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2ND QUARTER 2019
PIPELINE REPORT

Be "in the know". Confidio is committed to helping clients anticipate pharmaceutical trends and potential shifts in medication cost management. Confidio remains informed of the latest FDA drug approvals, medications in development, and upcoming specialty/biosimilar pipeline therapies.

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Look for these Drug Pipeline Reports each quarter.

PIPELINE HIGHLIGHTS:

Recent Approvals

- **Esperoct® (turoctocog alfa pegol)** – Hemophilia A
- **Cablivi® (caplacizumab-yhdp)** – Acquired thrombotic thrombocytopenic purpura (aTTP)
- **Asparlas® (calaspargase PEGOL-MKNL)** – Acute lymphoblastic leukemia (ALL)
- **Gamifant® (emapalumab-LZSG)** – Hemophagocytic lymphohistiocytosis (HLH)
- **Elzonris® (tagraxofusp-ERZS)** – Blastic plasmacytoid dendritic cell neoplasm (BPDCN)

Anticipated FDA Approvals

- **Zynquista (sotagliflozin)** – Type 1 diabetes patients who lack adequate blood sugar control on insulin therapy 3/2019
- **Mayzent (siponimod)** – Secondary progressive multiple sclerosis (SPMS) 3/2019)
- **Mavenclad (cladribine)** – Relapsing-remitting multiple sclerosis 3/2019
- **Risenkizumab** – Plaque psoriasis 4/2019

Market Launched Biosimilar Approvals

- **Udenyca (pegfilgrastim-cbqv)** – 33% Savings over reference product Neulasta (pegfilgrastim)

Anticipated Biosimilars FDA Launch Dates

- **Ogivri (trastuzumab-dkst)** – Biosimilar for reference product Herceptin – FDA Approved 12/2017; Anticipated Launch Date June 2019
- **Mvasi (bevacizumab-awwb)** – Biosimilar for reference product Avastin – FDA Approved 9/2017; Anticipated Launch Date July 2019
- **Ontruzant (trastuzumab-dttb)** – Biosimilar for reference product Herceptin – FDA Approved 1/2019; Anticipated Launch Date 2019-2020
- **Hyrimoz (adalimumab-adaz)** – Biosimilar for reference product Humira – FDA Approved 10/2018; Anticipated Launch Date 2022-2023
- **Truxima (rituximab-abbs)** – Biosimilar for reference product Rituxan – FDA Approved 11/2018; Anticipated Launch Date Q1-2 2019

Recent FDA Approvals

Approval Date	Estimated WAC / Year	Drug Name / Manufacturer	Treatment Indication	Disease or Administration Comments	Clinical Comments	Therapy Options Approximate WAC/Year
Approved 02/6/2019	**$270,000** per episode (mfg-estimated average) **Anticipated Coverage: Pharmacy (for subQ doses)**	**Cablivi (caplacizumab-yhdp)** Sanofi	**Bleeding disorder:** Acquired thrombotic thrombocytopenic purpura (aTTP)	Rare disease, causes episodes of life-threatening bleeding. Frequency and duration of episodes vary. First dose (IV) and several daily subQ doses given in hospital; continued subQ as outpatient.	First-in-class product provides a significant improvement over previous standard treatment.	**Therapy Options:** › Standard treatment has been plasma exchange and immunosuppressant drugs. Cablivi is given in addition to these.
Approved 11/20/2018	**$678,038** based on 9 kg patient dosed at 1 mg/kg twice weekly **Anticipated Coverage: Medical**	**Gamifant (emapalumab-LZSG)** Novimmune, Sobi	**Inflammatory blood disease:** Hemophagocytic lymphohistiocytosis (HLH)	Given IV. Usually started in hospital, may move to infusion center after stabilized. Duration of therapy variable. Ultra-rare, rapidly progressive, highly fatal disease; most often affects infants from birth-18 mos.	Gamma interferon-blocking monoclonal antibody Second-line therapy (first-line therapy: immunosuppressants + steroids)	**Therapy Options (second-line):** › Stem Cell transplant--$350,000 to $800,000.
Approved 12/21/2018	**$205,212** Based on 70kg person, 2-5 day cycles **Anticipated Coverage: Medical**	**Elzonris (tagraxofusp-ERZS)** Stemline	**Rare Blood Cancer:** Blastic plasmacytoid dendritic cell neoplasm (BPDCN) Being evaluated for other types of leukemia.	IV infusion (every 4 weeks)	Diphtheria toxin conjugated to human Interleukin-3 (IL-3) protein, causing cell death Black box warning about potentially fatal side effect.	**Therapy Options:** None, BPDCN currently has no approved standard therapies available
Approved 12/20/2018	**TBD** Likely to be a differentiating factor **Anticipated Coverage: Medical**	**Asparlas (Calaspargase PEGOL-MKNL)** Servier Pharmaceuticals, Shire	**Blood & Bone Marrow Cancer:** Acute lymphoblastic leukemia (ALL)	Given IV as part of a multi-drug regimen every 21 days. › Less frequent dosing than Oncaspar › Oncaspar preferred for patients with IV access problems.	ALL – 75% of American childhood leukemia and 78% in Europe Market launch expected Q1 2019	**Therapy Options:** › Oncaspar (pegaspargase) $86,396 (1.73m2 adult at 3 doses for induction and 3 for consolidation)
Approved 02/19/2019	**TBD** **Anticipated Coverage: Medical**	**Esperoct (turoctocog alfa pegol)** Novo Nordisk	**Hemophilia A**	IV infusion (twice weekly or every 4 days to prevent bleeding episodes)	PEGylated recombinant human Factor VIII; long acting formulation of NovoEight (Turoctocog Alfa) Market launch expected 2020	**Coagulation Factor VIII Therapy Options:** › Advate – $492,960 › NovoEight – $662,688 › Xyntha – $492,960 › Nuwiq – $562,094 › Recombinate – $369,720

