

Pittsburgh Pharmacy Investment Portfolio



PPIP

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Section 1. Introduction

The Pitt Pharmacy Investment Portfolio is a student-run investment portfolio that focuses on securities with a high exposure to healthcare. The portfolio was created as a result of the success and sustained interest resulting from the inception of the Biotech Investment Fantasy League in 2016 by students from the University of Pittsburgh School of Pharmacy. The Pitt Pharmacy Investment Portfolio was created with the idea that healthcare students will be experts in recognizing the potential value that healthcare companies pose to the market.

This report serves as an update on the performance of the portfolio, the performance of the market, major industry news, and a company level breakdown of all current holdings. Any alterations made to the portfolio will be discussed with proper justification. The final section will serve as an executive summary of the contents.

All current holdings are outlined in appendix A. Until the next trading cycle (April 2020), the portfolio will remain constant unless leadership determines a move is necessary. These reports will serve as constant due diligence to ensure that nothing goes unnoticed and that the portfolio is under consistent evaluation. The current format for investing utilizes a simulation on investopedia.com. An initial \$50,000 was invested in April 2018. The portfolio as well as all current reporting tactics will be reevaluated on a monthly basis to ensure proper record keeping is maintained.

Section 2. Market Comparison

S&P 500 is a stock index composed of 500 companies with the largest market capitalizations that are listed on the NASDAQ, NYSE, and Cboe BZX exchanges. Any S&P 500 companies that are classified as members of the GICS® health care sector are included in the S&P 500 Health Care index (SPXHC, also known as S5HLTH).

As of this writing, there are 60 companies within the SPXHC index (see Appendix A). Of those companies, PPIP holds a position in the following 9 companies: Abbott Laboratories, Johnson & Johnson, Merck & Co., Medtronic plc, UnitedHealth Group Inc., AbbVie, Inc., IDEXX Laboratories, CVS Health Corporation, and Mylan N.V. The remaining 6 PPIP companies not listed in the SPXHC are: Agios Pharmaceuticals, Inc., GlaxoSmithKline plc, Novartis AG, AstraZeneca plc, Sarepta Therapeutics, Inc., and Intra-Cellular Therapies, Inc.

We believe that the SPXHC index best represents the entire healthcare sector. For this reason, we have selected the SPXHC index as a comparator in order to evaluate the performance of PPIP relative to the rest of the healthcare sector. This was accomplished by measuring the percent-change of the PPIP value relative to the percent-change of the SPXHC index value during the following investment periods:

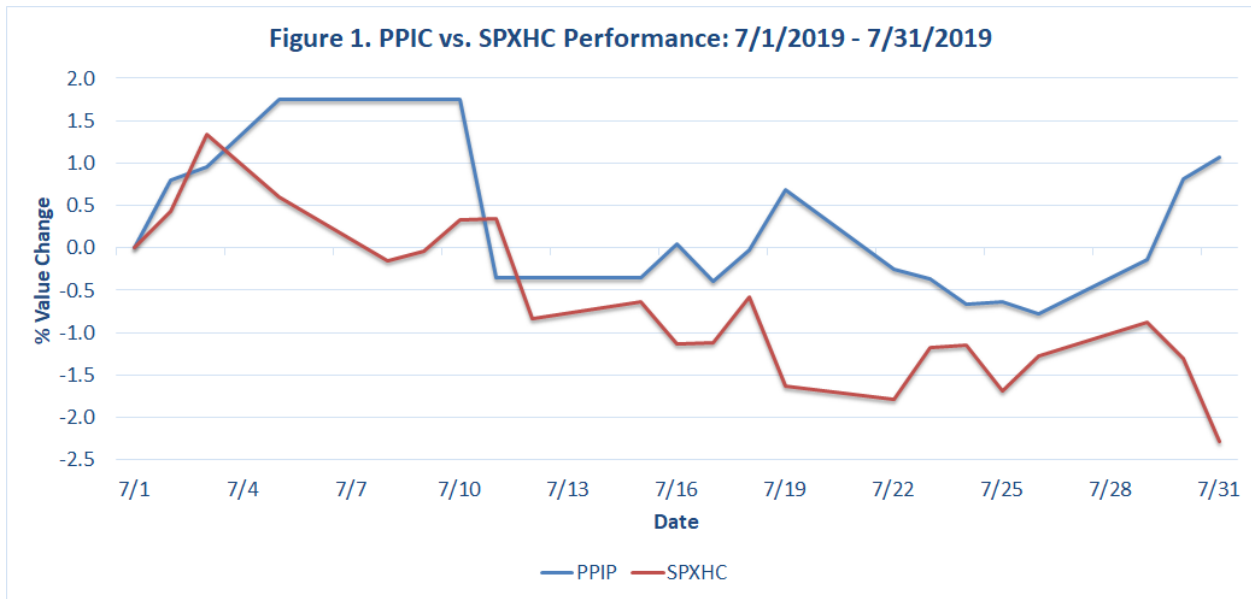
- A. Trailing 1 Month: 07/01/2019 - 07/31/2019
- B. Trailing 3 Months: 05/01/2019 - 07/31/2019



- C. Trailing 6 Months: 03/01/2019 - 07/31/2019
- D. Trailing 12 Months: 08/01/2018 - 07/31/2019
- E. Since Inception: 04/23/2018 - 07/31/2019

