Patient Support Services

Limited Distribution Drugs

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CBI Conference
Specialty Therapies – A Forum for Payers
Las Vegas, NV
January 28, 2016
Agenda

• Specialty Drug Market
• Understanding LDD’s
  • LDD Market - Summary Overview
  • Market Dynamics & Implications
    • BioPharma
    • Payer
    • Patient
• LDD Launch Strategies
  • “Hubs”
• Patient Impact
• BioSimilars

OBJECTIVES
Understand LDD’s and why they matter to payers
LDD Market
What are “Specialty Drugs”?

The term “Specialty” refers to a categorization of a drug/condition, not a categorization of a dispensing channel or route of administration.

Many approaches to the Specialty Definition and Categorization:

- Biotech products that are protein based manufactured through genetic engineering
- Typically high-cost medications
- Treat chronic, complex and rare conditions
- Can have significant side effect profiles or complex dosing requirements
- Can require special storage (e.g. refrigeration) and/or handling

Because definitions of specialty are drug or disease-state specific, no two companies (let alone the industry) defines specialty in the same way – Some Payers are now starting to define Specialty based on price.

Unless restricted by manufacturer or payer, specialty medications can largely be dispensed from any distribution channel: retail pharmacy, mail order, hospital pharmacy, medical in/out-patient, long-term care facility, employee worksite pharmacy/clinic, in-home infusion, alternative site infusion location.
Specialty Pharmacy Market has Many Stakeholders

- MCOs/Payors
- Physicians/Hospitals
- Specialty Rx Pharmacy
- Specialty Prescriber
- Patients
- PBMs
- Pharma Manufacturers
- Wholesalers Distributors GPOs
Specialty market is growing faster than non-specialty. Growth driven by combination of new products and inflation.

### US Pharmacy Market Sales by Type

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-Specialty</th>
<th>Specialty</th>
<th>CAGR '11-'14</th>
<th>CAGR '14-'19</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>245 (75%)</td>
<td>83 (25%)</td>
<td>+14.2%</td>
<td>+12.9%</td>
</tr>
<tr>
<td>2012</td>
<td>230 (72%)</td>
<td>90 (28%)</td>
<td>+4%</td>
<td>+4.1%</td>
</tr>
</tbody>
</table>
| 2013  | 232 (70%)     | 98 (30%)  | ~2/3 of growth in '13 and 1/3 of growth in '14 driven by inflation, indicating an average price inflation of ~6-7% YoY across specialty drugs
| 2014  | 250 (67%)     | 124 (33%) |              |              |
| 2015  | 245 (62%)     | 152 (38%) |              |              |
| 2016  | 239 (58%)     | 174 (42%) |              |              |
| 2017  | 234 (55%)     | 192 (45%) |              |              |
| 2018  | 229 (52%)     | 212 (48%) |              |              |
| 2019  | 229 (50%)     | 228 (50%) |              |              |

- At WAG, YoY revenue growth at Retail for mature sites is driven by higher Comp growth (expansion of specialty programs, increase in awareness, and increase in number of LDD drugs), as well as higher specialty inflation of approximately 12%.

Source: Sales forecast from consensus estimate according to IMS (12.2% CAGR), ESI (16.8% CAGR), and Barlays (6.4% CAGR). '13 and '14 specialty growth contribution estimates from IMS, National Sales Perspective.
Specialty Pharmacy - by therapeutic class, benefit and drug cost

Estimated Specialty Revenue, Medical vs. Pharmacy, by Therapeutic Class

2014 Revenue $ Billions

- $124B Total $89B Rx
- $133B Total $72B Rx
- ~$92B Rx
- $127B Total $60B Rx
- $138B Total $78B Rx
- $124B Total $78B Rx

Barclays look at net revenue rather than gross
Until recently, ESI excluded HIV from specialty
CMS specialty definition = all $600+ scripts

Source and assumptions: IMS total revenue based on IMS Market Insights actual data, Rx revenue based on Rx volume from IMS RxI multiplied by WAG revenue / Rx / TC. ESI Rx spend calculated based on PMPY and WAG assumptions on lives covered in market. Total market consensus based on IMS total, Rx consensus based on JPM estimate. TC consensus based on average of best available estimate
Three Significant Drivers of Specialty & Rare Disease Include…

1. **Significant Unmet Need**
   - Only 7% of NIH Defined Rare Disease have therapeutic treatments
   - 450 Phase II & III Trials Ongoing

