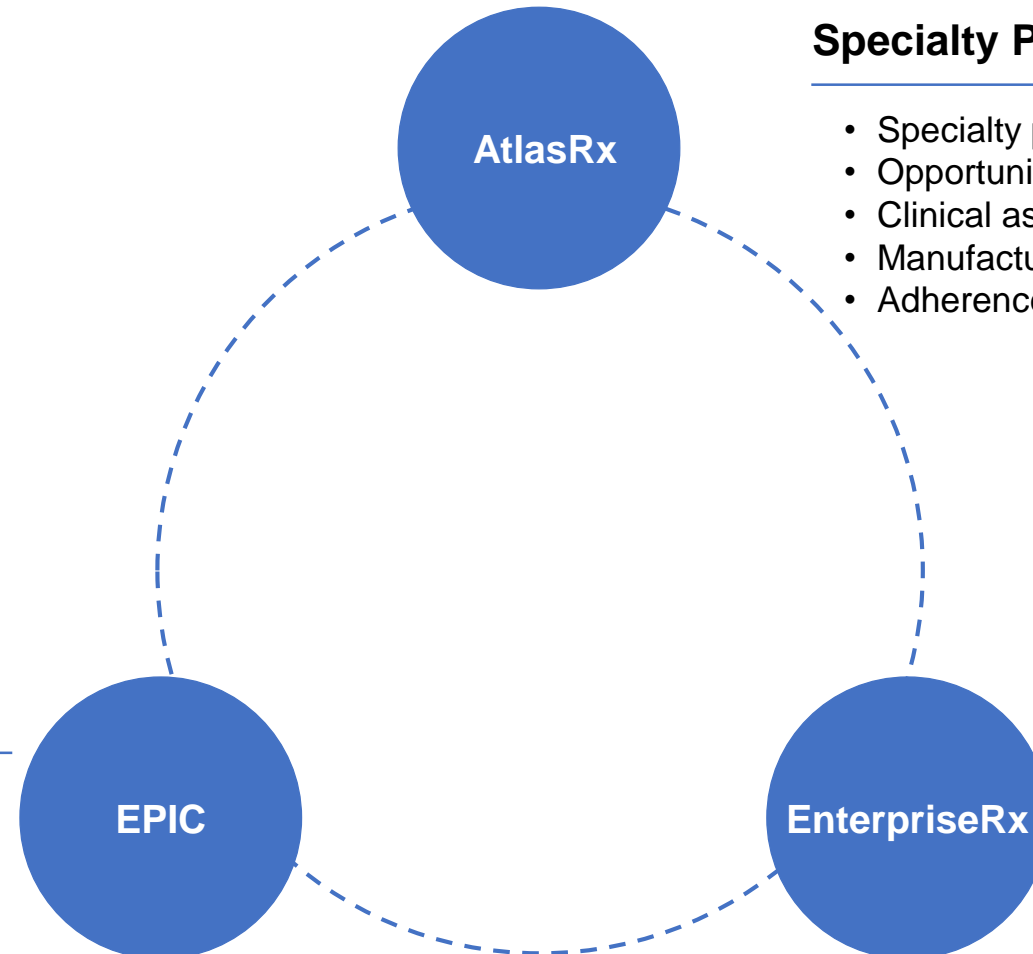
Delivering world-class specialty pharmacy services requires consolidation of patient workflow through a single dedicated system, and full connectivity to the EMR and the dispensing platform.

The Goals

1. Eliminate the number of separate systems driving specialty workflow
2. Fully function within a single opportunity management & workflow system
3. Full integration & connectivity with the EMR and the dispensing system

Electronic Medical Record

- Patient medical records
- Provider/hospital system communication
- Clinical documentation



Specialty Pharmacy Workflow System

- Specialty patient workflow
- Opportunity management / patient tracking
- Clinical assessments
- Manufacturer & payer reporting tools
- Adherence to accreditation standards