Recent FDA Approvals *(continued)*

Approval Date	Estimated WAC / Year	Drug Name / Manufacturer	Treatment Indication	Disease or Administration Comments	Clinical Comments	Therapy Options Approximate WAC/Year
Approved 12/14/2018	**TBD** Expected to provide significant savings over Herceptin when launched **Anticipated Coverage: Pharmacy**	**Herzuma (Trastuzumab-Pkrb)** Celltrion	**Breast cancer:** HER2-positive breast cancer	Anti-HER2 antibody administered IV **Biosimilar** to reference drug Herceptin Established safety, efficacy data is based on studies of Herceptin	Herceptin is a first-line chemo agent for HER-2+ breast cancer. Not interchangeable with Herceptin, must obtain new rx for Herzuma Market launch expected Q3 2019	**Therapy Options:** › Herceptin (trastuzumab) - $81,073 (76.5kg @ 6mg/kg per cycle for 1 year) This is one of several Herceptin biosimilars.
Approved 01/18/2019	**TBD** Expected to provide significant savings over Herceptin **Anticipated Coverage: Pharmacy**	**Ontruzant (Trastuzumab-DTTB)** Merck & Co	**Cancer:** HER2-positive breast cancer, Gastric cancer, Gastroesophageal junction cancer	Anti-HER2 antibody administered IV **Biosimilar** to reference drug Herceptin Established safety, efficacy data is based on studies of Herceptin	Herceptin is a first-line chemo agent for HER-2+ breast cancer. Not interchangeable with Herceptin, must obtain new rx for Ontruzant Market launch expected 2019-2020	**Therapy Options:** › Herceptin (trastuzumab) - $81,073 (76.5kg @ 6mg/kg per cycle for 1 year) This is one of several Herceptin biosimilars.
Approved 10/31/2018	**TBD** Expected to provide significant savings over Humira when launched **Anticipated Coverage: Pharmacy**	**Hyrimoz (Adalimumab-ADAZ)** Sandoz	**Inflammatory:** Treatment of rheumatoid arthritis, plaque psoriasis, Crohn's disease, and ulcerative colitis	Tumor necrosis factor (TNF)-blocker injectable **Biosimilar** for reference drug Humira Established safety, efficacy data is based on studies of Humira	Not interchangeable with Humira, must obtain new rx for Hyrimoz Market launch expected 2022-2023	**Therapy Options:** › Humira (adalimumab)-- $67,263 UK approved adalimumab biosimilar saved $386 million USD or 75% total UK Humira spend