A. Trailing 1 Month: 7/1/2019 - 7/31/2019

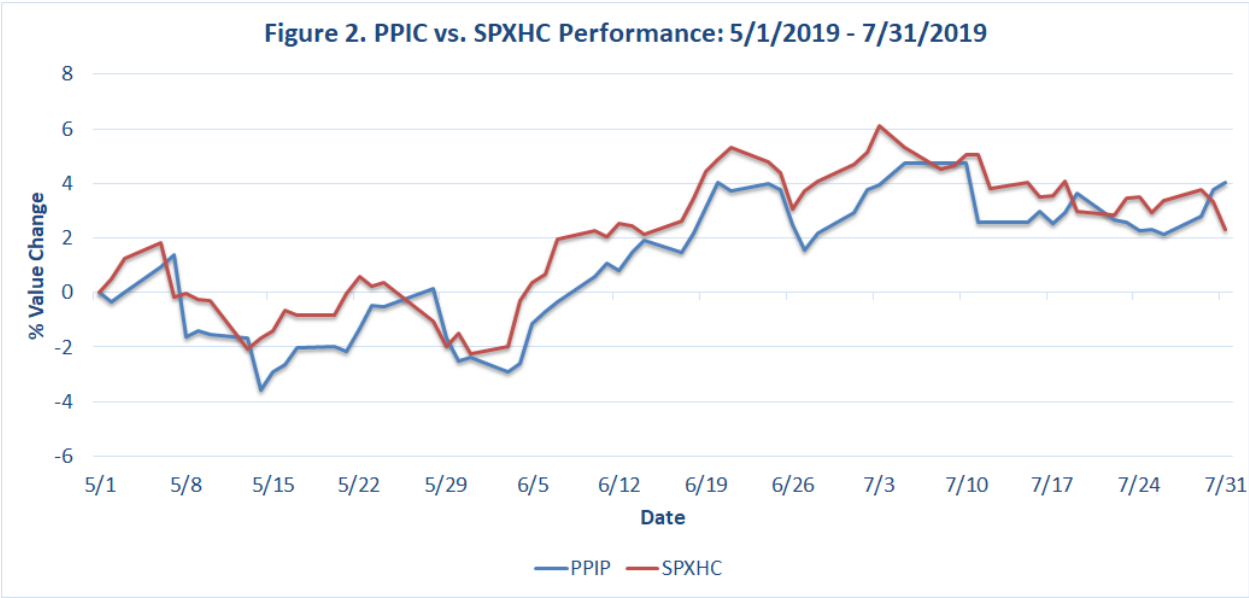
During the investment period beginning July 1st, 2019 and ending July 31st, 2019, the PPIP value increased 1.07% while the SPXHC index value decreased 2.28%. Thus, PPIP index outperformed the SPXHC index by 3.35% during this period. In the context of a hypothetical \$50,000 investment during this period, the PPIP would have yielded a gain of \$535 while investing in the SPXHC index would have yielded a loss of \$1,140. The percent-changes in PPIP and SPXHC value are shown below in Figure 1.



B. Trailing 3 Months: 5/1/2019 - 7/31/2019

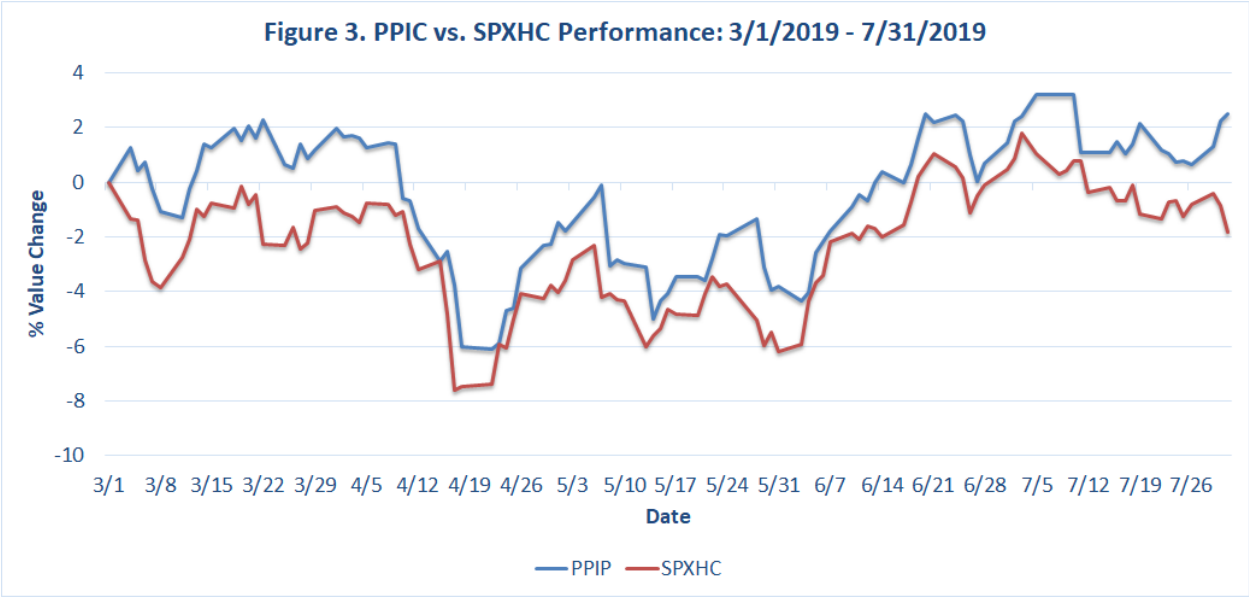
During the investment period beginning May 1st, 2019 and ending July 31st, 2019, the PPIP value increased 4.04% while the SPXHC index value increased 2.31%. Thus, PPIP outperformed the SPXHC index by 1.74% during this period. In the context of a hypothetical \$50,000 investment during this period, the PPIP would have yielded a gain of \$2,020 while investing in the SPXHC index would have yielded a gain of \$1,155. The percent-changes in PPIP and SPXHC value are shown below in Figure 2.