2. **Commercial Potential**
   - Orphan Segment will approach $130B in 2018
   - “Blockbuster Potential” & Significant ROI
   - Currently 25 Orphan Drugs have sales in excess $1B:
     - Revlimid $6.5B
     - Soliris $3.4B
     - Tasigna $2.6B
     - Kalydeco $1.7B
     - Jakavi $1.5B

3. **FDA & Regulatory Guidance**
   - New FDA Break Through Designation Status
   - Smaller Trial Requirements
   - Country Level Tax Credits

- Bar Chart showing requests, declined, accepted, and pending
  - 25% of requests accepted
Pipeline: New molecular entities (NMEs)

Oncology and Orphan leading the way
Specialty Pharmacy Competitive Landscape by Channel Is Becoming Increasingly Competitive

<table>
<thead>
<tr>
<th>Payor</th>
<th>PBM</th>
<th>Provider</th>
<th>Wholesaler</th>
<th>Retail</th>
<th>Independent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aetna</td>
<td>accredo</td>
<td>Wake Forest Baptist Health</td>
<td>AmensourceBergen</td>
<td>Kerr Drug</td>
<td>Avela Biologics</td>
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<tr>
<td>AcariaHealth</td>
<td>briova</td>
<td>SHIELDS Health Care Group</td>
<td>CardinalHealth</td>
<td>Publix</td>
<td>Biologics</td>
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<tr>
<td>Cigna</td>
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<td>Presbyterian University of Kentucky</td>
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<td>ACRO</td>
<td>Centric Health Resources</td>
<td>Kroger</td>
<td>BioPlus</td>
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<td>FAIRVIEW</td>
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<td>Safeway</td>
<td>Amber Pharmacy</td>
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<td>UHC</td>
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<td>Humana</td>
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<td>Mayo Clinic</td>
<td>McKesson</td>
<td>Safeway</td>
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<td>RightSourceRx</td>
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<td>OPTUMRx</td>
<td>Orchard Pharmaceutical Services</td>
<td>Premier</td>
<td>Mckesson</td>
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<td>TENNESSEE ONCOLOGY</td>
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<td></td>
<td>Florida Cancer Specialists &amp; Research Institute</td>
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<tr>
<td>Prime Therapeutics</td>
<td>Vanderbilt University</td>
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LDDs tend to be highly complex, high cost, have limited patient population, and require Risk Evaluation & Mitigation (REMS)...

### LDD Characteristics

- Typically treats **smaller patient populations**
  - If Orphan drug, <200K people, ultra-orphan < 6K

- For **highly complex life threatening** therapeutic needs

- Implemented for **very high cost therapies**

- **Require REMS** implementation to minimize medication risk to patient

- Dispensing pharmacies **require specific clinical expertise**

- Often have **complex reimbursement dynamics**

### Benefits to Pharma

- Given small patient population and high inventory cost, ability to **bypass wholesaler and reduce inventory management / distribution fees**

- Ensure consistency and quality of **data / outcome management**

- Reduces training needs and **ensure clinical experience / outcome**
LDD’s – “Limited Distribution Drugs”
Market Summary

• The specialty industry is approximately $152B in revenue (2015, $96B in Rx; $56B Medical), and is expected to grow to $228B in 5 years, outpacing non-specialty revenue growth and becoming 50%+ of overall market

• Limited Distribution Drugs (LDDs), Specialty drugs that are dispensed via typically 1-6 pharmacies due to their high complexity, low patient population and high cost, are becoming a significant portion of the specialty drugs in the market
  – LDDs account for 23% of the drugs in the market today – 80% of future drug launches are expected to be LDD
  – More profitable than non-LDDs
  – Almost 1/3 of all LDD drugs are in Oncology

• Pharma companies set drug prices and control distribution network of LDDs – Health plans and PBMs have the biggest leverage to influence pricing via plan design, formularies and pathways. Specialty pharmacies have little influence on drug pricing

• Pharma companies leverage Patient Assistance Programs (PAPs), co-pay offset programs, and, most importantly, Hubs to counter PBMs’ influence on patients and help patients obtain access to the drugs

• LDDs are a significant part of a Specialty Pharmacies revenue and profit (if you have access) –
Limited distribution drugs (LDDs) have developed over the past decades and restricts dispensing pharmacies / distributors

1970
Hemophilia Products: **safety / recall needs** drove creation of ‘narrow network’ companies that distributed drugs direct to patients

1980s
Growth Hormone (Genentech): **need for efficient / fast speed to market** to address incumbent product deficiencies /and provide patient assistance led to CMK selection as sole dispenser