Anticipated FDA Approvals

Expected FDA Review Date	Drug Name / Manufacturer	Indication	Disease or Administration Comments	Clinical Comments	Therapy Options
03/1/2019	**Mayzent (siponimod)** Novartis	**Multiple Sclerosis:** Secondary progressive multiple sclerosis (SPMS)	Oral, once daily SPMS leads to progressive, irreversible disability	Sphingosine 1-phosphate (S1P) receptor modulator Mayzent is one of only two drugs shown to slow progression of SPMS. The other, mitoxantrone, has serious side effects such as heart failure and cancer.	**Therapy Options:** If still experiencing relapses : › Gilenya (Novartis) › Ocrevus (Roche) › Lemtrada (Sanofi) › Tysabri (Biogen) SPMS without relapses: › Mitoxantrone (generic)
03/20/2019	**Solriamfetol** Jazz SK Biopharma-ceuticals	**Sleep Disorders:** Excessive daytime sleepiness in obstructive sleep apnea or narcolepsy	Estimated 65% excessive sleepiness persists in CPAP patients	Solriamfetol will offer alternative for intolerant CPAP patients New Chemical Entity, Orphan Drug	**Therapy Options:** › Positive Airway Pressure therapy or Continuous Positive Airway Pressure (CPAP)

Anticipated FDA Approvals *(continued)*

Expected FDA Review Date	Drug Name / Manufacturer	Indication	Disease or Administration Comments	Clinical Comments	Therapy Options
03/22/2019	**Zynquista (sotagliflozin)** Lexicon Phamaceuticals; Sanofi	**Diabetes:** For patients with type 1 diabetes who lack adequate blood sugar control on insulin therapy.	Oral Used along with insulin	Diabetic ketoacidosis, a serious diabetes complication, was more frequent in those given sotagliflozin compared to insulin alone. In Jan 2019, the FDA Advisory Committee were evenly divided on whether the benefits of Zynquista outweighed the risks.	**Therapy Options:** None
03/30/2019	**Mavenclad (cladribine)** EMD Serono	**Multiple Sclerosis:** Relapsing-remitting multiple sclerosis Approved in UK	Oral Unique Dosing Regimen: 2 courses of 5 tablets one month apart for 2 years, based on body weight	Nucleoside analog that depletes B and T lymphocytes	**Therapy Options:** › Gilenya (Novartis) › Ocrevus (Roche) › Lemtrada (Sanofi) › Tysabri (Biogen)
04/6/2019	**Selinexor** Karyopharm	**Bone Marrow Cancer:** Penta- Refractory Multiple Myeloma	Oral (twice weekly) option for patients battling highly resistant, refractory myeloma	First in class, oral Selective Inhibitor of Nuclear Export compound	**Therapy Options:** › Bortezomib (Velcade) › Carflizomib (Kyprolis) › Ixazomib (Ninlaro)
04/25/2019	**risankizumab** AbbVie/BI	**Plaque Psoriasis** Moderate to Severe Being reviewed for Crohn's & Ulcerative Colitis	SubQ injection every 12 weeks after induction	Interleukin-23 inhibitor 2017 study results show promising results compared to Stelara and Humira As more competitor products become available, price competition and formulary exclusivity present challenges to Humira and Enbrel.	**Therapy Options:** › Humira (adalimumab) › Enbrel (etanercept) › Stelara (ustekinumab) › Cosentyx (secukinumab) › Taltz (Ixekizumab) › Siliq (brodalumab) › Tremfya (guselkumab)
05/13/2019 (based on BLA resubmission date of July 13, 2018)	**Evenity (romosozumab)** Amgen/UCB	**Osteoporosis:** Osteoporosis in postmenopausal women with high risk of fractures	SubQ injection once monthly for 1 yr	First in class mechanism of action (sclerosin inhibitor) Compared to alendronate alone, Phase III trials showed reduced vertebral fracture risk and increased bone mineral density Reports of cardiovascular safety concerns in 2.5% trial patients	**Therapy Options:** › Actonel (risedronate) › Boniva (ibandronate) › Tymlos (abaloparatide) › Forteo (teriparatide)
05/25/2019	**Quizartinib** Ambit Biosciences Corporation; Daiichi Sankyo	**Leukemia:** Relapsed/ refractory FLT3-ITD acute myeloid leukemia	Oral Patients with AML with FLT3-ITD gene mutations have a worse overall prognosis than those without this mutation.	FLT-3 inhibitor Quizartinib has been granted Breakthrough Therapy designation and Priority Review status. This means the FDA must review it for approval more quickly than it does drugs without this status.	**Therapy Options:** Salvage chemotherapy: › Gilteritinib › Azacitidine or decitabine + sorafenib