C. Trailing 6 Months: 3/1/2019 - 7/31/2019

During the investment period beginning March 1st, 2019 and ending July 31st, 2019, the PPIP value increased 2.79% while the SPXHC index value increased 2.12%. Thus, PPIP outperformed the SPXHC index by 0.67% during this period. In the context of a hypothetical \$50,000 investment during this period, the PPIP would have yielded a gain of \$1,395 while investing in the SPXHC index would have yielded a gain of \$1,060. The percent-changes in PPIP and SPXHC value are shown below in Figure 3.

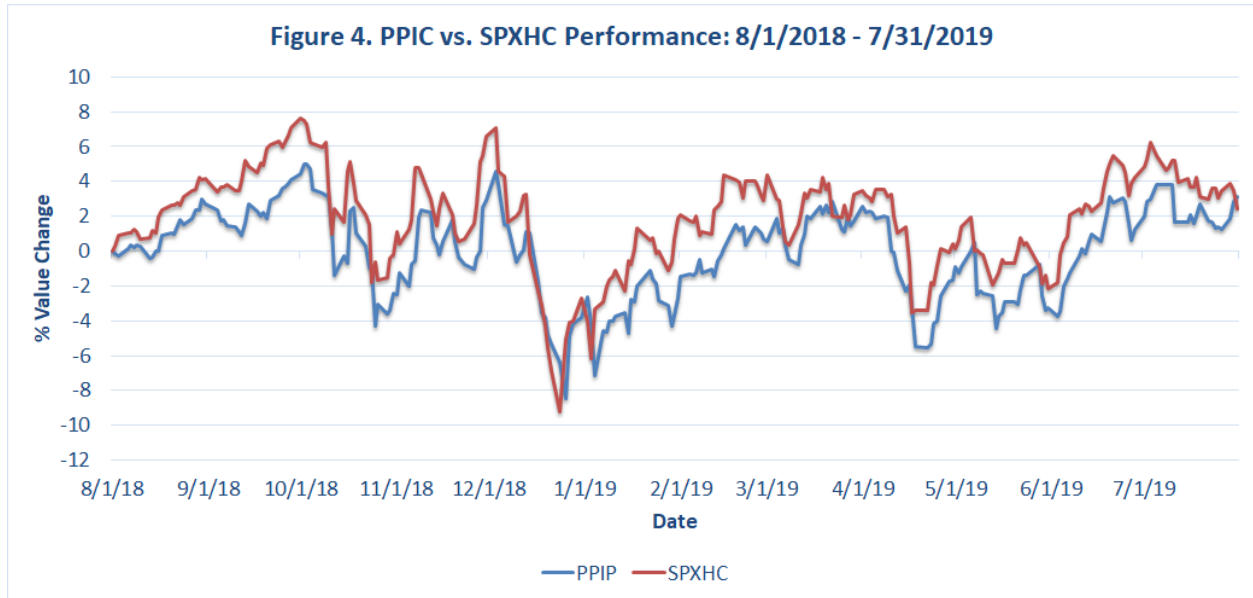


D. Trailing 12 Months: 8/1/2018 - 7/31/2019

During the investment period beginning August 1st, 2018 and ending July 31st, 2019, the PPIP value increased 3.11% while the SPXHC index value increased 2.44%. Thus, PPIP



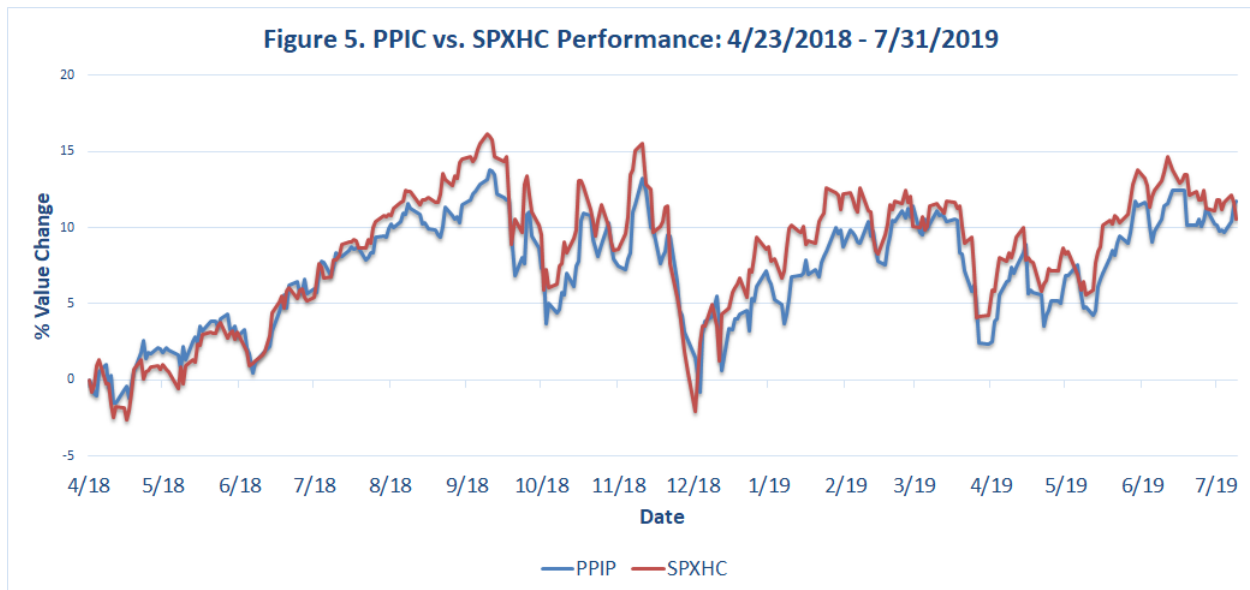
outperformed the SPXHC index by 0.66% during this period. In the context of a hypothetical \$50,000 investment during this period, the PPIP would have yielded a gain of \$1,555 while investing in the SPXHC index would have yielded a gain of \$1,220. The percent-changes in PPIP and SPXHC value are shown below in Figure 4.



