An Analysis of Differential Acceptance Rates of Advisory Committee Recommendations by FDA Review Divisions Within CDER

by

Pallavi Neeraj

Research Project

Submitted to the College of Health and Human Services

Eastern Michigan University

in partial fulfillment of the requirements

for the degree of

MASTER OF SCIENCE

in

Clinical Research Administration

Prof. Irwin Martin

January 3, 2019

Ypsilanti, Michigan

Acknowledgement

I would like to give my sincere thanks to Prof. Dr. Irwin Martin who has provided valuable support and guidance in keeping my project focused and has helped answer several questions related to my methodology, data collection, analysis and discussions. I would also like to thank Jim Pellerin from the EMU Supplemental Instruction (SI) team for reviewing my data and providing useful analysis and insights to validate my hypotheses. Lastly, I want to also thank my family and work colleagues that have motivated and supported me during my extremely busy schedule over the past few months as I worked to complete this project.

Abstract

Drug makers spend years of effort and millions (sometimes billions) of dollars to develop, successfully test and apply for marketing approval from the FDA. Studies have shown that nearly nine out of every ten drugs that enter the discovery stage do not progress to win the final approval from the FDA. The bulk of the failures happen during Phase 2 and Phase 3 clinical trials, but numerous studies have also shown that once a drug reaches the FDA review stage, the average acceptance rate is roughly 80-90%. Given the overall low probability of success, this is an extremely high-stakes situation for drug makers, and any insight into the approval process, or probability of approval, is very useful to appropriately model their risk exposure.

Several studies in the past have shed light on the overall acceptance rates for FDA's advisory committees, even over a long term 70-year trend. However, very limited research literature exists today to identify differential acceptance rates for FDA's CDER advisory committees. This research analyzed ten years (2008 to 2017) of publicly available meeting information from FDA archives to provide insight into the acceptance rates for CDER advisory committees. The results showed that though the average acceptance rate by the FDA for recommendations made by advisory committees is 86% for the past ten years, there is marked difference in acceptance rates between the various CDER committees. The acceptance rates range from as low as 67% for the "Bone, Reproductive and Urologic Drugs" Committee to as high as 100% for the "Arthritis Drugs" Committee. It was also observed that reasons such as the novel nature of drugs (or indications), tight voting margins, concerns related to manufacturing locations, etc., were attributed to the FDA not accepting the committee's recommendations.

Table of Contents

List of Figures

List of Tables

1. Introduction

Whether it is a prescription drug or a generic drug, a product can only be marketed in the United States if it has the approval of the U.S. Food and Drug Administration (FDA). Therefore, FDA has the responsibility to approve only those drugs that can be deemed safe and effective for the general population. To ensure a thorough review of pending marketing applications, the FDA has established multiple independently-functioning advisory committees to provide expertise that may reside outside the FDA. Some of these panels were later required by amendments to the Food, Drug and Cosmetic Act (U.S. Department of Health and Human Services, Food and Drug Administration, 2008).

Since the 1960s, advisory committee meetings have assisted with the evaluation of drugs for the U.S. market. By the 1970s, their role was expanded to include biologics and devices (Cox & Scott, 2014). Since that time, some key historic events have helped solidify the FDA's need and dependence for advisory committee reviews. One such event was the unfortunate thalidomide tragedies in many countries, including many European countries and Canada, which led to the 1962 Amendments to the Federal Food, Drug and Cosmetic Act (FD&C Act). Due to these amendments, for the first time, drug manufacturers needed to demonstrate both the safety and efficacy of all drugs for the market. Though this requirement greatly improved the drug development process in the US by holding the manufacturer to higher standards, this also meant that much more scientific data would need to be evaluated by regulatory bodies, leading to a higher dependence on external experts and advisors. More recently, since the passing of PDUFA IV (Prescription Drug User Fee Act) and FDASIA (Food and Drug Administration Safety and

Innovation Act), it is now typical for the FDA to review drugs through advisory committee meetings, although the FDA can still approve some products on their own (Cox & Scott, 2014).

Each advisory committee has a core group of members that are appointed by the FDA Commissioner based on their scientific and technical expertise. This group may be supported by other experts that may be invited as needed to advise the agency on various topics from clinical trial endpoints and pharmacy compounding to pediatric safety reviews (Jackson, Braccio, Brevig, & Sengupta, 2015). The advisory committees convene in meetings periodically called by the FDA to provide independent and unbiased expert advice on key scientific questions and concerns. The committees follow a well-defined process during the trial, review and market approval for any new drug or medical device. This panel of experts can provide valuable views and insights on highly complex issues to address a range of scientific, technical and policy-related questions regarding new medical products. Further, on important matters of public concern, the advisory committee meetings provide a forum for a public hearing (Smith, Townsend, Singh, & Ma, 2012). Often, the FDA pose questions to the advisors on whether the product in questions should be approved for marketing in the U.S. Further, if the products are approved, should there be any constraints on their use, e.g., in product labelling, post-marketing studies, restricted indications, etc.

The Federal Advisory Committee Act became law in 1972, and is the legal foundation defining how Federal Advisory Committees operate (U.S. Government Publishing Office, 1972). The Food and Drug Administration Amendments Act (FDAAA) of 2007 requires FDA to hold advisory committee meetings for approval of all new molecular entities (NME). Additionally, in the case of drugs with revised indications (or usage, dosage, etc.), while there is no legal requirement for the FDA to hold advisory committee meetings for all approvals, the statute does

mandate meetings for the following topics: adverse events or labeling changes related to pediatric populations, biannual meetings by the Drug Safety and Risk Management committee for safety related to post-marketing activities, and medical device classification and reclassification (Jackson, Braccio, Brevig, & Sengupta, 2015).

1.1. FDA Drug and Device Review Process

It is not unusual for most regulatory agencies to solicit unbiased advice from external industry experts to address various scientific and technical uncertainties pertaining to the pre-market review process for drugs and medical devices. In this regard, the US Food and Drug Administration (FDA) is no different and they have a well-structured and defined process to obtain expert advice from its various committees and then incorporate it into their review processes for drugs and devices (Smith, Townsend, Singh, & Ma, 2012). Advisory committee meetings are not restricted to product approvals; they may also be requested by the FDA for other general discussions (e.g., for specific class of drugs, for indications and endpoints, for trial design, etc.). The first step of any new application for a new drug product starts with the FDA's internal review of the necessary scientific documents and identification of questions and topics where advice from external experts is required. With this list compiled, the FDA then sets up an advisory committee meeting to request input from committee members through discussions, votes and recommendations. Meetings typically include a presentation by the manufacturer or marketer of the drug, biologic or device, along with a presentation from the FDA to highlight their internal review and identify key discussion topics. The conclusion of the presentation is typically followed by an open session for public comments, a questions and answer session where the FDA poses specific questions related to the study to the committee members and a

more in-depth discussion amongst the committee members (Cox & Scott, 2014). The conclusion of the meeting typically has the committee members voting on the safety, efficacy and approvability of the product in question, followed by any recommendations or comments about the product, trial, further studies, Risk Evaluation and Mitigation Strategies (REMS), etc. It is not uncommon to see joint meetings with two or more panels in attendance. This is required when a product impacts multiple areas of expertise, e.g., for opioid containing anesthetics, the Anesthetic and Analgesic committee frequently conducts a joint meeting with the Drug Safety and Risk Management committee to discuss its abuse deterrent mechanisms, REMS, etc. These joint meetings are becoming increasingly common in FDA's review and approval process (Cox & Scott, 2014).