1983
Passage of the **Orphan Drug Act** which improved economic viability of orphan drugs

Late 80s -Mid 90s
Adagen (Enzon): used sole distributor and pharmacy given **54 patients world wide**; Ceredase (Genzyme): created small network of pharmacies to manage **1,200 US patients** at price of $300K / patient: BetaSeron, Crixavan, Synagis

1994
Flolan (Glaxo): sole distributor and specialty pharmacy given **intensive services required to ensure outcome / prevent death**, as well as high price

2006
Nexavar, Tykerb, Revlimid & Oral oncolytics change the way oral drugs are dispensed. **Increased Risk Evaluation Mitigation Strategies (REM’s)**, high data needs, high-Touch, high-cost

2009
Continued Specialty Development – Leading to potential pipeline of LDD launches

2016 – & Beyond
Orphan Drugs & LDDs are a significant part of new drug releases (>80%)

BioSimilars on the Horizon

Today, LDDs typically range from 1-6 or 8 dispensing pharmacies (though sometime go up to 50), and typically bypasses wholesalers and use restricted specialty distributors.
Limited Distribution & Orphan Disease Defined

**Limited Distribution (adjective)**

- Controlled inventory by manufacturer, usually defined by select small number of specialized pharmacy networks.
- Products treat smaller patient populations for complex life-threatening therapeutic needs.
- Implemented for very high cost therapies.
- Require REMS implementation to minimize medication risk to patient.
- Dispensing pharmacies require specific clinical expertise.
- Often have complex reimbursement dynamics.

**Rare & Orphan Disease (adjective)**

- NIH designates 6,800 specific rare diseases, most are life-threatening conditions.
- Effects < 200,000 people and, < Ultra-Orphan less than 6,000.
- Only 7% of rare disease have a therapeutic product approved by FDA.

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Data - Manufactures of pharmaceuticals sometimes block data about their products from the market.

Why? - To keep the key “market” data of their products confidential, some manufacturers of pharmaceuticals will block data about their product’s sales from the market

• This usually requires that a product be in limited distribution. Contractually - Wholesalers and pharmacies will agree to block product data from the market in order to be selected as one of the few distributors of the drug

• While most blocked products are LDD, *not all LDD products are blocked*

Manufactures who block data, block all of it: movement through the prescription drug distribution system, and dispensing information. These non-prescription data fall in a dataset called **DDD**, (Direct Distribution Data)
LDD’s – BioPharma Contracted Services

• Pharmacovigilance
  • AE reporting – trend is more requirements on training and reporting
  • REMS – e.g. Revlimid
• Inventory Management / Purchasing
  • Inventory levels
  • Direct prompt pay discount
  • Mfg Direct, Traditional, 3PL’s, Wholesalers, Specialty Distributors
• Copay and Foundation support
  • All products have copay programs and support foundations
• Prior Authorization
• Quick Start / Bridge services
  • Separate Inventory if we dispense and coordination with quick start provider
  • Working with Hub for approval
• Patient and MD status communications
• HUB Services
• Dedicated 800 support numbers (Clinical / Providers, Patients, Payers)
Data

- Inventory - used to track inventory management performance
- Utilization - used to compensate sales/Adherence
- Status/sub status: Pending; Denied; Hold; Discontinued; Active
  - measure time to 1st fill
  - Time in PA
  - Time to Transfer
  - Reason for insurance denials
  - Reasons for discontinued patients
  - Data Aggregator to follow patients longitudinally
Drug prices are set by BioPharma. PBMIs / Insurers are better positioned to lower costs via discounts; Specialty Pharmacies have little leverage.

**PharmaCo’s Price Drivers**

- Drug effectiveness (e.g., Hep C drugs)
- Availability and pricing of alternatives and other needed treatments
- R&D, marketing, support function cost ($1B+ to take a drug to the market) vs. size of patient population
- Assumption that:
  - Free market forces eventually settle prices at reasonable levels
  - Controlling drug prices or allowing price-lowering competition can stifle innovation

**Price Influencers**

- **PBMIs:** discounts via formulary management, pathways (e.g., ESI and HepC drug manufacturers), Rebates can be significant in classes with Competition (GH, RA, MS)
- **Insurers:** via plan design changes or via PBMIs (e.g., specialty cost share tier)
- **Patients:** lower price via advocacy groups, government (AIDS Institute and Nhelp vs. Aetna)
- **Specialty Pharmacies:** small discounts via negotiations with pharma

LDDs have increased as a percent of specialty market and is forecasted to be even more prevalent

Specialty Pharmacy, Drugs

- 651 Non-LDD
  - 75%
  - 25%

- 30 LDD
  - 70%

All existing drugs today

Anticipated launches, 2016
Oncology has more LDDs than any other disease state, accounting for almost 1/3 of the total.