Rx Fulfillment Software

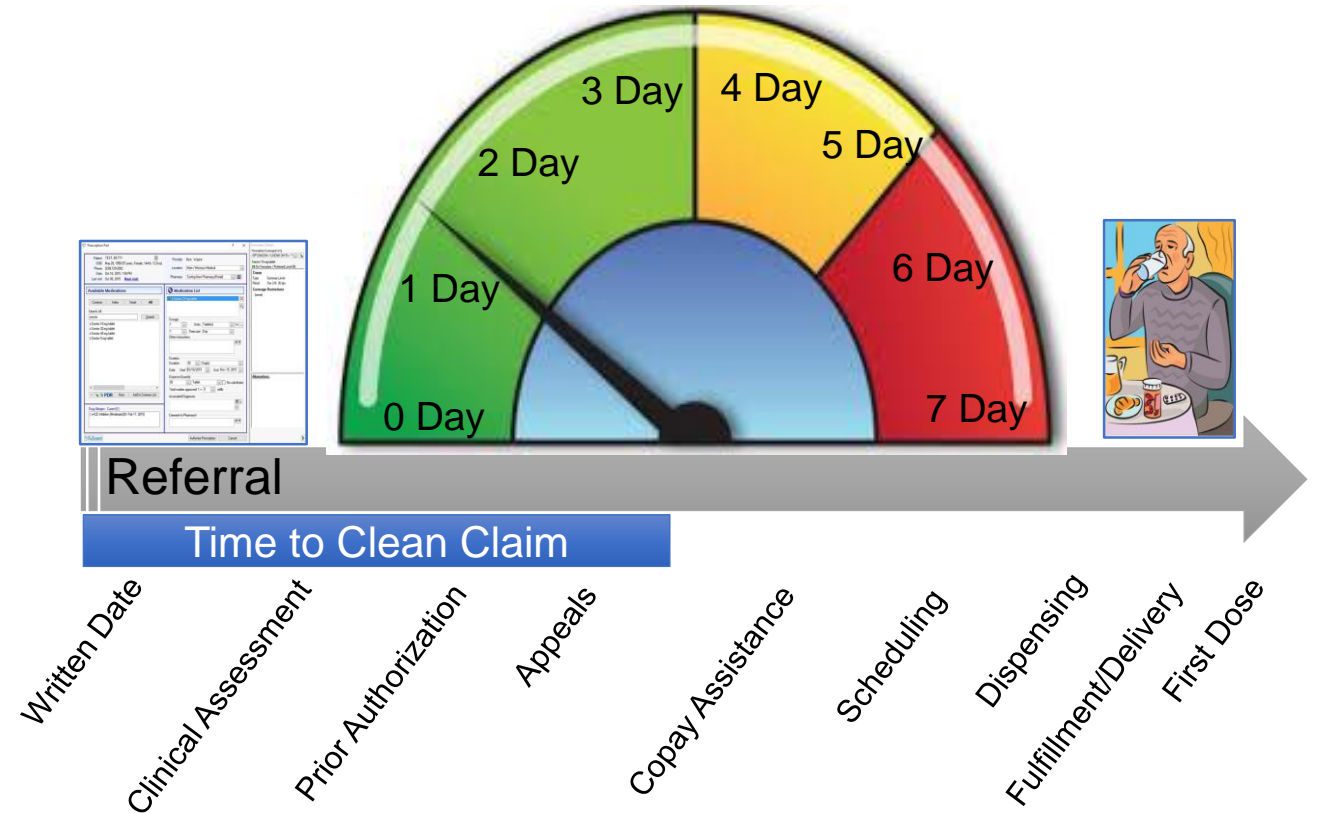
- Fulfillment operations
- Prescription processing & dispensing
- Shipment tracking
- Pharmacy billing

Success Measures: Current & Traditional Measures

Pharmacy must be able to track and time-stamp operational metrics surrounding the prescription journey

- ❖ Dispensing Data
 - “Same Ole Same Ole”
- ❖ Turn Around Times
 - Time to Clean Claim
 - Time to Ship
- ❖ Adherence
 - MPR & PDC
- ❖ Abandonment Rate
 - Ideally <10%

***Time to
1st Dose**



Success Measures: Future State of Outcomes Based Measures?

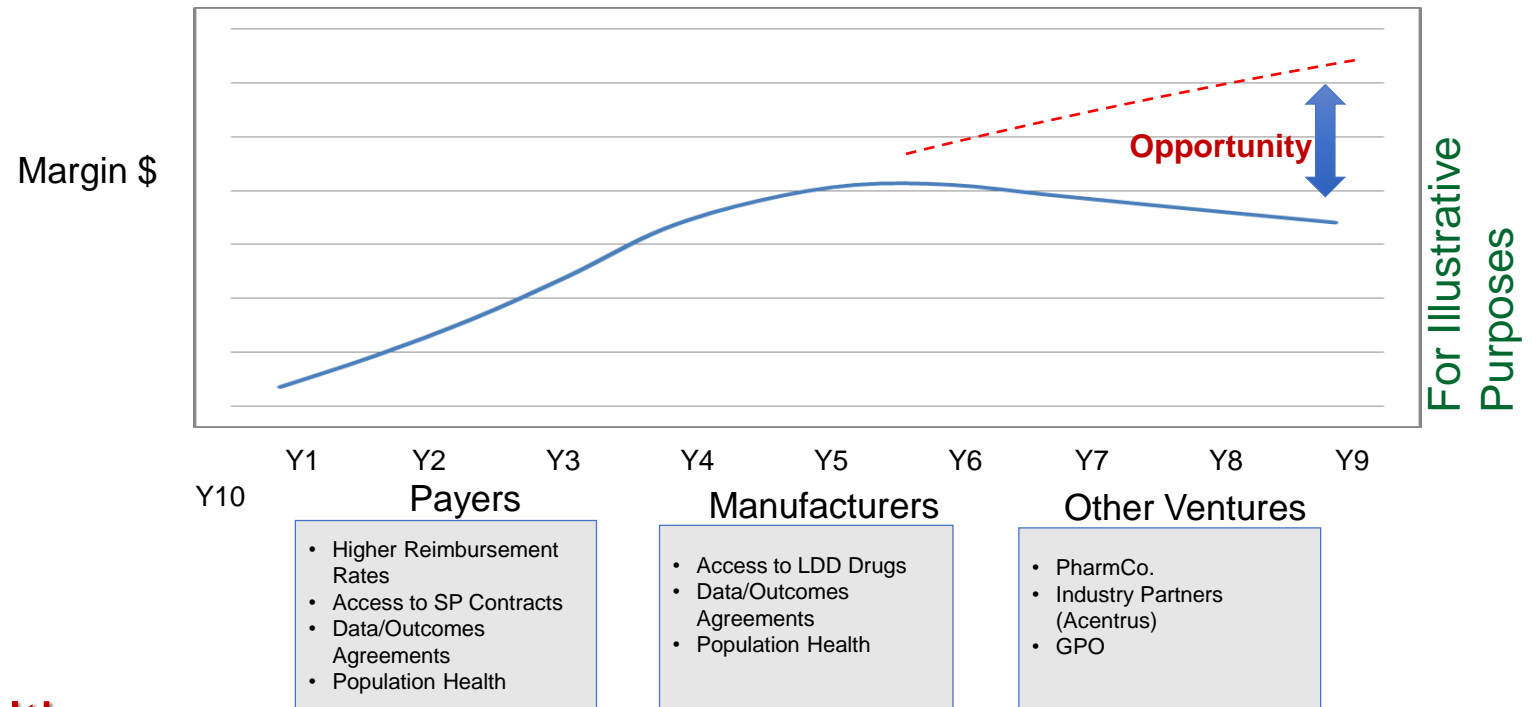
Newer Capability Data With Clinical End Points