Panel members on the advisory committees are external experts selected and invited by the FDA to serve as "Special Government Employees," Panels typically have more than a dozen such experts, along with a representative from a patient advocacy group and a representative from the industry (non-voting member). As the FDA becomes more dependent on advisory committees, there is an increased responsibility on the panel members to perform thorough due diligence on the product. It is typical for panel members to ask many difficult questions to the product sponsors. This also leads to a high time commitment for members when they are selected to join the advisory committee. This increased burden, compounded by various restrictive conflicts of interest rules, is making it increasingly difficult for the FDA to find the necessary qualified panel members to fill committees (Cox & Scott, 2014).

After the completion of the meeting, the FDA reviews all discussions and recommendations from the meeting to make their final decisions on product approval. It is important to note that the FDA is not bound by the recommendations of the committee and can

choose to ignore the advisory committee recommendations based on their wider view of agency direction. However, it has been observed through numerous studies (see item 1.3 Literature Review) that the FDA tends to typically follow the recommendation of the advisory committees. Due to this high correlation, it has been assumed in the industry that the success of any drug or product is strongly dependent on the outcomes of these meetings.

The FDA is under continuous scrutiny related to the standards of approval that it applies to various medicinal products. Often, FDA approval or rejection decisions leads to various public debates, where the FDA faces criticism from both sides of the issue (Cox & Scott, 2014). While some stakeholders may believe that the FDA does not adequately protect patient safety, others may point out the large amount of time and resources that the FDA utilizes to review products and provide their decision. Such criticism may be another driver for the FDA's increasing reliance on the advisory committee recommendations to help provide stronger justification for their decision, while also providing a more thorough assessment of issues related to the product's safety and efficacy.

1.2. Purpose and Objective of this Study

The FDA has nine Centers with Offices and multiple panels and Divisions within them that focus on a particular type of drug, medical device or pharmaceutical product. The Center for Drug Evaluation and Research (CDER) is one such center with 18 Review Divisions. Any review division in CDER can ask for advisory committee meetings to obtain expert advice and insights for the following – (1) An application for a new molecular entity (NME), especially if it is the first member of a new class of drug; (2) if the clinical study design used novel clinical or surrogate endpoints and the division would like more information on its potential impacts to the

drug; (3) if an application raises significant concerns on the safety and/or effectiveness of the new drug or biologic element, or; (4) if an application raises serious public health questions and concerns on the use of this drug or biologic element in the successful diagnosis, cure, mitigation, treatment, or prevention of a particular disease (U.S. Department of Health and Human Services, Food and Drug Administration, Center for Drug Evaluation and Research (CDER) and Center for Biologics Evaluation and Research (CBER), 2005).

Although the FDA has broad review standards for medicinal products, the review of each drug vying to enter the US market is very individualized. Due to this complexity, each drug or a particular class of drug faces unique challenges while being reviewed by the FDA and its advisory committees and no two reviews are exactly the same. The drug evaluation process typically differs somewhat between the various FDA centers and further, each review division also tends to have their own approach (ProEd Regulatory, 2016). Due to this variability and individualized process, FDA advisory committee meetings and reviews tend to drive large uncertainty for biopharmaceutical and medical device companies, especially as they are not always correlated with the final FDA approval / rejection decisions (Sullivan, 2018). The advisory committee meetings tend to be very high-stake ordeals for the drug marketer as they have typically invested many years of research effort and hundreds of millions of dollars to get to this point. Further, with the probability of a regulatory approval by the FDA, there is also the prospect of earning billions of dollars in future sales from this product. As these meetings are so crucial for the sponsors and marketers, they are well aware of the review process. However, even with so much at stake, there is very limited knowledge of the quantitative trends for meeting outcomes (Smith, Townsend, Singh, & Ma, 2012).

The key objective of this paper is to address this gap and provide more quantitative insight on the FDA's approval or rejection decision, as derived from the advisory committee recommendations for each product reviewed. Specifically, this research focused on all FDA panels under CDER and attempted to provide an in-depth analysis of the differential acceptance rate of the various advisory committee recommendations.

1.3. Literature Review

The FDA's acceptance rate for recommendations made by the advisory committees has been a subject of much discussion over the past years. As the FDA increases its reliance on the advisory committees to review drug applications, drug manufacturers and sponsors find it invaluable to gain insights on the approval process and the probability of approval for their drug based on advisory committee meeting outcomes. Several studies have been conducted to review past meeting outcomes and develop correlations. Perhaps the most popular and relevant study in this regard is by the "McKinsey Center for Government", titled "FDA Advisory Committee Outcomes" (Smith, Townsend, Singh, & Ma, 2012). This study looked at all FDA advisory committee meetings held for drugs between 2001 to 2010 and provided insight into the general breakdown of the meetings into drug related / non-drug related, type of application (NDA / BLA / Other), type of recommendation (Voting / Non-Voting, etc.), by advisory committee, etc. Further, it also reviewed FDA approval / rejection decisions based on the outcomes of the advisory committee meetings. Though this study is extremely useful for the healthcare community, it did not address the differential rates of acceptance between the various committees and considered all approvals in aggregate. The paper also did not provide insight into

the key reasons for the FDA not accepting the advisory committee's recommendations, as that may be a very useful insight for drug manufacturers.

Another popular study on this topic is by "Avalere Health" titled "FDA Advisory Committee Trends Since FDASIA" (Jackson, Braccio, Brevig, & Sengupta, 2015). This study focused on the impact of FDASIA on FDA drug approvals and thus only considered three years of available data from 2013 to 2015. The study reviewed all advisory committee meetings for all centers across the FDA (CDER, CBER, etc.). As part of the analysis, the study analyzed the total number of meetings conducted every year as well as the percentage of meetings that are related to new products or indications. Another important insight provided by the study is a selection of top committees in every center that met in the three years and further details on the number of meetings held by them, meetings related to new products or indications, number of FDA approvals and the FDA acceptance rate for advisory committee recommendations. This analysis is very similar to the objectives of this project, however, this project extends the Avalere study in the following aspects:

1. By extending the period of analysis from three years (2013 to 2015) to ten years (2008 to 2017), the amount of data collected is much larger, enabling a more significant result. Further, a larger period of study also enables identification of long-term trends for a particular committee.
2. The Avalere study only provided further insight on the acceptance rates for a small selection (5 selected) of advisory committees by looking at their recommendations and FDA acceptance rates. This project uses a larger period of analysis and attempts to provide an insight on differential acceptance rates for all committees in CDER.