Biosimilar Pipeline

Approval Date	Launch Date	Biosimilar Name	Biosimilar WAC / Year Cost	Reference Product	Reference Product WAC / Year Cost	Interchangeable	Disease Category
May 2018	June 2018	Retacrit™ ** (epoetin alfa-epbx)	Retacrit - $154	Epogen Procrit (Epoetin Alfa)	Biosimilar Retacrit -$154 Epogen - $232 Procrit - $360	No	**Hematopoietic:** Treatment of anemia due to chronic kidney disease, Zidovudine in HIV-infected patients, chemotherapy in cancer patients, and reduction of allogeneic red blood cell transfusion in patients' elective surgery
December 2018	To Be Determined	Herzuma (trastuzumab-pkrb)	TBD Upon Launch	Herceptin (trastuzumab)	$32,000	Interchangeability is not anticipated	**Cancer:** Treatment of Human Epidermal growth factor Receptor 2 (HER2) adjuvant breast cancer, metastatic breast cancer, and metastatic gastric cancer
Expected FDA Review Q1 2019	June 2019	PF0528014 [Pfizer] (trastuzumab)	TBD Upon Launch			Interchangeability is not anticipated	
January 2019	To Be Determined	Ontruzant (trastuzumab-dtb)	TBD Upon Launch			Interchangeability is not anticipated	
December 2017	June 2019	Ogivri (trastuzumab-dkst)	TBD Upon Launch			No	
Expected FDA Review TBD 2018	To Be Determined	Grastofil (filgrastim)	TBD Upon Launch	Neupogen (filgrastim)	$5,314	Interchangeability is not anticipated	**Hematopoietic:** To reduce the incidence of infection in patents receiving chemotherapy, reduce the duration and time to recovery from neutropenia caused by chemotherapy, mobilization of progenitor blood cells for collection by leukapheresis, and reducing the incidence and duration of complications due to severe neutropenia.
March 2015	September 2015	Zarxio® ** (filgrastim-sndz)	$4,390			No	
August 2012	2015	Granix® ** (tbo-filgrastim)	$3,999			No	
July 2018	October 2018	Nivestym™ ** (filgrastim-aafi)	$3,504			No	
September 2017	July 2019	Mvasi (bevacizumab-awwb)	TBD Upon Launch	Avastin (bevacizumab)	$162,576	No	**Cancer:** Treatment of Metastatic colorectal cancer, Non-squamous non-small cell lung cancer, Glioblastoma, Metastatic renal cell carcinoma, Persistent, recurrent, or metastatic carcinoma of the cervix
December 2017	No US Launch	Ixifi™ (infliximab-qbtx)	Not anticipated to be launched due to acquisition	Remicade (infliximab)	$49,340	No	**Immunological Agent:** Ankylosing spondylitis, Crohn's disease (fistulizing), adult, Crohn's disease, adult and pediatric (6 years or older), Plaque psoriasis, Psoriatic arthritis, Rheumatoid arthritis in combination with methotrexate, Ulcerative colitis, adult
April 2017	July 2017	Renflexis® ** (infliximab-abda)	$31,831			No	
April 2016	November 2016	Inflectra® ** (infliximab-dyyb)	$39,980			No	
August 2017	2023	Cyltezo™ (adalimumab-adbm)	TBD Upon Launch	Humira (adalimumab)	$63,336	No	**Immunosuppressant:** Treatment of rheumatoid arthritis, plaque psoriasis, Crohn's disease, and ulcerative colitis
September 2016	2023	Amjevita™ (adalimumab-atto)	TBD Upon Launch			No	
October 2018	To Be Determined	Hyrimoz (adalimumab)	TBD Upon Launch			No	