**LDDs by Disease State**

Source: Dragon List, July 2015

Notes: A drug offered under different presentations was counted as one. Some orphan drugs may be classified in another disease state if they treat those conditions.
LDD’s - Relative Market Access ~160 LDDs

LDD Access

Source: Specialty Pharmacy team
* UHC does not include Catamaran
Payer / PBMs have been increasing copays to manage patient incentives. BioPharm have found alternatives to offset them.

**Distribution of Cost-Sharing Formulas for Rx Benefits in Employer-Sponsored Plan, 2004 vs 2014**

- **1st Tier (Generics)**: 9 (2004) vs 11 (2014)
- **2nd Tier (Preferred)**: 18 (2004) vs 31 (2014)
- **4th Tier (Specialty)**: 0 (2004) vs 83 (2014)

**Uptake of Manufacturer Co-pay Offset Programs 2012 vs. 2014**

- **Total**: 440 (2012) vs 561 (2014)
- **Brands**: 416 (2012) vs 708 (2014)

*Source: Drug Channels Institute, September 2014*
*Source: Pembroke Consulting*

- **Patient Assistance Programs (PAP)**: qualified non-insured and under-insured patients in Commercial plans in therapy areas with higher out-of-pocket costs.
- **Discount Cards / Co-Pay offset programs**: used to offset the cost of the co-pay for brand-name prescription drugs.
Patients – Complex Challenges To Access LDD’s

- Coordination of Care Team
- Insurance Coverage and Obstacles
- Physician Advocacy or Apathy
- Financial Impact of Copays and Therapy
- Patient Authorization and Privacy
- Determining Proper Pharmacy
- Pharmacy and Nursing Support
- Manufacturer Resources for Patients
Manufacturers sponsor Hub programs to facilitate patient access to drugs and support services.
Pharma companies also use Hubs to work around barriers to drug access & market intelligence that is drug/disease specific.

**Role of a Hub**

Hubs help connect drugs to physicians to patients. They are integral part of a specialty products offering and a necessary component of a brand strategy.

- Conduct initial benefit investigation/benefit verification
- Negotiate prior authorization requirements with payers
- Triage / Arrange delivery of the drug
- Provide follow-up care management
- Provide financial support assistance
- Handling the manufacturers REMS requirements

**Benefits to Pharma**

- Better access to lives / patient data; stronger relationship with providers
- Better consistency in reporting / outcomes management
- Better consistency in the delivery of patient assistance programs
- Compliance with REMS

**Typical Specialty Script Fill Process – Manufacturer Hub**

- MD’s can send to HUB or SP
- HUB checks patient benefits, PA, options for SPRx
- HUB follows patient and Rx fill
- Data is aggregated via HUB
- Reported to Pharma Sponsor

Source: Reimbursement for Distribution Model Options, 2010
What are the Services Provided by a Hub?

- Reimbursement support including benefit investigation, payer advocacy, prior authorization, appeals
- Distribution evaluation and triage to Specialty Pharmacy
- Clinical support including adherence monitoring, product support and adverse events
- Coordination of ancillary programs including copay program and patient assistance programs
- Data collection and reporting

What are the Benefits to Patients and Manufacturers?

- Simplifies complex healthcare system and creates 1:1 relationship between manufacturer/patient
- Enables patients to have access to expensive specialty drugs (Conversion from Clinical Trial drug to Commercial Market)
- Provides faster initiation of therapy by breaking down insurance barriers and supporting the relationship with the provider
- Manages ongoing therapy, **adherence & compliance** and provides **outcomes data** to manufacturers
- Data Insights to Complex Condition and Payer & Distribution Market Factors
Competitors in the Hub Market

- **Value to Major Healthcare Companies:** Companies recognize Hubs impact their market share and build stronger manufacturer relationships
- **Increasing Competition:** Hubs continue to be targets for acquisitions; Technology companies are beginning to enter the market as evidenced by Xerox’s purchase of InVentiv Patient Access in September 2015