Finally, a longer-term study example is from the team at "ProEd Regulatory" titled "Can You Predict Whether You Will Face an FDA Advisory Committee?" (ProEd Regulatory, 2016). This study reviewed 70 years of data from 1944 to 2014 for drug applications submitted to CDER to generate aggregate analysis and show the long term average approval rate for applications. The study also identified the number of New Molecular Entities (NMEs) approved in this time frame as a percentage of all products approved by the CDER committees. Finally, the study provided insight to show a trend for decreasing number of advisory committee meetings being convened every year, even though the number of products and NMEs being approved has been consistently rising. Once again, these insights are extremely valuable for the drug development community, but they do not provide any indication of acceptance rates for committees.

2. Methods – Data Collection and Analysis

The FDA's website contains a repository of all advisory committee meetings held for the past 20 years, as far back as 1997. Meeting documents such as sponsor presentations, transcripts, minutes of meetings, etc., by Center, can be accessed publicly through the FDA archives (U.S. Food and Drug Administration, 2017). For this paper, raw data were collected by reviewing detailed information like meeting minutes and transcripts on each FDA advisory committee meeting held within CDER during the years from 2008-2017. The following data fields were collected for each meeting:

1. Advisory committee name and date of meeting held
2. Name of drug or biologic and nature of application, i.e., NDA (New Drug Application), BLA (Biologics License Application), sNDA (Supplemental NDA) and sBLA
3. The question or topic under discussion by the panel leading to a recommendation
4. Voting outcomes (if any) for the questions, including "Yes" votes, "No" votes, "Abstain" and "Non-Voting" members
5. Specific recommendations made by the committee or panel for that particular question, typically an extension of the voting result, but may also list specific drug indications, labelling recommendations, pre or post-marketing study requirements, etc.

Once the advisory committee recommendations were known, the next step was to search through the FDA website and all publicly available materials related to the drug to assess whether the drug division within CDER had implemented the recommendations of the committee. Specifically, information available on the drug sponsor/ company's website along

with the labels updated after the meeting date were analyzed to check if the FDA did accept the advisory committee's recommendation which resulted in the change. In some cases, news articles, FDA announcements and publications, journal articles, etc., were also reviewed to confirm acceptance of the recommendations. This was especially true for supplemental applications, where the drug or biologic was already being marketed, but needed a revised indication, or changes to its label. In other cases, while searching for the recommendation to be implemented in the label, it sometimes appeared as if the change was indeed implemented. However, on validating this change through other public sources, it was observed that the FDA had, after the meeting, sent a complete response letter to the sponsor requesting more information. On successful receipt and review of new data, the change was then implemented by the FDA. In such cases, it was recorded that the change was not implemented by the FDA based on advisory committee recommendations.

Based on a review of public sources to confirm if the change had been implemented, the following data fields were added to the data set:

1. Whether the FDA implemented the recommendation as suggested by the advisory committee
2. If so, the date of implementation
3. A source that validates this position, including the drug label, as applicable
4. Other comments that may be useful for readers

The final raw data set can be reviewed in Appendix A – Raw Data for FDA CDER Advisory Committee Review (2008 to 2017).

After meeting information, recommendations and data to confirm acceptance had been captured for all meetings, the acceptance rate for the division was calculated as:

$$\text{Acceptance Rate} = \frac{Total\ Advisory\ Committee\ Decisions\ accepted\ by\ FDA}{Total\ Advisory\ Committee\ Decisions\ made}$$

Similar information for each review division was analyzed and evaluated individually to obtain their acceptance rates. Finally, trends in the data were analyzed to determine if there is a differential acceptance rate in implementing the advisory committee outcomes for various divisions within CDER. This analysis was extended to also identify annual trends in the data to verify if divisions had marked variations in their acceptance rate during various periods in the past. Additionally, data on total meetings held and nature of meetings (drug related vs general discussions) were also analyzed to develop additional insights that may be useful to sponsors.

While collecting and analyzing data, some key assumptions were made to allow for consistent results across various divisions. These assumptions were:

- For each advisory committee, only data related to their individual meetings was captured in their headings. In the case of joint meetings (meetings where more than one advisory committee met collectively), these were categorized separately into a header titled “Joint Meetings” for every year. It is important to note that this header aggregates data for all joint meetings held that year and may be composed of various committee meeting combinations. The key reason why these data were categorized separately was to analyze whether the presence of more than one committee had any bearing on the acceptance rate.
- For meetings that were not related to any specific drug or application, these meetings are excluded from the acceptance rate calculations. These meetings typically deal with a broad class of drug, a class of compounds, a general safety related issue, general trial

process related issues, REMS related issues, etc. For such meetings, it is difficult to check the acceptability of the recommendation as they include multiple drugs, or in some cases need access to proprietary sources of information. These meetings are marked in the raw data with the "Drug Name" field as "Not related to any particular drug".

- When reviewing meeting minutes or transcripts, it is not uncommon for the committee to make multiple recommendation on a drug. Further, the language of the recommendation may also range from "Strongly Recommends", to softer terms like "Suggests", "Notes", etc. Thus, choosing which recommendation must be captured and checked for implementation may be a somewhat subjective decision. To ensure consistency of results, only those recommendations are captured where the committee has either voted for them, or if the committee has "Strongly Recommended" the change. In the case of recommendations that were not voted upon, but were captured based on a strong recommendation, these are recorded as recommendations with the "Votes" field as "N/A" or "No Voting".
- While noting the recommendations given by advisory committees during meetings, only recommendations related to drug indications, labelling changes, or specific pre or post-marketing trial requirements were captured. The key reason for this decision was that these recommendations can be specifically validated by looking at publicly available information. Recommendations related to REMS were ignored as these are much more difficult to validate.
- When counting meetings convened for a specific advisory committee in a particular year, the meeting dates are taken to be unique indicators for the number of meetings. In these cases, for meetings spanning two or more days, the FDA has sometimes grouped these

days together in the minutes and transcript documents. To be consistent, these grouped meetings are counted as a single meeting to ensure categorization based on FDA's methodology.