- ❖ Rheumatology
 - Quality of Life Measures
- ❖ Oncology
 - ↓ Admissions & ED Visits
- ❖ Pulmonary Hypertension
 - ↓ Admissions & ED Visits
 - ↑ 6 Min Walk

The Challenge

- Complex Data Not Typically Captured in Workflow
- Need Referral Management System
 - **Demonstrate Overall Healthcare Cost Reduction**

VSP positions itself to participate in a value-based market through investment in outcomes projects and technology.



eStar Discrete Field Capture

Leverage EHR Tools for Discrete Data Capture within Clinic Communication

- ❖ Clinical Documentation using SmartForms, SmartPhrases, and flowsheets
- ❖ Translates clinical data points in SmartForms into more familiar SOAP note format for clinical correspondence
- ❖ Workflow capture using smart data elements as opposed to free-text fields
- ❖ SmartForm utilization for data grouping provides easier reporting structure



Medication Therapy Education

Patient: Address Link Ztest
Medication: Aimovig
Diagnosis: Migraine without aura and with status migrainosus, not intractable [G43.001]

Medication/Allergy Reconciliation

Patient allergy and medication list including OTC/herbal medications were reviewed and updated

No Known Allergies

Encounter Medications

Outpatient Encounter Medications as of 3/24/2019

Medication	Sig	Dispense	Refill
• adalimumab (HUMIRA) 40 mg/0.8 mL syringe kit	Inject under the skin.		
• aspirin 81 mg enteric coated tablet	Take by mouth.		
• erenumab-aooe (AIMOVIG AUTOINJECTOR) 70 mg/mL	Inject 70 mg under the skin every 28		

Patient Management System Overview

A fully integrated specialty pharmacy management program is needed that incorporates opportunity management, referral management and clinical care into one platform