E. Inception to Present: 4/23/18 - 7/31/19

During the investment period beginning April 23rd, 2018 and ending July 31st, 2019, the PPIP value increased 11.71% while the SPXHC index value increased 10.53%. Thus, PPIP outperformed the SPXHC index by 1.18% during this period. In the context of a hypothetical \$50,000 investment during this period, the PPIP would have yielded a gain of \$5,855 while investing in the SPXHC index would have yielded a gain of \$5,265. The percent-changes in PPIP and SPXHC value are shown below in Figure 5.





Section 3. Major Industry Updates

General Market Update

The DJI rose then fell over the entire month, opening at 26,717 on July 1st and closing at 26.864 on July 31st, peaking at 27,359 on July 15th. The S&P 500 Healthcare Index held somewhat steady, declining from 1078 to 1054 over the same time period.

Regulatory Updates

The FDA updated risk and mitigation strategies (REMS) in July. REMS programs designed to monitor patients using drug therapies that have high-risk side effects. The FDA created new definitions for the types of changes to an approved REMS program changed the process by which changes must be submitted.

The FDA released new recommendations for Instructions for Use (IFU) documents. IFUs are intended for patient use and provide detailed information for complicated therapies. IFUs can be used with prescription drugs, biological products, and drug/device combinations therapies. The new guidelines attempt to standardize formats across all IFUs so patients can easily locate and process crucial information. Before these new recommendations, IFU format could be determined largely by the company releasing the document

Political Developments

The Senate Health Committee officially introduced the Lower Health Care Costs Act, which targets surprise medical bills and pharmacy benefit managers (PBMs). The Act is a bipartisan measure and hopes to fulfill its full title through five subjects: ending surprise medical bills, reducing the prices of prescription drugs, improving transparency in health care, improving



public health, and improving the exchange of health information.

Healthcare pricing and reform has been a very popular subject in the first and second rounds of the Democratic candidate debates, with a wide variety of plans pitched to the country. While there has been no action taken by presidential hopefuls, healthcare reform remains prescient in the minds of many Americans.

US and Chinese officials met in Shanghai on July 30, the first face-to-face meeting between country representatives since the US raised tariffs to 25 percent on May 10. Topics in the meeting included “forced technology transfer, intellectual-property rights, services, non-tariff barriers, and agriculture,” according to a White House statement. Negotiations did not make much headway and the two countries plan to meet again in Washington in September.

Industry News

Pfizer plans to combine its generic unit Upjohn with Mylan NV and form a new generic product giant. The deal is all-stock. Upjohn is one of Pfizer’s best cash producers and brought in \$2.27 billion of pre-tax earnings in the first quarter of 2019. However, the company is also set to lose exclusivity of \$5B Lyrica (pregabalin) this year. Mylan’s share price is currently down 80% from its peak in April 2015.

Novartis, Amgen, and Banner Alzheimer’s Institute ended a clinical program investigating the use of CNP520 (a BACE inhibitor) in Alzheimer’s prevention. Phase II/III revealed a worsening of some cognitive function measures in patients. The three organization mutually decided that the potential benefit to patients did not outweigh the risks.

Section 4. Major Product Updates

This month, Abbot, AstraZeneca and Medtronic were the stand out investments in the portfolio from a product sales standpoint. AstraZeneca has remained strong due to a stellar performance from its oncology profile. It reported a 52% increase in sales from its Q2 reports. The stand out compound from this group was Tagrisso which grossed over a billion dollars with good growth in the US and overseas. Abbott Laboratories also reported strong Q2 results. A big reason for their success has been the stellar performance of the FreeStyle Libre diabetic monitoring system. Its 72% growth in sales per the company report is hard to match. MitraClip is also expected to be a big earner for them going forward. Medtronic has also been a consistent high performer. Its success could be attributed to the Brain Therapies Division of Restorative Therapies Group. The company has seen increased readiness to adopt their Riptide aspiration system and React aspiration catheters. Moreover, The StealthStation S8 surgical navigation systems, along with the groups other surgical aids saw a double digit increases in sales.

Section 5. Major Pipeline Updates

This month, Intra Cellular announced mixed data on lumateperone for the treatment of bipolar depression. One study showed significant efficacy and another failed to beat placebo.



Investors reacted heavily to this news, but it is important to remember that the current FDA filing is for schizophrenia and the data on its efficacy for that indication remains strong. Johnson and Johnson returned an obesity drug that it had previously acquired the rights to due to a lack of blood glucose control. The company also announced it will increase its research on their experimental HIV vaccine in the coming years. GSK showed positive data in its two drug HIV combination, Dovato.