3. Observations and Results

3.1. Total and Drug Related Meetings

Data for all CDER Advisory committee meetings were collected from 2008 through to 2017 (10 years). Of a total of 384 meetings conducted by the committees, 273 (71%) were drug related meetings and the balance were meetings related to general topics of discussion (clinical trial design, REMS requirements, discussion about a class of drugs, etc.). Figure 1 provides a breakdown of total meetings held and the percentage of meetings that were drug related by year.

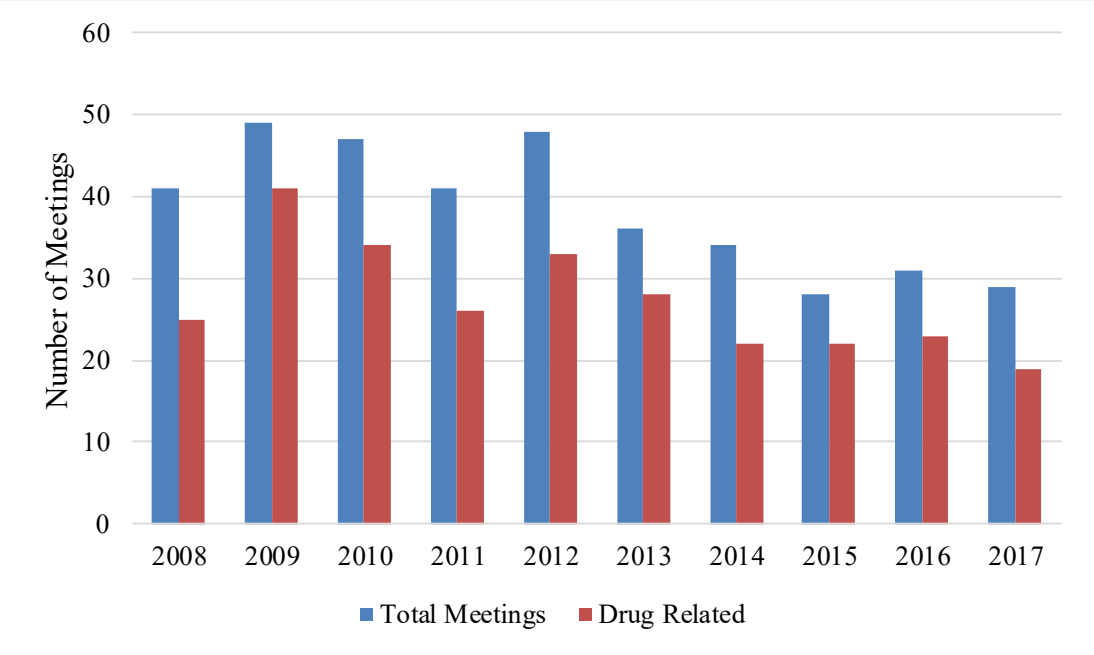

Figure 1: Total Meetings and Drug Related Meetings by Year

From this chart, it can be seen that the total meetings by the CDER advisory committees remained nearly stable until 2012, between 41 and 49 meetings per year. However, from 2013 onwards, the total meetings started decreasing every year, down to 29 meetings in 2017. Though

less pronounced, this effect is also somewhat visible in the number of drug related meetings conducted every year. Between 2008 to 2012, the drug related meetings have been relatively high between 25 to 41 meetings per year. However, this number decreases from 2013 onwards with 19 to 28 drug related meetings conducted every year. No specific trend is observed in the percentage of drug related meetings every year. It varies from 61% to 84% with an average of 71%.

Figure 2 presents a breakdown of all meetings held between 2008 to 2017 by advisory committee name, along with the number of drug related meetings. The percentage of drug related meetings was calculated from these data. It is observed that the total number of meetings conducted by advisory committees varies from as low as 3 meetings for the "Medical Imaging Drugs" committee and 7 meetings for the "Drug Safety and Risk Management" committee, to as high as 60 meetings with joint committees and 55 meetings for the "Oncologic Drugs" committee. Of these meetings conducted, the percentage of meetings that were drug related also vary by advisory committee. Committees like "Psychopharmacologic Drugs" and "Pulmonary-Allergy Drugs" had all meetings that were drug related, while other committees such as "Pharmaceutical Science and Clinical Pharmacology" and "Pharmacy Compounding" had no such drug related meetings in the past ten years. On an average, 71% of all meetings held were drug related.

The number of meetings conducted by advisory committees is also somewhat dependent on their periods of activity. For example, the "Antiviral Drugs" advisory committee was terminated in 2015 and merged with the "Antimicrobial Drugs" advisory committee (U.S. Food and Drug Administration, 2017). Similarly, the "Medical Imaging Drugs" committee had no

meetings before 2013 and the "Pharmacy Compounding" committee had no meetings before 2015. This may explain the relatively lower number of meetings for these committees.