AtlasRX™ Specialty Pharmacy Platform



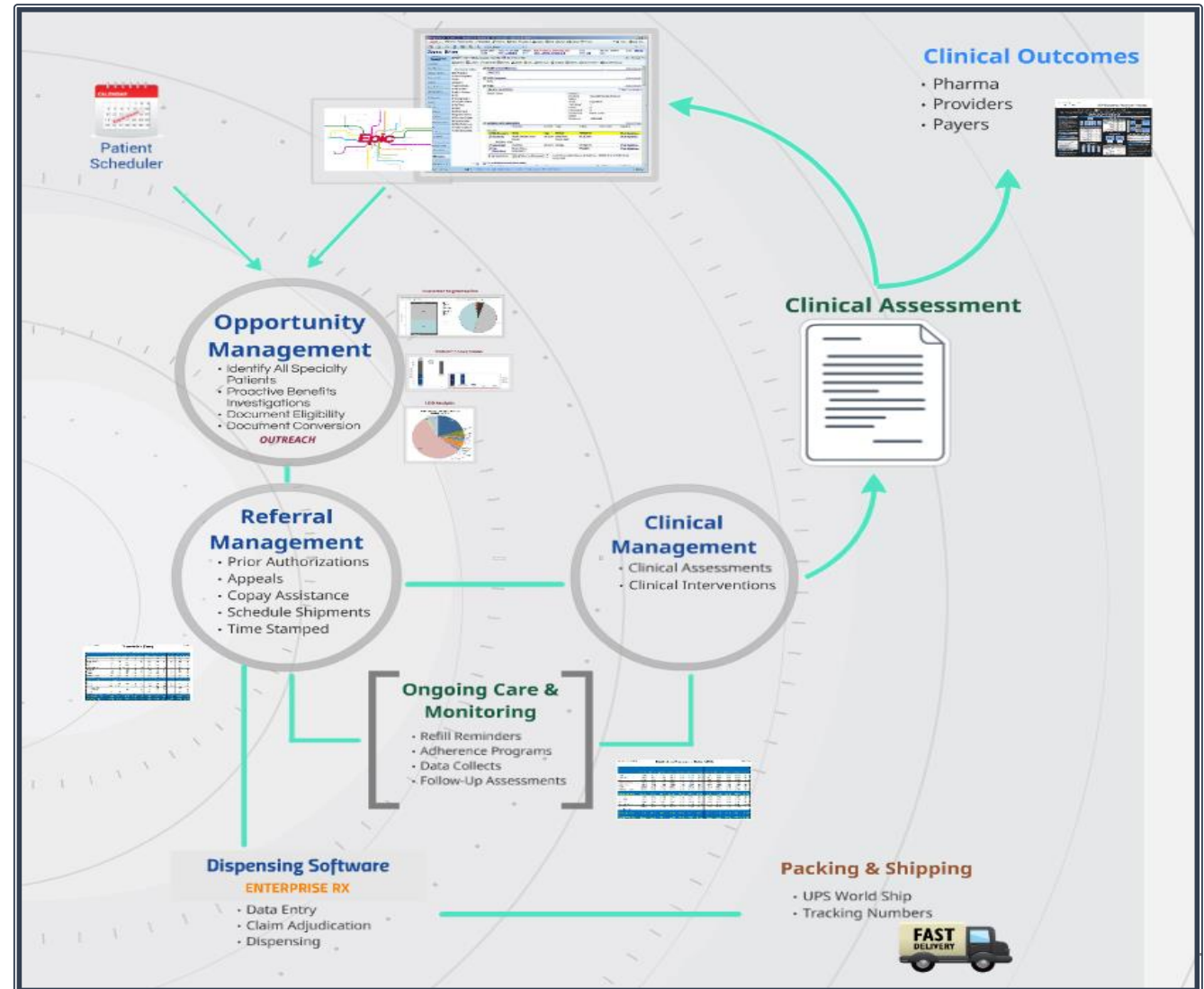
Capabilities

- **Two way communications** between pharmacists and providers within Electronic Health Record System
- Contains **clinical content** designed around decision tree and branching logic patient adherence
- Generates **refills assessments** and clinical survey assessments
- Captures and reports key **operational performance metrics** required by accrediting organizations, manufacturers, and payers
- Includes business analytics to inform **opportunity management**
- Creates and manages **targeted patient outreach campaigns**
- **Customizable reporting** outside the normal clinical scope (e.g. Outcomes Reporting)

Interoperability Operations, Clinical Documentation Storage and Outcomes Data Collection

Workflow Management Through Consolidated Opportunity Management

- Identifies Opportunity
- Referral Management
- Captures Time to Fill etc.
- MPR and PDC
- Clinical Management
- Real-Time Data from EMR
- Labs, Appointments
- PharmD. Encounter Fed Back into EMR