Section 6. Individual Company Performance

Abbott Laboratories

Products

Key Products for Abbott Laboratories were their FreeStyle Libre, MitraClip, Alinity Assay Platform. Freestyle Libre saw approximately 73% growth in Q2. The MitraClip also has demonstrated strong organic growth with a 30% increase in sale. Additionally, the recent approval of the next generation MitraClip G4 offers increased range of clip sizes, an alternative leaflet grasping mechanism and allows the assessment of a procedure in real time. Finally, the Alinity platform is being adopted in the US and will be used to protect the US Blood and Plasma Supply

Pipeline

- Received U.S. FDA approval for its Alinity®-S diagnostics system, the latest technology for screening and protecting the U.S. blood and plasma supply.
- Received U.S. FDA approval for MitraClip G4

Financials +3.48

ABT market capitalization began the month at \$149.1B and ended at \$153.9B. Peak market capitalization was reached on July 23rd at \$156.5B and trough market capitalization was reached on July 16th at \$146.8B. Overall, from July 1st through July 31st, the share price of ABT increased +3.48%.

AbbVie, Inc.

Products

Humira sales increased within the United States 7.7%, but abroad the drug saw a dramatic slip in sales (35.2% on reported basis) due to biosimilar competition, a total decrease of 6.1% on a reported basis. Imbruvica saw an increase in sales of 29.3% and grossed over one billion dollars and the total Hematologic Oncology portfolio saw an increase of 38.7%. Another stand out in this portfolio was Venclexta which grossed \$169 million, and obtained approval in previously untreated CLL and SLL. Skyrizi turned in positive data supporting its further use. Meanwhile, Global HCV Revenues decreased 19.4% on a reported basis

Pipeline

- Acquired Mavupharma and its pipeline, bolstering its early stage oncology pipeline

Financials -7.85%

ABBV market capitalization began the month at \$108.4B and ended at \$98.4B. Peak market capitalization was reached on July 3rd at \$110.8B and trough market capitalization was reached on July 31st at \$98.4B. Overall, from July 1st through July 31st, the share price of ABBV decreased -7.85%.



Agios Pharmaceuticals, Inc.

Products

IDH inhibitors turned in a positive performance. Tibsovo net revenue increase 50% from Q1 to \$13.7M. additionally, Idhifa royalties have increased to \$2.7M

Pipeline

- No new pipeline updates

Financials -2.96%

AGIO market capitalization began the month at \$2.9B and ended at \$2.8B. Peak market capitalization was reached on July 1st at \$2.9B and trough market capitalization was reached on July 8th at \$2.6B. Overall, from July 1st through July 31st, the share price of AGIO decreased -2.96%.

AstraZeneca plc

Products

Oncology lead growth with a 52% reported increase in sales. Key products driving growth were Tagrisso, Imfinizi, and lynparza. Tagrisso was the best performer with over \$1434M grossed. It Grew 86% in the half, with 16% growth in the US, but an outstanding growth 47% in japan. Key growth driver Imfinzi gained orphan drug status in in SCLC.

Cardiovascular, renal and metabolism turned in growth of 12% at the half. The portfolio was led by Brilinta, which grew 21% and grossed \$737M, and Farxiga which grew 14% and grossed \$723M. Furthermore, Farxiga received an expanded label in Europe due to DECLARE data

Respiratory saw some minor growth with a 5% increase. Symbicort is the top performer but sales fell 10% due to pricing pressures. however, the drug still grossed \$1,170M

Pipeline

- Working closely with FDA on next steps for Forxiga for Type I Diabetes
- Imfinzi granted US Orphan Drug Designation for small cell lung cancer
- Forxiga receives positive EU CHMP opinion for DECLARE-TIMI 58 cardiovascular outcomes data
- Fasenra receives positive EU CHMP opinion for self-administration and the new Fasenra pen, a pre-filled, single-use auto-injector

Financials +5.08%

AZN market capitalization began the month at \$107.3B and ended at \$112.6B. Peak market capitalization was reached on July 29st at \$115.1B and trough market capitalization was reached on July 15th at \$104.0B. Overall, from July 1st through July 31st, the share price of AZN increased +5.08%.

CVS Health Corporation

Products

Total revenue increased 35.2% from Q2 2018, key drivers Aetna revenues, and increased volume and brand name drug price inflation. Pharmacy services



increased 4.2% compared to the prior year. Retail and LTC services saw an increase of 3.7%. of the total revenue generated by this group, 22.7% was from front store revenue. Prescription volume grew 5.9% driven by the increase in patient care programs, collaborations with PBMs and a preferential status with part D providers. Aetna revenue increased 16.6 billion dollars from Q2 last year but membership change remained constant, representing a switch from commercial to medicare and medicaid programs.

Pipeline

- Announced “Destination: Heath,” a new platform addressing social determinants of health
- Completed rollout of time delay safes in all of its Pennsylvania pharmacies
- Announced start of clinical trial for new home hemodialysis device
- MinuteClinic launched Virtual Visit offering in 8 additional states

Financials +2.62%

CVS market capitalization began the month at \$71.3B and ended at \$72.6B. Peak market capitalization was reached on July 11th at \$75.3B and trough market capitalization was reached on July 9th at \$71.2B. Overall, from July 1st through July 31st, the share price of CVS increased +2.62%.

GlaxoSmithKline plc

Products

Pharmaceutical group showed slight growth with and increase of 3% AER (1% CER). The company's respiratory portfolio contributed significantly with growth of 21% thanks to Trelegy Ellipta, and Nucala sale. Additionally the HIV portfolio showed a slight increase as well. Top performers were Juluca and Dovato, but growth was offset by a decline in triumeq. Dovato met endpoints in phase III TANGO study. Loss of Advair exclusivity has driven the sales of established products down 6%.