Biosimilar Pipeline *(continued)*

Approval Date	Launch Date	Biosimilar Name	Biosimilar WAC / Year Cost	Reference Product	Reference Product WAC / Year Cost	Interchangeable	Disease Category
August 2016	2019-2029	Erelzi® (etanercept-szzs)	TBD Upon Launch	Enbrel (etanercept)	$64,629	No	**Immunosuppressant:** Ankylosing spondylitis, Juvenile idiopathic arthritis (2 years or older), Plaque psoriasis adult, Psoriatic arthritis, Rheumatoid arthritis
November 2018	Q 1-2 2019	Truxima™ (rituximab-abbs) (BR&R, 2019)	TBD Upon Launch	Rituxan (rituximab)	$40,712	Interchangeability is not anticipated	**Cancer:** Treatment of patients with non-Hodgkin's lymphoma, chronic lymphocytic leukemia, rheumatoid arthritis, granulomatosis with polyangiitis and microscopic polyangiitis.
June 2018	July 2018	Fulphila™ ** (pegfilgrastim-jmdb)	$4,175	Neulasta (pegfilgrastim)	$6,231	No	**Hematopoietic:** Reduce incidence of infection, as manifested by febrile neutropenia, in patients with non-myeloid malignancies receiving myelosuppressive anti-cancer drugs associated with a clinically significant incidence of febrile neutropenia. **Note: Biosimilar approval does not extend to Radiation Induced Neutropenia.**
November 2018	January 2019	Udenyca** (pegfilgrastim-cbqv)	$4,175			No	
Expected FDA Review 2018	To Be Determined	Lapelga™ TPI-120 CHS-1701 (pegfilgrastim)	TBD Upon Launch			Interchangeability is not anticipated	

** Green boxes above indicate launched products.

The above information was assembled from government and clinical resources for knowledge purposes only. Information and drugs were selected by clinicians based on therapy and potential clinical impact without any manufacture affiliations or conflicts of interest. Approval status, dates, and WAC price are subject to variation. This document should not be exclusively used for decision-making purposes. WAC pricing data should be used for benchmarking purposes only. Prices listed above should not be used alone to set or adjudicate any prices for reimbursement or purchasing functions or considered to be an exact price for a single product and/or manufacturer.

Bibliography

IPD Analytics, LLC. (2018, December 15). IPD Analytics. Retrieved from http://www.ipdanalytics.com/

BR&R. (2019, January 18). Biosimilar Approval Status. Retrieved from BR&R Biosimilars Review & Report: https://biosimilarsrr.com/us-biosimilar-filings/

CenterWatch. (2019, February 15). 2019 FDA Approved Drugs. Retrieved from Centerwatch: https://www.centerwatch.com/drug-information/fda-approved-drugs/

Generics and Biosimilar Initatives. (2018, May). Biosimilars approved in the US. Retrieved from gabionline.net: www.gabionline.net/Biosimilars/General/Biosimilars-approved-in-the-US

https://www.centerwatch.com/drug-information/fda-approved-drugs/. (n.d.). 2019 FDA Approved Drugs. Retrieved from CenterWatch.

MarketWatch, Inc. (2018, August 30). Bayer Receives FDA Approval for Jivi®, New Hemophilia A Treatment With Step-Wise Prophylaxis Dosing Regimen . Retrieved from marketwatch.com: https://www.marketwatch.com/press-release/bayer-receives-fda-approval-for-jivi-new-hemophilia-a-treatment-with-step-wise-prophylaxis-dosing-regimen-2018-08-30

National Comprehensive Cancer Network. (2019, February 8). Breast Cancer, Version 4.2018 . Retrieved from NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines): https://www.nccn.org/professionals/physician_gls/pdf/breast.pdf

U.S. Food and Drug Administration. (2017, September 07). FDA.gov. Retrieved from New Drugs at FDA: CDER's New Molecular Entities and New Therapeutic Biological Products: https://www.fda.gov/Drugs/DevelopmentApprovalProcess/DrugInnovation/default.htm

U.S. Food and Drug Administration. (2018, May 18). FDA approves Retacrit as a biosimilar to Epogen/Procrit. Retrieved from FDA.gov: https://www.fda.gov/drugs/informationondrugs/approved-drugs/ucm607723.htm

U.S. Food and Drug Administration. (2018, May). FDA-Approved Biosimilar Products. Retrieved from FDA.gov: https://www.fda.gov/Drugs/DevelopmentApprovalProcess/HowDrugsareDevelopedandApproved/ApprovalApplications/TherapeuticBiologicApplications/Biosimilars/ucm580432.htm

U.S. Food and Drug Administration. (2018, Feb). NDA and BLA Calendar Year Approvals. Retrieved from FDA.gov: https://www.fda.gov/Drugs/DevelopmentApprovalProcess/HowDrugsareDevelopedandApproved/DrugandBiologicApprovalReports/NDAandBLAApprovalReports/ucm373413.htm

U.S. Food and Drug Administration. (2018). Press Announcements - New Drug Approvals. Retrieved from FDA.gov: https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/default.htm