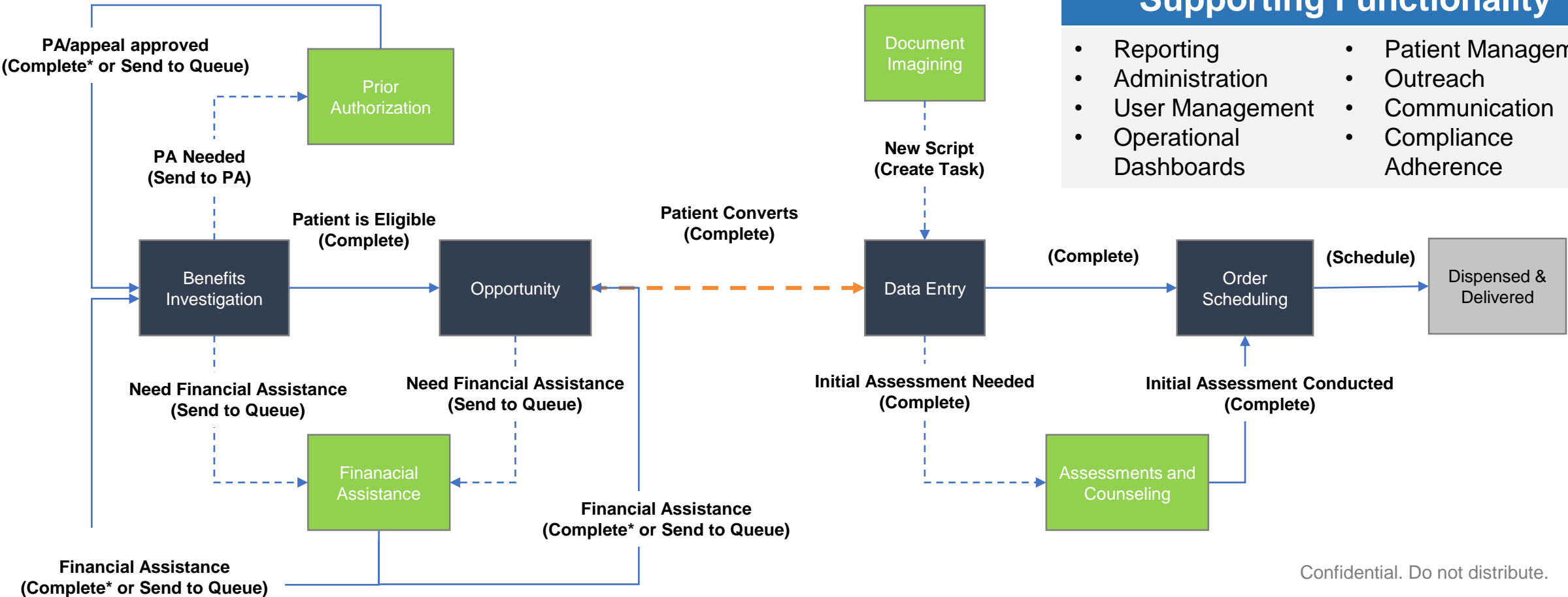


AtlasRX Module Delivery

Workflow design allows for discrete data collection as a part of workflow

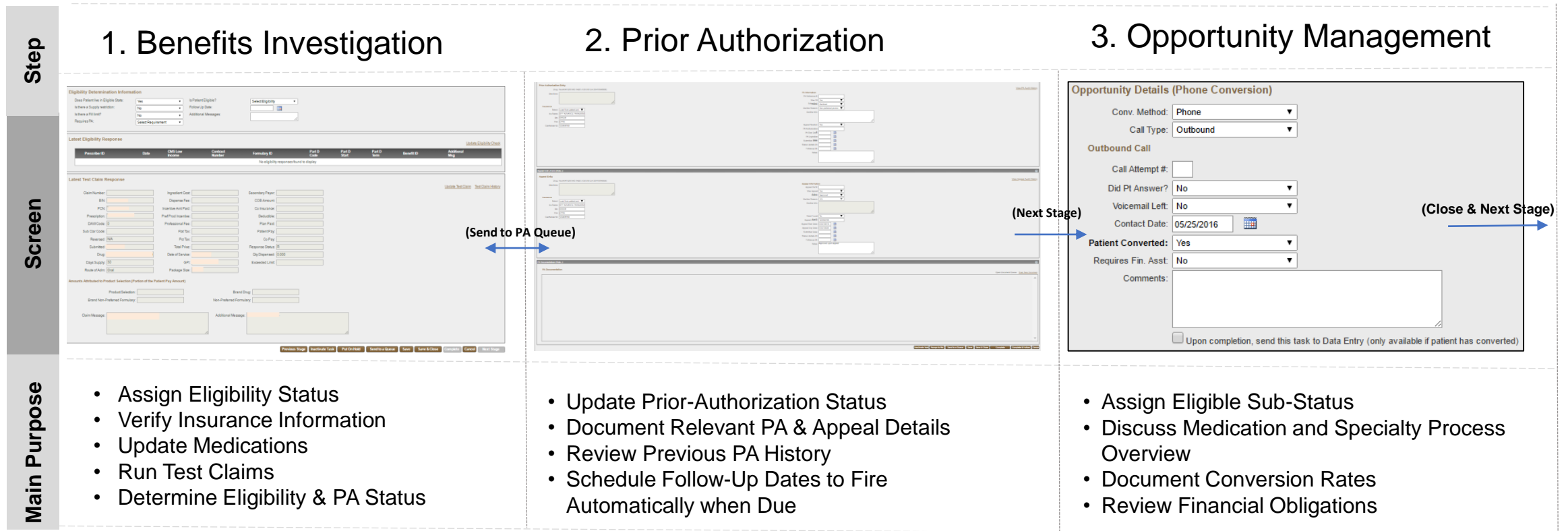
Supporting Functionality

- Reporting
- Administration
- User Management
- Operational Dashboards
- Patient Management
- Outreach
- Communication
- Compliance Adherence