Pipeline

- Zejula, one of GSK's cancer treatments being developed by their subsidiary Tesaro, reported positive results from a late-stage trial
 - Zejula is a PARP inhibitor and was being studied in women with ovarian cancer who were previously treated with chemo
 - This news caused shares to rise 0.9%
- Dovato, GSK's two-drug HIV regimen, showed positive results and met the main goal of a late-stage study
 - Shown to be equivalent to suppressing HIV in patients over a 48-week period when compared to a current three-drug treatment
- Terminated 3 projects in the pipeline, including 2 respiratory drugs
 - GSK2586881, therapy for PAH and acute lung injury, will no longer be investigated at GSK
 - Also terminated a phase 2 trial for a TNFR1 antagonist due to protocol-defined stopping criteria being met



Financials +2.10%

GSK market capitalization began the month at \$99.4B and ended at \$102.5B. Peak market capitalization was reached on July 29th at \$104.6B and trough market capitalization was reached on July 1st at \$99.4B. Overall, from July 1st through July 31st, the share price of GSK increased +2.10%.

IDEXX Laboratories

Products

Companion Animal Group is the company's key growth driver (8% reported growth). IDEXX VetLab consumables generated 10% reported growth from strong customer retention, increases in installments, and increases in utilization (\$175M earned). Laboratory Diagnostic and Consulting Services generated an 8% increase in reported growth due to new customer additions, volume gains with existing customers and moderate price realization (\$215M earned). SNAP 4Dx platform volume gains also contributed to an 8% reported growth in Rapid Assay Products which totaled \$69M. Veterinary software, services and diagnostic imaging systems reported 9% growth. VetLab Consumables and Rapid Assay platforms showed strongest growth. CAG Diagnostics showed moderate growth and lower VetLab Instrument performance

Pipeline

- No new pipeline updates

Financials +0.67%

IDXX market capitalization began the month at \$24.1B and ended at \$24.3B. Peak market capitalization was reached on July 18th at \$24.9B and trough market capitalization was reached on July 8th at \$23.8B. Overall, from July 1st through July 31st, the share price of IDXX increased +0.67%.

Intra-Cellular Therapies, Inc.

Products

- No products on the market

Pipeline

- Study 401, comparing the drug lumateperone to placebo in the treatment of bipolar depression, failed to show superiority to placebo
- In study 404, a similar study to 401, lumateperone met the primary endpoint and showed statistically significant efficacy at week 6
 - More patients in study 401
 - The reason for the difference in placebo response rates between the two studies is unknown

Financials -40.48%

ITCI market capitalization began the month at \$772.M and ended at \$460.4M. Peak market capitalization was reached on July 1st at \$772.1M and trough market capitalization was reached on July 25th at \$437.3M. Overall, from July 1st through July 31st, the share price of ITCI decreased -40.48%.

Johnson & Johnson



Products

Pharmaceutical group generated the most revenue and grew 4.4%. It was driven by Darzalex, Stelara, Imbruvica, Invega/Sustenna/Xeplion/ Trinza/Trevicta, Tremfya, Opsumit, Erleada, Prezista/Prezcobix/Rezolta/Symtuza with some decline Remicade and Zytiga that offset the growth. Consumer sales increased 2.3% driven by Neutrogena, Aveeno, and OGX beauty products as well as the OTC products Zyrtec, Motrin and Listerine. Additionally, the success of electrophysiology products, endocutters, international energy products in advance surgery drove a 3.2% increase in medical device sales

Pipeline

- Returned the rights for obesity drug JNJ-64565111 (HM12525A) back to Hanmi Pharmaceuticals after reviewing the data from a set of phase 2 trials
 - Ends a partnership that began in 2015 for \$105 mil upfront and \$810 mil in milestones, which were never met
 - Drug met the endpoint for weight reduction, however blood glucose control was varied and caused J&J to back out
- Announced they will expand research for experiential HIV vaccine to the US and Europe during 2019
 - Will begin in humans and cover 3,800 males this year

Financials -6.56%

JNJ market capitalization began the month at \$368.2B and ended at \$343.7B. Peak market capitalization was reached on July 3rd at \$377.3B and trough market capitalization was reached on July 22nd at \$341.5B. Overall, from July 1st through July 31st, the share price of JNJ decreased -6.56%.

Medtronic plc

Products

Medtronic plc. reported a revenue of \$7.493B, an increase of 1.5%. The Cardiovascular group saw a decrease of 0.7% in income. The Cardiac Rythem and Heart Failure division decreased 3.1% on reported basis. Mica, Tyrx were key products contributing to growth. while Left Ventricular Assist Devices saw a decrease of sales around 50%, which led to a double digit drop in the Arrhythmia management subgroup. The Coronary and Structural Heart group saw a reported increase of 2.6%. This growth was attributed to a percent increase in the teens for the sales of transcatheter aortic valves and CoreValve Evolut PRO platform which recently showed increased clinical benefit. The Aortic, Peripheral and Venous saw a decrease in sales less than 1%. Key products were the VenaSeal and ClosureFast system and Valiant Navion™ thoracic stent graft system. The Growth from the aforementioned groups were offset by a decrease peripheral subgroup which saw a significant decline in the sale of drug coated balloons

The minimally invasive therapy saw slight growth of 2.3%, due to slight growth in Surgical innovation (1.4% reported) and Respiratory, GI, and Renal (4.3% reported). Key products for this group included LigaSure vessel sealing instruments, Tri-Staple 2.0 endo stapling specialty reloads and EEA circular stapler with Tri-Staple from Surgical innovation. Additionally, the Nellcor pulse oximetry, Microstream capnography, INVOS cerebral oximetry systems, Puritan Bennett 980 ventilators, and
McGRATH MAC video



laryngoscope, PillCam™ systems, Emprint™ ablation systems, Beacon™ endoscopic ultrasound products (GI), and renal access products were listed as successful.