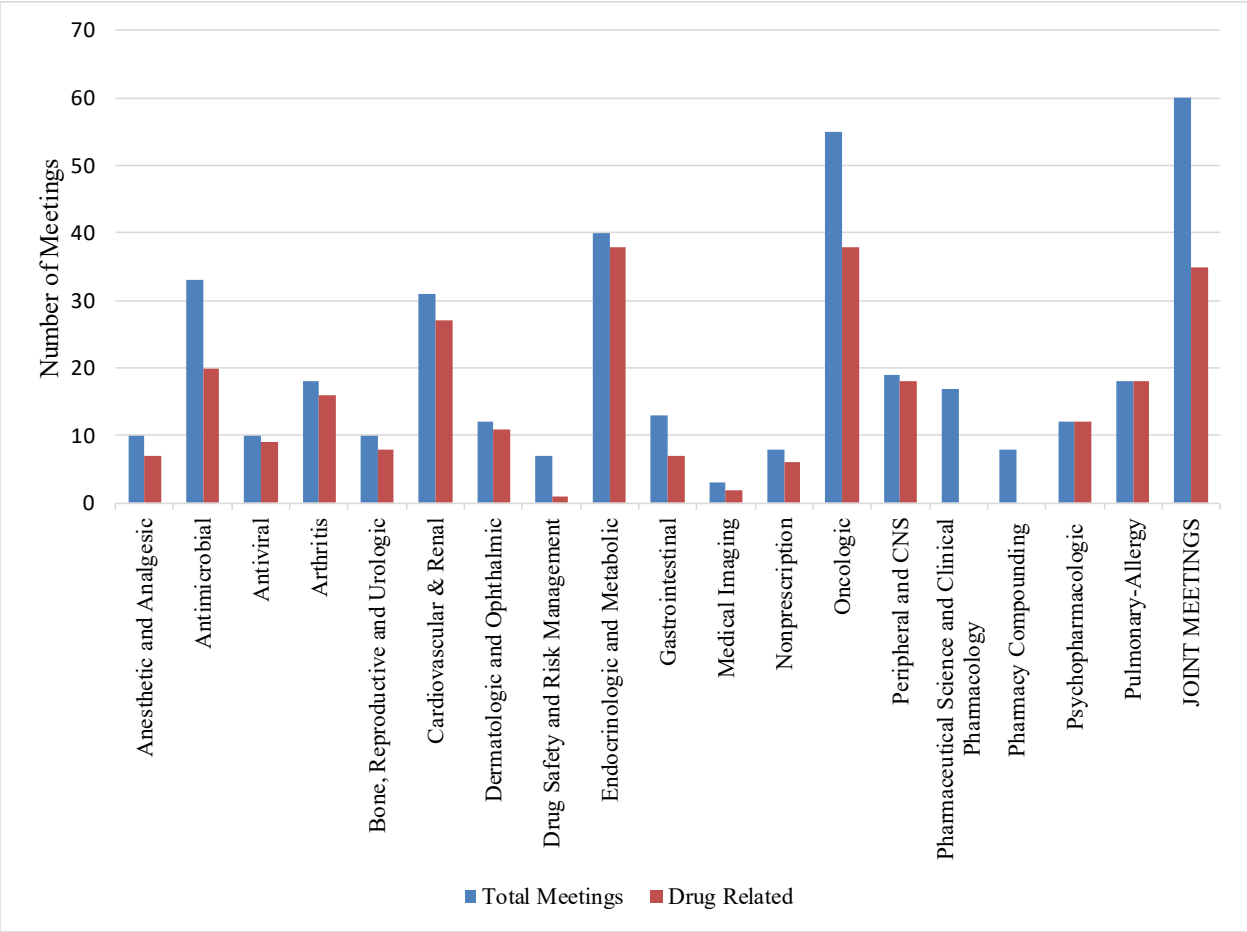

Figure 2: CDER Advisory Committee Meetings (2008 to 2017)

The number of meetings for committees may also be affected if joint meetings were conducted by that committee. One of the key assumptions during data collection and analysis was that in the case of joint meetings, these are noted and categorized separately, as it is difficult to assign them onto a specific committee. Thus, it is important to study the breakdown of all joint meetings to understand their underlying composition and which committees may comprise them.

Table 1 provides insight into all joint committee meetings held in the past ten years. Of the 60 joint committee meetings held in the past ten years, 54 meetings (90%) were related to "Drug Safety and Risk Management". This is mainly because when a new drug, or supplemental drug application might impact the general safety of the public, a joint meeting of the Drug and Safety Risk Management committee was held, along with the primary advisory committee that is related to the drug's pharmacology. Upon looking deeper and analyzing the primary advisory committees, it is observed that the "Anesthetic and Analgesic Drugs" advisory committee was the most frequent (24 total meetings), and that it also had the most percentage of drug related meetings (71%), followed by the "Bone, Reproductive and Urologic Drugs" committee (9 total meetings with 67% drug related) and "Psychopharmacologic Drugs" committee (4 total meetings with 75% drug related).

Table 1: Breakdown of Joint Meetings (2008 to 2017)

Committee Name	Total Meetings	Drug Related	% Drug Related
Drug Safety and Risk Management	54	32	59%
Anesthetic and Analgesic	*24*	*17*	*71%*
Bone, Reproductive and Urologic	*9*	*6*	*67%*
Psychopharmacologic	*4*	*3*	*75%*
Pulmonary-Allergy	*4*	*1*	*25%*
Others	*13*	*5*	*38%*
Other Joint Meetings	6	3	50%
TOTAL	**60**	**35**	**58%**

3.2. Drug Related Recommendation Acceptance Rate

The total drug related committee recommendations and FDA acceptance are presented in Table 2, along with calculations for acceptance rate for every year.

Table 2: Total Drug Recommendations and Acceptance Rate by Year

Year	Total Drug Recommendations	Recommendations Accepted	% Accepted
2008	48	40	83%
2009	82	63	77%
2010	52	45	87%
2011	44	40	91%
2012	46	42	91%
2013	38	34	89%
2014	29	26	90%
2015	29	27	93%
2016	28	23	82%
2017	22	20	91%
TOTAL	**418**	**360**	**86%**

From these data, it can be seen that from 2008 to 2012, the total number of drug related recommendations remained consistent between 44 to 52 recommendations, other than a spike in 2009 with 82 recommendations. However, after 2012, the total number of recommendations have been trending lower every year, from 38 in 2013 to 22 in 2017. This trend was quite consistent with the trend for total meetings held presented in Section 3.1, as the number of meetings held directly impact the number of recommendations made by the committees. Consequently, for the number of recommendations accepted, a similar trend is observed where the number remains somewhat stable from 2008 to 2012 (40 to 45), except for a spike in 2009 with 63 acceptances. However, from 2013 onwards, this number also decreased consistently from 34 recommendations accepted in 2013 to 20 recommendations accepted in 2017. For the overall acceptance rate, there was no trend observed and the rate has been reasonably consistent between 77% and 93%, with an average of 86% over the past ten years.

The meeting data are pivoted to present the total recommendations and FDA acceptance rates by committee in Table 3. This data considers all meetings conducted by the committee for the past ten years and thus the acceptance rates are averaged for this period.

Table 3: Recommendation Acceptance Rates by Committee

Committee Name	Total Recommendations	Recommendations Accepted by FDA	Acceptance Rate (%)
Anesthetic and Analgesic	16	13	81%
Antimicrobial	37	34	92%
Antiviral	14	13	93%
Arthritis	18	18	100%
Bone, Reproductive and Urologic	12	8	67%
Cardiovascular and Renal	44	39	89%
Dermatologic and Ophthalmic	21	17	81%
Drug Safety and Risk Management	2	2	100%
Endocrinologic and Metabolic	54	47	87%
Gastrointestinal	12	11	92%
Medical Imaging	2	2	100%
Nonprescription	9	8	89%
Oncologic	58	53	91%
Peripheral and Central Nervous System	27	24	89%
Pharmaceutical Science and Clinical Pharmacology	0	0	-
Pharmacy Compounding	0	0	-
Psychopharmacologic	19	14	74%
Pulmonary-Allergy	21	18	86%
JOINT MEETINGS	52	39	75%
TOTAL	**418**	**360**	**86%**

It was observed that the committees identified in Section 3.1, Figure 2 as having the highest number of drug related meetings, also have the highest number of total recommendations

– "Oncologic Drugs", "Endocrine and Metabolic Drugs", Joint Meetings, "Cardiovascular and Renal Drugs" and "Antimicrobial Drugs". Further, committees were observed to have varying level of acceptance rates. The committees with the highest numbers of recommendations identified above have acceptance rates of 91%, 87%, 75%, 89% and 92% respectively. Overall, the acceptance rates between committees range from as low as 67% for "Bone, Reproductive and Urologic Drugs" and 74% for "Psychopharmacologic Drugs", to as high as 100% for "Arthritis Drugs", "Drug Safety and Risk Management" and "Medical Imaging Drugs".