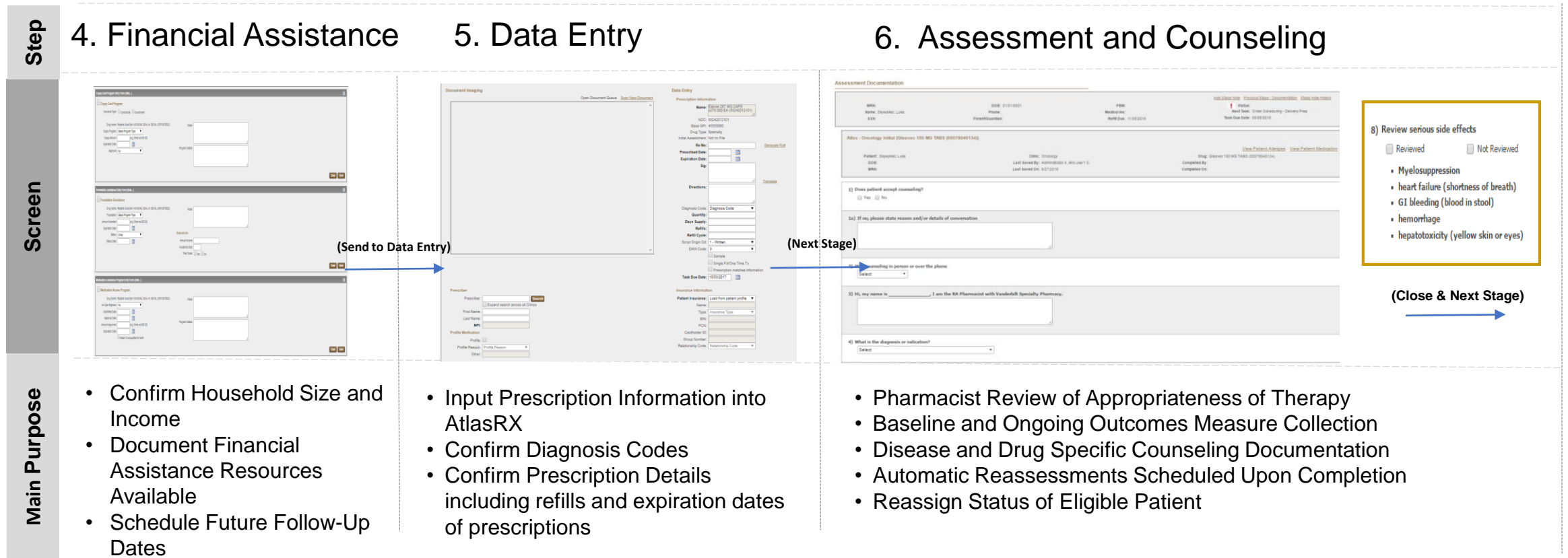
Task Journey – Status Confirmation

New orders start in Benefits Investigation to determine eligibility and prior-authorization requirements for the medication. Status of medication tracked through task completion



Task Journey – Financial and Clinical Input

Financial status is confirmed, prescription information is populated and patient counseling is completed by specialized Clinical Pharmacist



Clinical Data Capture Through Assessments

Pharmacist Assessments

- ❖ Disease and Drug Specific Embedded Elements
- ❖ Allows for Clinical Metric Capture
- ❖ Update and Captures Status Changes
- ❖ Reduces Need for Double Documentation with EHR Integration
- ❖ Customizable to Fit Business Needs
- ❖ Auto-Triggered to Ensure Compliance Standards Met

Edit Question

Question: Why did the patient discontinue therapy?

Report Field: RF1

Question Type: Custom List

Required

Patient Level Question

Store in Assessment Note

Gets Triggered: Select type (Optional) Once

[Preview Question](#)

Enter Possible Answer Values

Answer Value	Report Field	Sort Order	Skip To	Trigger Level Status	Assessment Trigger
Edit ✖ Major side effects/complication	RF1Majorsideeffectscomplication	1		NoLongerOnTherapy	<input type="checkbox"/>
Edit ✖ Common side effects	RF1Commonsideeffects	2		NoLongerOnTherapy	<input type="checkbox"/>
Edit ✖ Non-compliance	RF1Noncompliance	3		NoLongerOnTherapy	<input type="checkbox"/>
Edit ✖ No response / suboptimal response to therapy	RF1Noresponsesuboptimalresponsetotherapy	4		NoLongerOnTherapy	<input type="checkbox"/>
Edit ✖ Full course of therapy completed	RF1Fullcourseoftherapycompleted	5		NoLongerOnTherapy	<input type="checkbox"/>
Edit ✖ Therapy not started	RF1Therapynotstarted	6		Eligible_DidNotStart	<input type="checkbox"/>
Edit ✖ Temporary hold of therapy	RF1Temporaryholdoftherapy	7		NoLongerOnTherapy	<input type="checkbox"/>
Edit ✖ Patient Deceased	RF1PatientDeceased	8		Patient Deceased	<input type="checkbox"/>
Edit ✖ Financial limitations/changes	RF1Financiallimitationschanges	9		Ineligible_FinanciallyNotViable	<input type="checkbox"/>
Edit ✖ Insurance change/mandate	RF1Insurancechangemandate	10		Ineligible FailedBI	<input type="checkbox"/>
Edit ✖ Medication availability/stock issues	RF1Medicationavailabilitystockissues	11		NoLongerOnTherapy	<input type="checkbox"/>
Edit ✖ Administration issues	RF1Administrationissues	12		NoLongerOnTherapy	<input type="checkbox"/>
Edit ✖ Patient Decision (Not related to side effects/financial limitations)	RF1PatientDecisionNotrelatedtosideeffect	13		NoLongerOnTherapy	<input type="checkbox"/>
Edit ✖ No longer being seen or followed by a Vanderbilt Provider	RF1NolongerbeingseenorfollowedbyaVanderbilt	14		NoLongerOnTherapy	<input type="checkbox"/>