The Restorative Therapies Groups increased 3.2% on a reported basis due to a 9.8% increase in Brain therapies on a reported bases, 0.9% increase in Spine related instruments, 4.2% increase in specialty therapies. Successful Products included: Riptide aspiration system, React aspiration catheters, StealthStation S8 surgical navigation systems, O-arm surgical imaging systems, and Mazor X robotic guidance systems from brain therapies; the Infinity OCT system, Prestige LP cervical disc system and the Infuse™ bone graft from the spine group; StealthStation® ENT surgical navigation system and intraoperative NIM nerve monitoring systems from specialty therapies. This growth partially offset by a 7.0% decrease in pain therapies due to a decline in the spinal stimulation market

The Diabetes group experienced an increase of 3.5% on a reported basis and had a strong performance in the international market. The MiniMed™ 670G hybrid closed loop insulin pump system with the Guardian™ Sensor 3 was been a key growth driver. Furthermore, the Guardian™ Connect Smart CGM system adoption has increased dramatically

Pipeline

- No new pipeline updates

Financials +4.49%

MDT market capitalization began the month at \$131.6B and ended at \$136.7B. Peak market capitalization was reached on July 30th at \$139.1B and trough market capitalization was reached on July 8th at \$131.5B. Overall, from July 1st through July 31st, the share price of MDT increased +4.49%.

Merck & Co.

Products

The blockbuster cancer medication Keytruda has increased sales 58% to \$2.6B. Human vaccines had a strong performance with a sales increase of 33% to \$2.0B primarily due to Gardasil success. The growth in the Pediatric vaccine group reflected the success of M-M-R II, Varivax, Proquad and an increased demand for the vaccination of children worldwide. Accute Care had a positive performance due to the performance of Bridion and Prevymis. Animal health revenue has also increased 3% from the year prior due to the acquisition of Antelliq. However, growth in pharmaceutical sales was minimized by the loss of exclusivity for Zetia, Vytorin, Invanz and Remicade. Additionally, Sales have also declined for Janumet and Januvia

Pipeline

- Announced that a combination of pembrolizumab (Keytruda) and chemotherapy outperformed chemotherapy alone in a phase III study (Keynote-522) evaluating the treatment of triple-negative breast cancer
 - Met the dual primary endpoints of showing statistically significant increase in pathological complete response regardless of PD-L1 expression

Financials -2.08%

MRK market capitalization began the month at \$217.5B and ended at \$212.5B. Peak market capitalization was reached on July 3rd at \$223.1B and trough market capitalization was reached



on July 12th at \$204.7B. Overall, from July 1st through July 31st, the share price of MRK decreased -2.08%.

Mylan N.V

Products

North American sales decreased 2% due to decreased volumes of existing products due to a changing competitive climate, remediation of issues with the Morgantown manufacturing plant, and pricing pressures. Sales in Europe decreased 7% due to foreign currency exchange, and to a lesser extent, product volume and drug pricing. Key new product sales for Wixela Inhub and Fulphila helped offset the losses. new product sales allowed Rest of world sales increased to 4%

Pipeline

- Mylan and Upjohn, a division of Pfizer, to combine
- Mylan and Atomo Diagnostics announce WHO Prequalification Approval for Mylan HIV Self Test

Financials +7.51%

MYL market capitalization began the month at \$10.0B and ended at \$10.8B. Peak market capitalization was reached on July 30th at \$11.1B and trough market capitalization was reached on July 18th at \$9.2B. Overall, from July 1st through July 31st, the share price of MYL increased +7.51%.

Novartis AG

Products

Net sales were \$11.8B, a 10% increase from last year. Growth driving products included Consentyx, Entresto, Xiidra, and Lutathera had a strong increase in sales volume and are primarily responsible for the sales increase. Additionally potential blockbusters Zolgesma and Piqray are in the process of being launched.

Sandoz Generics had a 1% reduction in sales. 10% volume growth offset by pricing erosion in the US. the sale of biopharmaceuticals increased 16% in Europe through the success of Rixathon, Hyrimoz, and Ezelzi

Pipeline

- Kisqali significantly prolongs life in women with HR+/HER2- advanced breast cancer now in two distinct Phase III trials
- Sandoz announces first patient enrolled in clinical study for proposed biosimilar denosumab in osteoporosis
 - Biosimilar to Prolia
- FDA accepts file and accelerates review of Novartis sickle cell disease medicine crizanlizumab (SEG101)
- Novartis, Amgen and Banner Alzheimer's Institute discontinue clinical program with BACE inhibitor CNP520 for Alzheimer's prevention

Financials -0.30%

NVS market capitalization began the month at \$210.5B and ended at \$209.9B. Peak market capitalization was reached on July 30th at \$11.1B and trough market capitalization was reached



on July 18th at \$216.0B. Overall, from July 1st through July 31st, the share price of NVS decreased -0.30%.

Sarepta Therapeutics, Inc.

Products

Sarepta is currently developing programs to expand patient access to Exondys 51, Vyondys 53.

Pipeline

- No new pipeline updates

Financials -4.95%

SRPT market capitalization began the month at \$11.6B and ended at \$11.1B. Peak market capitalization was reached on July 15th at \$11.7B and trough market capitalization was reached on July 22nd at \$10.8B. Overall, from July 1st through July 31st, the share price of SRPT decreased -4.95%.