As noted, a key assumption for this project was that any joint meeting between two or more committees were categorized into a separate header "Joint Meetings". Thus, this header must be further studied in detail to review the committees impacting its total recommendations and acceptance rates. These data are presented in Table 4.

Table 4: Recommendations from Joint Meetings

Committee Name	Total Recommendations	Recommendations Accepted	Acceptance Rate (%)
Drug Safety and Risk Management	48	38	79%
Anesthetic and Analgesic	*28*	*21*	*75%*
Bone, Reproductive and Urologic	*9*	*7*	*78%*
Psychopharmacologic	*3*	*2*	*67%*
Arthritis	*2*	*2*	*100%*
Others	*6*	*6*	*100%*
Other Joint Meetings	4	1	25%
TOTAL	**52**	**39**	**75%**

It was observed that of the 52 recommendations made between 2008 to 2017, 48 (92%) were made by the "Drug Safety and Risk Management" committee, when conducting joint meetings with various primary drug related committees. Further, 28 of 48 (58%)

recommendations were made with the "Anesthetic and Analgesic Drugs" committee, with an acceptance rate of 75%. Once again, it is observed that, even in the case of joint meetings, there seems to be a differential acceptance rate amongst various primary committees. For joint meetings of the "Drug Safety and Risk Management" committee with committees for "Anesthetic and Analgesic Drugs", "Bone, Reproductive and Urologic Drugs" and "Psychopharmacologic Drugs", the acceptance rates vary from 67% to 78%, but for all other committees, the acceptance rate was 100%.

To analyze whether the differential rates of acceptance for committees were statistically significant, a Chi-Square Test was conducted on the data using IBM SPSS Statistics Software (IBM, 2018). The null hypothesis was "the rates of acceptance by advisory committees are independent". The Pearson Chi-Square for 198 degrees of freedom was calculated. A result is considered statistically significant if the asymptotic significance (2-sided), also called p-value, is less than 0.05. For this data set, though the calculated p-value was very low (nearly zero), the test itself was not considered significant as the number of recommendations per committee were quite low. The low p-value may indicate a significance, but there is high probability for Type 1 error (false-positive significance). Thus, the results for a differential acceptance rate between committees are not statistically meaningful due to sample size limitations, but trends can be observed by descriptive statistics alone.

4. Discussion

Table 3 provides insight into the differential acceptance rates for various advisory committees within CDER. It is observed from these charts that the acceptance rate does indeed differ for each committee. In an attempt to understand the key drivers for these differences, the raw data were reviewed, specifically for cases where the FDA has not accepted the advisory committee's recommendations. The "Bone, Reproductive and Urologic Drugs" committee had the lowest acceptance rate of 67%. Though the total number of meetings were low for this committee some key insights may be drawn from the recommendations that were not accepted. For the meeting dated August 13, 2009, (BLAs) 125-320, 125-331, 125-332, and 125-333 for the proposed trade name Prolia (denosumab) subcutaneous injection, 60 milligrams (mg) manufactured by Amgen Inc. were reviewed. This drug is for postmenopausal women with osteoporosis at high risk for fracture, or for patients who have failed or are intolerant to other available osteoporosis therapy. The FDA had called for the advisory committee to vote on 4 indications of this drug – (1) *treatment* of bone loss associated with hormone ablation therapy in *women with breast cancer* receiving aromatase inhibitors; (2) *prevention* of bone loss associated with hormone ablation therapy in *women with breast cancer* receiving aromatase inhibitors; (3) *treatment* of bone loss associated with hormone ablation therapy in *men with prostate cancer* receiving androgen deprivation therapy; and (4) *prevention* of bone loss associated with hormone ablation therapy in *men with prostate cancer* receiving androgen deprivation therapy. The committee had provided a majority vote to indication (3), but had not approved indications (1), (2) and (4). However, when the FDA approved the drug in 2010, all indications of the drug were approved, including indications for use by women for indications (1) and (2). The FDA did

submit a response letter to Amgen for changes to its post marketing plan and REMS requirements, but no pre-approval trials were required to confirm safety and efficacy of all indications (Drugs.com, 2009). Prolia was the first and only FDA-approved RANK Ligand inhibitor at that time, thereby providing an option to patients that are not responding well to other therapies.

In another meeting on March 4, 2013, (NDA) 20-4516 for Brisdelle, paroxetine mesylate 7.5 (mg) tablets, submitted by Noven Therapeutics, Inc. was reviewed. The committee voted 10-4 against approval of this product for their proposed indication to treat moderate to severe vasomotor symptoms (VMS) associated with menopause. However, in June 28, 2013, the FDA approved this drug, going against the committee recommendation (Drugs.com, 2013). It is to be noted that here again, similar to Prolia earlier, Brisdelle was the only non-hormonal treatment for hot flashes approved by the FDA at that time. All other FDA-approved treatments for hot flashes, contained either estrogen alone or estrogen plus a progestin. Thus, by approving this drug, a new non-hormonal treatment was possible for women who did not want to, or could not use, hormonal therapy. By reviewing both the cases for the "Bone, Reproductive and Urologic Drugs" committee, it seems that the FDA is somewhat "softer" in their stance to approve a novel drug and may disregard the advisory committee recommendation if the drug addresses problems that were not addressed previously by any drug in the market.

The "Oncologic Drugs" committee had the highest number of recommendations (58) in the past ten years, with an average acceptance rate of 91%. Diving deeper into the recommendations that were not accepted by the FDA provides some interesting insight into why such deviations were made. In the meeting on October 5, 2009, (sBLA) 103949/5153.0, Pegintron (peginterferon alfa-2b) injection, manufactured by Schering Corporation was reviewed

for the adjuvant treatment of stage III melanoma. Though the advisory committee voted 6-4 in favor of approving this drug, there were several concerns regarding the toxic side effects of the drug (cardiovascular problems, depression, etc.) and the effectiveness of the drug where it merely just increased the time for recurrence of the cancer, rather than increasing the survival rate (Reuters, 2009). In October, 2009, the FDA issued a response letter to Schering Corporation rejecting their application and requesting for more information to clarify the outstanding concerns. In this case, it seems like the tight voting margin for approval by the advisory committee was not adequate for the FDA to disregard the safety and efficacy concerns for the drug and grant approval.