15 Select Select Add Save

19) Previous Therapies

Actemra leflunomide Stelara Calcitonin

Benlysta methotrexate sulfasalazine Evista

Cimzia Orencia Taltz Forteo

Cosentyx Otezla Tremfya Fosamax

Enbrel Otrexup Xeljanz Prolia

Humira Rasuvo Xeljanz XR Reclast

hydroxychloroquine Rituxan Actonel Tymlos

Kevzara Remicade Boniva Other

Kineret Simponi

If Other:

20) * Patient reported assessment on file?

RAPID3 Score

Select

20a) Physician Global Assessment of Disease Activity (between 1.0 and 30):

PUCAI

CDAI

No patient reported assessment on file

N/A

20b) * For RAPID3, provide PGA pain score:

Select

Technician Assessments for Refills

Technician Assessments Completed on Refills

- ❖ Captures discrete data and patient reported outcomes
- ❖ Triggers additional follow-up needed from clinical team
- ❖ Integrated into workflow to prevent orders from going through the system without complete documentation

1) * Is patient a current VSP patient?
 Yes No

2) * Category for Alert

<input type="checkbox"/> Side Effect/Toxicity	<input type="checkbox"/> Medication List Change	<input type="checkbox"/> Changes to Weight/Height	<input type="checkbox"/> Coordination of Care
<input type="checkbox"/> Adherence/Missed Dose	<input type="checkbox"/> Medication Interaction	<input type="checkbox"/> Missed Work, School, or Unable to Perform Normal Activities of Daily Living	<input type="checkbox"/> Therapeutic Monitoring
<input type="checkbox"/> General Drug Information Needed (Stability, Administration, Dosing Information)	<input type="checkbox"/> ED/Hospitalization/Urgent Care Visit	<input type="checkbox"/> Condition-Related Concern or Exacerbation	<input type="checkbox"/> New Condition or Diagnosis Identified
<input type="checkbox"/> Change in Medication Dose, Frequency, or Duration	<input type="checkbox"/> New Allergy	<input type="checkbox"/> Financial/Insurance Issue	

3) * If patient has been hospitalized or been seen in the emergency room or urgent care, was hospitalization due to specialty medication or clinically monitored disease state?
 Select

3a) Date of Last Urgent Care/ED Visit or Admission
 mm/dd/yyyy

4) * Action Taken

<input type="checkbox"/> Chart/Labs/Medical Documentation Reviewed and/or Updated	<input type="checkbox"/> Patient Counseling Provided	<input type="checkbox"/> Financial/Insurance Counseling Provided	<input type="checkbox"/> Referred to Outside Provider
<input type="checkbox"/> Prescriber Contacted - No Recommendation Made	<input type="checkbox"/> Education Tools or Material Provided	<input type="checkbox"/> Referred for Clinic Appointment or Internal Provider	<input type="checkbox"/> Other External Party Contacted (HUB/Insurance/PAP/Specialty Pharmacy)
<input type="checkbox"/> Prescriber Contacted - Recommendation Made	<input type="checkbox"/> Lab Work Ordered or Lab Recommendation Made	<input type="checkbox"/> Referred to ED or Urgent Care	<input type="checkbox"/> No Action Taken

Assessment Documentation

Atlas - Monthly Refill (Tectidera 120 MG CPDR (64406000501))

Patient: O'Hara Miss, Scarlet Clinic: Oncology
 DOB: Last Saved By: Drug: Tectidera 120 MG CPDR (64406000501)
 MRN: Last Saved On: Completed By: Completed On:

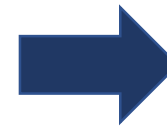
General Assessment Note:

13) Do you have any questions about your medication or would you like to speak to a pharmacist?