<table>
<thead>
<tr>
<th>Hub Company</th>
<th>Parent</th>
<th>Category</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lash Group</td>
<td>AmerisourceBergen</td>
<td>Wholesale</td>
<td>Acquired TheraCom 2011 ($250M)</td>
</tr>
<tr>
<td>UBC</td>
<td>ExpressScripts</td>
<td>PBM</td>
<td></td>
</tr>
<tr>
<td>RxCrossroads</td>
<td>CVS Health</td>
<td>Retail</td>
<td>Acquired Omnicare Aug 2015</td>
</tr>
<tr>
<td>Sonexus Health</td>
<td>Cardinal Health</td>
<td>Wholesale</td>
<td>Acquired March 2014</td>
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<tr>
<td>Covance</td>
<td>Covance</td>
<td>Contract Research</td>
<td></td>
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<tr>
<td>Envoy Health</td>
<td>Diplomat</td>
<td>Specialty Pharmacy</td>
<td>Launched 2014</td>
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<tr>
<td>InVentiv Patient Access</td>
<td>Xerox (THS Division)</td>
<td>Technology</td>
<td>Sept 2015 Acquisition</td>
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<tr>
<td>AccessMED</td>
<td>McKesson</td>
<td>Wholesale</td>
<td></td>
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<tr>
<td>TripleFin</td>
<td>HD Smith</td>
<td>Wholesale</td>
<td>Acquired Sept 2013</td>
</tr>
</tbody>
</table>
A HUB is a Manufacturer’s contracted vendor which performs services on that Manufacturer’s behalf. This may include, but is not limited to:

- Receiving prescription referrals from health care professionals and patients
- Referring the patient’s prescription manufacturers contracted specialty pharmacy network
- Benefit Investigation / Insurance Verification
- Patient Assistance (Copay Assistance / Free Goods, etc.)
- Product and/or disease education services
- Handling the manufacturers REMS requirements
LDD’s - Examples

<table>
<thead>
<tr>
<th>Limited-Distribution Drugs (Illustrative, not complete)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pomalyst (pomalidomide) capsules</td>
</tr>
<tr>
<td>Zelboraf (vemurafenib) tablets</td>
</tr>
<tr>
<td>Xtandi (enzalutamide) capsules</td>
</tr>
<tr>
<td>Kuvan (sapropterin dihydrochloride)</td>
</tr>
<tr>
<td>Erivedge (vismodegib) capsule</td>
</tr>
<tr>
<td>Exjade (deferasirox) Tablets for Oral Suspension</td>
</tr>
<tr>
<td>Tykerb</td>
</tr>
<tr>
<td>Votrie</td>
</tr>
<tr>
<td>Nexavar (sorafenib) tablets</td>
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<tr>
<td>Xalkor Crizotinane</td>
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<tr>
<td>Revlimid</td>
</tr>
<tr>
<td>Kynamro (nivolumab) tablets</td>
</tr>
<tr>
<td>INLYTA (axitinib) tablets</td>
</tr>
<tr>
<td>Tecfidera (dimethyl fumarate) delayed-release capsules</td>
</tr>
<tr>
<td>Stivarga (regorafenib) tablets</td>
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<table>
<thead>
<tr>
<th>Extensive REMS Requirements</th>
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<tbody>
<tr>
<td>Tysabri (natalizumab)</td>
</tr>
<tr>
<td>Revlimid</td>
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<tr>
<td>Tracleer Bosentan Tablets</td>
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<tr>
<td>Thalomid (thalidomide) Capsules</td>
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<tr>
<td>Gilenya (fingolimod)</td>
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<tr>
<td>NEW</td>
</tr>
<tr>
<td>Kynamro (nivolumab) tablets</td>
</tr>
<tr>
<td>Ampyra (daflanipid) first step program</td>
</tr>
<tr>
<td>Brand Name</td>
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<td>-----------------------</td>
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<tr>
<td>grazoprevir-elbasvir</td>
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<tr>
<td>ixekizumab</td>
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<td>Zinbryta</td>
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<td>cabozantinib tablet</td>
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<tr>
<td>Remune</td>
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<tr>
<td>Nuplazid</td>
</tr>
<tr>
<td>Mycapsa</td>
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<tr>
<td>sofosbuvir/velpatasvir</td>
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<tr>
<td>obeticholic acid (OCA)</td>
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<tr>
<td>Raxone/ Catena</td>
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<tr>
<td>Translarna</td>
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<tr>
<td>xegafri</td>
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<tr>
<td>abaloparatide-SC</td>
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</table>
Generic Drug

A generic drug is comparable to the brand name drug:

- dosage form, strength, route of administration, quality and performance characteristics, and intended use.

An approved generic drug may be substituted for a brand name product without change to the prescription or notifying the prescriber.