In another meeting of the "Oncologic Drugs" committee on May 25, 2017, (BLA) 125545 for a proposed biosimilar to Amgen Inc.'s Epogen / Procrit (epoetin alfa) marketed by Hospira Inc., a Pfizer company, was reviewed for a colony-stimulating factor indicated for anemia. In the voting to support licensure for all indications, the advisory committee voted almost unanimously (14-1) to approve the drug based on their conclusion that it was very similar to its biosimilar products and did not demonstrate any clinically meaningful differences in terms of safety, purity, and potency with it biosimilar product. However, the FDA did not approve the drug and in June, 2017 provided Pfizer with a response letter citing continued concerns about the company's manufacturing plant in McPherson, Kansas, where the drug will be manufactured (Syrop, 2017). The FDA had originally issued a warning letter to Pfizer in February 2017 during a routine visit where certain manufacturing related problems were documented. The FDA had also, in 2015, rejected another Pfizer / Hospira drug application (NDA) for Glatopa that was expected to be manufactured in the same plant, based on similar manufacturing related concerns.

This brings light to an interesting set of cases where the FDA did not accept the advisory committee's recommendation, based on external conditions unrelated to the drug itself.

Another subset of meetings that are worthy of deeper review are joint committee meetings with the "Drug Safety and Risk Management" committee and the "Anesthetic and Analgesic Drugs" committee. These joint meetings are typically held to review indications for pain relieving medication (in many cases opioid drugs), that are commonly mis-used by the general public, leading to health concerns and in some cases, even fatalities. As it was observed in Table 3 and Table 4, the average acceptance rates for joint committee meetings between these advisory committees was 75%, which is much lower than the overall average FDA acceptance rate of 86%. Nearly all meetings comprising of this subset held between 2008 to 2017 were related to opioid drugs, leading to an interesting observation that the FDA's acceptance rate for opioid drug related meetings is lower than the average acceptance rate. Some examples are reviewed below in an attempt to understand the rationale for this deviation.

In a meeting on May 5, 2008, (NDA) 22-272, Oxycontin (oxycodone hydrochloride controlled-release) Tablets by Purdue Pharma, L.P. was reviewed for the proposed indication of management of moderate to severe pain when a continuous, around-the-clock analgesic is needed for an extended period of time. Though no vote was taken for the question about safe dosages, the advisory committee specifically recommended that higher doses of 60 mg and 80 mg should not be formulated due to higher potential for their abuse. However, in looking at the FDA approved drug label, it is observed that higher doses were indeed approved by the FDA. A similar example can be from the meeting on June 29 and 30, 2009, where public health problems of liver injury related to the use of Acetaminophen were addressed. Here, though the FDA followed the advisory committee recommendation (21-16 vote) to lower the maximum daily

dose from 4gm to 3gm for non-prescription formats (Gamble, 2011), several other dose related recommendations were ignored. For example, the committee voted 24-13 in favor of reducing the maximum single adult dose of nonprescription products to 650 mg, but this was ignored by the FDA. Further, the committee also voted 26-11 in favor of changing the current maximum adult single dose of 2 x 500 mg to prescription status. However, this was also not implemented by the FDA.

A contrasting example to the Oxycontin and Acetaminophen examples provided above can be seen in the meeting on May 5, 2016, where (NDA) 208653, Apadaz, benzhydrocodone / acetaminophen oral tablets, submitted by KemPharm, Inc. was reviewed which was indicated as an investigational abuse-deterrent product for the short-term management of acute pain. For this drug, the advisory committee voted 16-4 in favor of approving the drug, as it was a biosimilar with Norco and provided similar benefits. There were also no immediate release formulations of hydrocodone with abuse-deterrent properties approved at that time. However, the FDA did not approve the drug and provided KemPharm with a response letter in June 2016 (Managed Care Magazine, 2016). The key reason for rejecting this drug was that though it provided abuse deterrent properties, they were for non-oral use. Epidemiological studies have shown that the most common method for abuse of hydrocodone immediate release combination products is oral use and thus the FDA rejected this drug. These examples show an interesting trend for the FDA related to “Drug Safety and Risk Management” and “Anesthetic and Analgesic Drugs” committees. Around ten years ago, the FDA was somewhat broader in their approval and ignored the advisory committee recommendations which were considered too tight. However, in recent times, the FDA has become tighter in their approval for such drugs and is ignoring advisory committee recommendations if they appear to be soft for commonly abused drugs. This trend

may be due to the recent increased public outcry related to the opioid crisis where there has been increased scrutiny on FDA's approval for such drugs leading to increased abuse in society and high rates of fatalities (Phillips, Ford, & Bonnie, 2017).

5. Conclusion

Drug makers, sponsors and the medical community in general place a high importance on the outcomes of advisory committee meetings as they directly impact the FDA's approval / rejection decision. In the past ten years (2008 to 2017), the total number of CDER advisory committee meetings have consistently been decreasing since 2013, leading to a reduction in the total number of drug applications reviewed and approved. However, this has not impacted the overall FDA acceptance rate for advisory committee recommendations, which has ranged from 77% to 93%, with an average of 86%. This is consistent with average acceptance rates estimated in various studies conducted in the past. Additionally, the presence of a differential rate of acceptance is also observed between the CDER advisory committees, which varies from as low as 67% to as high as 100%. Even in the case of joint meetings, a differential acceptance rate is observed based on the committees that met to provide the recommendation. Such a result has typically not been a key topic for discussion in the research community and is therefore helpful to provide more visibility into the FDA's drug approval process. A variety of reasons were identified for these discrepancies. In some cases, the FDA approved novel drugs for one-of-a-kind indications to provide more options for patients, even if the committee did not recommend approval due to adverse side effects. In other cases, the FDA did not take the committee's approval recommendation if the voting margin was too tight, or due to concerns related to the manufacturing plant.

6. References

Cox, V., & Scott, M. C. (2014). FDA Advisory Committee Meetings: What they are, why they happen, and what they mean for regulatory professionals. *Regulatory Rapporteur*, Vol 11, No 11, 5-8.

Drugs.com. (2009, October 19). *Update on Prolia BLA*. Retrieved from Drugs.com: https://www.drugs.com/nda/prolia_091021.html

Drugs.com. (2013, June 28). *FDA Approves Brisdelle - First Non-Hormonal Treatment for Hot Flashes Associated with Menopause*. Retrieved from Drugs.com: https://www.drugs.com/newdrugs/fda-approves-brisdelle-first-non-hormonal-hot-flashes-associated-menopause-3834.html

Gamble, K. (2011, July 28). *Maximum Dose for Tylenol Lowered*. Retrieved from Pharmacy Times: https://www.pharmacytimes.com/news/maximum-dose-for-tylenol-lowered

IBM. (2018, December). *IBM SPSS software*. Retrieved from IBM: https://www.ibm.com/analytics/spss-statistics-software

Jackson, J., Braccio, N., Brevig, H., & Sengupta, D. (2015). *FDA Advisory Committee Trends Since FDASIA.* Washington, D.C.: Avalere Health.