1) Are you still taking specified drug?
 Select

1a) If no, identify duration
 Select

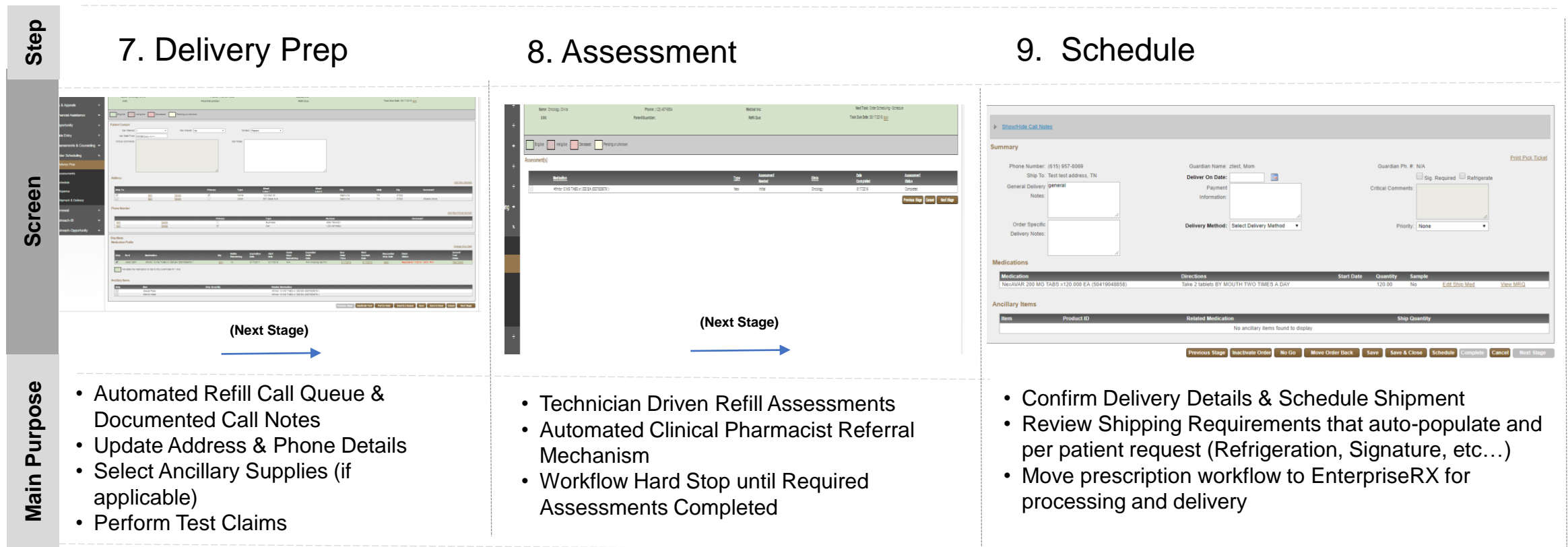
1b) If no, Identify reason
 Allergy Disease progression Financial Barrier Other
 Intolerance/side effect



Routed for Clinical Pharmacist Review

Task Journey – Schedule and Delivery

Delivery details scheduled and upon completion trigger autogenerated tasks within select queues to ensure optimal patient care.



Customizable Workflow by Drug & Clinic

- ❖ Medication files customized to fire specific assessments for REMS program adherence and data collection
- ❖ Files configured by clinic, which drives automatically fired tasks, increasing data capture through automation
- ❖ Drug-Specific Text drives the text and choices that populate within assessments to make them more drug specific
- ❖ Schedule for automatic reassessments and assessment type maintained by unique therapeutic area

Drug Information Clinics Associated (clinics that utilize this medication)

Edit Drug Specific Component

Clinic Maintenance

Clinic Information

Inactive

Name: Adult Rheumatology

Print Name: Adult Rheumatology

Clinic Type: Specialty

Default Pharmacy: 05 - Vanderbilt Integrated F

Email Address:

Website:

Comments:

NPI Number: 1396882205

Assessment Types

Initial Assessment: Initial - Autoinflammatory

Generate Initial:

Require Initial:

Ref. Questionnaire: Monthly Refill Questionnai

Ref. Schedule: On All Fills - Except with In

Reassessment: Reassessment - Autoinflar

Reassess Period: 3 months

Medicare Check:

Medicare Assess.: Select assessment type

Other Assessment Types Associated with this Clinic

	Assessment Type
Remove	Discontinuation Assessment V4
Remove	General Counseling Note V3
Remove	Initial - Hepatology Assessment Reminder
Remove	Pharmacist Intervention Note V2
Remove	Transfer Assessment V1
	Select assessment type

[Add](#)

End User Report Generation

Clinical and management reports available on system and pharmacy operations and performance

- Tasks completed become reportable markers within the system, generating reporting measures
- Allows for quick generation of pre-determined metrics into multiple formats for consumption
- Integration with EHR allows for worklist generation from reporting for upcoming patient appointments



Reports

Select Report to Generate

- Assessment - Reassessment
- Demographic Analysis
- Drug Listing By Clinic
- Drug Mix
- Drug Mix Detail
- Efficiency Measures
- Eligible & Total Market Share
- Foundation Assistance Program
- LDD Info
- Medication Access Program
- Medication Access Program No Insurance
- MRQ
- No Go
- No Go Status Report
- Order Shipments

Main Criteria

Clinic: Patient Type:

From:

To:

Drug:

Zip Code:

Clinic Type:

Patient Level:

Generate Report

Generate As:

Summary

- Applications/Tools
 - Databases
 - Applications
- Data
 - Business Intelligence
 - Dashboards
 - Reporting
 - Extracts
- Clinical Decision Support and Workflow Changes