- Interchangeable

Once approved, the generic will be listed in the Orange Book.

Biosimilar Drug

A biological product involves living organisms. Biologics are generally more complex than conventional drugs:

- molecular structure and contain larger molecules or a mixture of molecules.

There will naturally be some minor variations in these organisms as well as in the final biologic product created. Biosimilars have no clinically significant differences in safety or efficacy compared to the reference product.

- Additionally, a biosimilar must have the same mechanism of action, route of administration, and strength as the reference product.

All biosimilars will be listed in the Purple Book.
Copaxone® and Glatopa™ are both glatiramer acetate.

- Glatiramer acetate is not a biologic, but instead a complex large molecule drug.

- Therefore, Glatopa™ is correctly referred to as a generic and not a biosimilar.

- Glatopa™ is an A/B rated product, so it may be substituted for brand name Copaxone®.

The first biosimilar product to acquire approval in the U.S. was Zarxio™ (filgrastim-sndz).

- The first biosimilar product to acquire approval in the U.S. was Zarxio™ (filgrastim-sndz).

- The approval did not allow for interchangeability between brand name Neupogen® and Zarxio™.

- A pharmacy may not substitute Zarxio™ for Neupogen® without permission from the prescriber.
$14.1 Billion Specialty Generic Opportunity

30 specialty products with patent expiration dates through 2019

Overall U.S. Market Opportunity (in $ Billions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Product/Brand Names</th>
</tr>
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<tbody>
<tr>
<td>2015</td>
<td>Copaxone 20mg/mL</td>
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<tr>
<td></td>
<td>Mirena</td>
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<td></td>
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<td></td>
<td>Visudyne</td>
</tr>
<tr>
<td>2017</td>
<td>Reyataz</td>
</tr>
<tr>
<td></td>
<td>Sandostatin LAR</td>
</tr>
<tr>
<td></td>
<td>Viread (300mg)</td>
</tr>
<tr>
<td></td>
<td>Acthar</td>
</tr>
<tr>
<td></td>
<td>Sustiva (600mg)</td>
</tr>
<tr>
<td></td>
<td>Somavert</td>
</tr>
<tr>
<td></td>
<td>Arranon</td>
</tr>
<tr>
<td>2018</td>
<td>Viread</td>
</tr>
<tr>
<td></td>
<td>Zytiga</td>
</tr>
<tr>
<td></td>
<td>Letairis</td>
</tr>
<tr>
<td></td>
<td>Adcirca</td>
</tr>
<tr>
<td></td>
<td>Lexiva</td>
</tr>
<tr>
<td></td>
<td>Clofarin</td>
</tr>
<tr>
<td></td>
<td>Makena</td>
</tr>
<tr>
<td>2019</td>
<td>Gilenya</td>
</tr>
<tr>
<td></td>
<td>Exjade</td>
</tr>
<tr>
<td></td>
<td>Firazyr</td>
</tr>
<tr>
<td></td>
<td>Xyrem</td>
</tr>
</tbody>
</table>

Source: U.S. Drug spend estimates are based on IMS Health data for 2014, manufacturer reported U.S. sales or a percent of manufacturer reported worldwide annual sales of the drug. The patent expiration dates of the biologic product is current as of February 2013. The availability of generics is highly variable due to litigation, patent challenges, or other factors.
Biosimilars

$39.1 Billion Biosimilar Opportunity
54 biologic products with patent expirations through 2020

Overall U.S. Market Opportunity (in $ Billions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Product(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Neulasta®, Rituxan®, Epogen®, Procrit®, Neupogen®, Synagis®, Pulmozyme®</td>
</tr>
<tr>
<td>2016</td>
<td>Humira®, Elitek®, RemPro®, Berinert®</td>
</tr>
<tr>
<td>2017</td>
<td>Lemtrada®</td>
</tr>
<tr>
<td>2018</td>
<td>Remicade®, Xolair®, Erbitux®, Avastin®, Herceptin®, Orencia®, Actemra®, Advate®</td>
</tr>
<tr>
<td>2019</td>
<td>Lucentis®, Tysabri®, Pegasis®, Vectibix®, Peg-Intron®, Kineret®</td>
</tr>
</tbody>
</table>

*Includes all drugs with patent expirations through 2019.
Source: U.S. Drug spend estimates are based on IMS Health data for 2014.
The availability of biosimilars is highly variable due to litigation, patent challenges, FDA's establishment of 351(k) pathway, or other factors.

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THANK YOU