UnitedHealth Group Inc.

Products

Total revenue grew 8.0 or \$4.5B for a total of 60.6 Billion dollars lead by the success of UnitedHealthcare Medicare & Retirement, OptumRx and OptumHealth, all of which experienced double digit growth. Community and state insurance grew 4.2% for a total of \$11.2B due to service of high acuity individuals. Optum insight grew 7.0% and represented a \$2.3B increase in revenue. Global healthcare remained stable while employee and individual health insurance grew very slightly.

Financials +2.63%

UNH market capitalization began the month at \$230.0B and ended at \$236.0B. Peak market capitalization was reached on July 17th at \$252.8B and trough market capitalization was reached on July 1st at \$230.0B. Overall, from July 1st through July 31st, the share price of UNH increased +2.63%.

Section 7. Conclusion

This month, PPIP outpaced the SPXHC by 3.35%, increasing by 1.07% despite the index suffering a 2.28% loss. This success can be contributed by strong sales across the board, especially in AstraZeneca's oncology profile. The move to an oncology focus, which was originally met with skepticism, seems to be paying early dividends for the company.

Intra cellular took a massive hit this month due to conflicting data on lumateperone in bipolar depression. Although this is troubling, the strength of the data for schizophrenia has given us confidence that the stock will rebound. After the FDA's decision, the company's potential will need to be re evaluated.

There will be no adjustments made to the portfolio at this time. The watchlist still consists of Agios and Intra cellular. These two securities will be closely monitored and discussed in detail at the event of any major news.



Appendix A: PPIP Investment Positions as of 5/31/19

Investment	Shares	Share Value	Total Value	% of portfolio
Abbott Laboratories (ABT)	63	\$87.10	\$5,487.30	10.29%
Abbvie (ABBV)	53	\$66.62	\$3,530.86	6.62%
Agios (AGIO)	17	\$48.11	\$817.87	1.53%
AstraZeneca (AZN)	65	\$43.41	\$2,821.65	5.29%
CVS (CVS)	91	\$55.87	\$5,084.17	9.53%
Glaxo SmithKline (GSK)	50	\$41.28	\$2,064.00	3.87%
Idexx (IDXX)	10	\$282.05	\$2,820.50	5.29%
Intra Cellular Therapeutics (ITCI)	95	\$8.35	\$793.25	1.49%
Johnson and Johnson (JNJ)	43	\$130.22	\$5,599.46	10.50%
Medtronic (MDT)	56	\$101.94	\$5,708.64	10.70%
Merck (MRK)	63	\$82.99	\$5,228.37	9.80%
Mylan (MYL)	93	\$20.90	\$1,943.70	3.64%
Novartis (NVS)	50	\$91.58	\$4,579.00	8.58%
Sarepta (SRPT)	11	\$148.85	\$1,637.35	3.07%
United Health (UNH)	21	\$249.01	\$5,229.21	9.80%
Total			\$53,345.33	100.00%

Appendix B: Companies in S&P 500 Health Care Index (SPXHC)

1. AGILENT TECHNOLOGIES INC
2. ABBVIE INC.
3. AMERISOURCEBERGEN CORPORATION
4. ABIOMED INC
5. ABBOTT LABORATORIES
6. ALLERGAN PLC.
7. ALIGN TECHNOLOGY INC.
8. ALEXION PHARMACEUTICAL INC.
9. AMGEN INC.
10. ANTHEM INC.
11. BAXTER INTERNATIONAL INC.
12. BECTON DICKINSON & CO
13. BIOGEN INC
14. BRISTOL-MYERS SQUIBB CO
15. BOSTON SCIENTIFIC CORP
16. CARDINAL HEALTH INC.
17. CELGENE CORP.
18. CERNER CORP.
19. CIGNA HOLDING COMPANY
20. CENTENE CORPORATION
21. COOPER COS INC.
22. CVS HEALTH CORPORATION



23. QUEST DIAGNOSTICS INC.
24. DANAHER CORP.
25. DAVITA INC.
26. EDWARDS LIFESCIENCES CORP.
27. GILEAD SCIENCES INC.
28. HCA HEALTHCARE INC.
29. HOLOGIC INC.
30. HENRY SCHEIN INC.
31. HUMANA INC.
32. IDEXX LABORATORIES
33. ILLUMINA INC.
34. INCYTE CORPORATION
35. IQVIA HOLDINGS INC.
36. INTUITIVE SURGICAL INC.
37. JOHNSON & JOHNSON
38. LABORATORY CORP AMER HLDGS.
39. ELI LILLY AND COMPANY
40. MCKESSON CORPORATON
41. MEDTRONIC PLC
42. MERCK & CO INC.
43. METTLER-TOLEDO INTERNATIONAL INC
44. MYLAN NV
45. NEKTAR THERAPEUTICS
46. PFIZER INC.
47. PERKINELMER INC.
48. PERRIGO COMPANY PLC
49. REGENERON PHARMACEUTICALS INC.
50. RESMED INC.
51. STRYKER CORP.
52. THERMO FISHER SCIENTIFIC INC.
53. UNIVERSAL HEALTH SERVICES INC.
54. UNITEDHEALTH GROUP INC.
55. VARIAN MEDICAL SYSTEMS INC.
56. VERTEX PHARMACEUTICAL
57. WATERS CORP.
58. DENTSPLY SIRONA INC.
59. ZIMMER BIOMET HOLDINGS INC.
60. ZOETIS INC.