Lo, C. (2017, June 19). *Counting the cost of failure in drug development*. Retrieved from Pharmaceutical Technology: https://www.pharmaceutical-technology.com/features/featurecounting-the-cost-of-failure-in-drug-development-5813046/

Managed Care Magazine. (2016, June 14). *FDA Rejects Abuse-Deterrent Benzhydrocodone/ Acetaminophen Combo*. Retrieved from www.managedcaremag.com:

https://www.managedcaremag.com/news/fda-rejects-abuse-deterrent-benzhydrocodone-acetaminophen-combo

Phillips, J., Ford, M., & Bonnie, R. (2017). Pain Management and the Opioid Epidemic: Balancing Societal and Individual Benefits and Risks of Prescription Opioid Use. *National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division*.

ProEd Regulatory. (2016, January 14). *Can You Predict Whether You Will Face an FDA Advisory Committee?* Retrieved from ProEd: http://proedcomblog.com/tag/fda-approval-rate/

Reuters. (2009, October 30). *UPDATE 1-FDA concerns remain over new use for Schering drug*. Retrieved from Reuters: https://www.reuters.com/article/scheringplough-pegitron/update-1-fda-concerns-remain-over-new-use-for-schering-drug-idUSN3043005220091030

Smith, J. F., Townsend, S. A., Singh, N., & Ma, P. (2012, July). FDA advisory committee meeting outcomes. *Nature Reviews Drug Discovery, 11*, 513-514.

Sullivan, T. (2018, May 5). *FDA: Review of Advisory Committees 2008-2012, Fewer Meetings and More Approvals*. Retrieved from Policy & Medicine: https://www.policymed.com/2015/12/fda-review-of-advisory-committees-2008-2012-fewer-meetings-and-more-approvals.html

Syrop, J. (2017, June 23). *FDA Rejects Approval of Pfizer's Epoetin Alfa Biosimilar, Again*. Retrieved from The Center for Biosimilars: https://www.centerforbiosimilars.com/news/fda-rejects-approval-of-pfizers-epoetin-alfa-biosimilar-again

U.S. Department of Health and Human Services, Food and Drug Administration. (2008). *Guidance for the Public and FDA Staff on Convening Advisory Committee Meetings.* Rockville, MD: Office of the Commissioner, FDA.

U.S. Department of Health and Human Services, Food and Drug Administration, Center for Drug Evaluation and Research (CDER) and Center for Biologics Evaluation and Research (CBER). (2005). *Guidance for Review Staff and Industry Good Review Management Principles and Practices for PDUFA Products.* Rockville, MD: CDER, FDA.

U.S. Food and Drug Administration. (2017, April 03). *Meeting Archives*. Retrieved from FDA Advisory Committees: https://wayback.archive-it.org/7993/20170403184534/https://www.fda.gov/ohrms/dockets/ac/acmenu.htm

U.S. Government Publishing Office. (1972). Public Law 92-463. *86 Stat.*, 770-776.

Appendix A – Raw Data for FDA CDER Advisory Committee Review (2008 to 2017)

2008 Meetings

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Anesthetic and Analgesic	11-Mar-08	(NDA) 22-225, sugammadex sodium injection, Organon USA Inc.	Does drug provide clear advantage	N/A	The Committee recommended strongly that the sponsor fulfill a careful post-marketing surveillance and education plan regarding the obstetric and renal impairment subpopulations	Yes	2015	Drug Label	NDA	
Anesthetic and Analgesic	11-Mar-08	(NDA) 22-225, sugammadex sodium injection, Organon USA Inc.	Risk for patients characterized	N/A	A post-marketing surveillance plan should be implemented	Yes	2017	https://clinicaltrials.gov/ct2/show/NCT03346057	NDA	
Anesthetic and Analgesic	11-Mar-08	(NDA) 22-225, sugammadex sodium injection, Organon USA Inc.	Risk for pediatric patients characterized	N/A	Additional juvenile animal studies on dose, bone fractures and impact on mature population	Yes	2015	Drug Label	NDA	
Anesthetic and Analgesic	11-Mar-08	(NDA) 22-225, sugammadex sodium injection, Organon USA Inc.	Reverses NM blockade and immediately	Yes:10 No, Other: 0	Remove reference to "immediate" and replace with clinical data	Yes	2015	Drug Label	NDA	
Anesthetic and Analgesic	11-Mar-08	(NDA) 22-225, sugammadex sodium injection, Organon USA Inc.	Can be used in targetted population	Yes:10 No, Other: 0	Exclude obstretic and pediatric populations till further studies	Yes	2015	Drug Label	NDA	
Anesthetic and Analgesic, Drug Safety and Risk Management	5-May-08	(NDA) 22-272, OXYCONTIN, Tablets, Purdue Pharma, L.P.	Abuse of higher strengths. Currently, only the 10-mg, 20-mg, 30-mg and 40-mg strengths have been reformulated. There are plans to reformulate the 60-mg and 80-mg strengths in the future	N/A	Higher strength should not be formulated Shape and color of non-tamper should be different Label should not be changed for tamper proof and physiochemical	No	2010	2010 Drug Label	NDA	
Anesthetic and Analgesic, Drug Safety and Risk Management	6-May-08	(sNDA) 21-947/s-005, FENTORA (fentanyl buccal tablet), Cephalon, Inc.	Do you recommend approval to non-cancer patients with breakthrough pain	Yes: 3 No: 17	No. Should not be permitted before checking for off-label prescribing	Yes	N/A	Original drug label 1968	sNDA	Supplement was rejected, so label was not changed
Anesthetic and Analgesic	7-May-08	(NDA) 22-244, fospropofol disodium injection	Additional data for certain sub-population with high AE	Yes: 9 No: 1	Additional efficacy and safety trials end stage renal and/or hepatic disease, in	No	N/A	2008 Drug label	NDA	Advise not implemented - not found in

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		(35 mg/mL), MGI Pharma, Inc.			obese patients, and in those with co-morbidities (e.g., cardiovascular disease), and in geriatric patients, patients who weigh less than 60 kg, in those with high ASA categories					label
Anesthetic and Analgesic	7-May-08	(NDA) 22-244, fospropofol disodium injection (35 mg/mL), MGI Pharma, Inc.	Approval of fospropofol for the indication of sedation in adult patients undergoing diagnostic or therapeutic procedures?	Yes: 6 No: 3	Restricted to anesthesiologist use only for now, recommended that CO2 monitoring be a requirement, want pediatric studies.	Yes	2008	2008 Drug label	NDA	
Anesthetic and Analgesic, Drug Safety and Risk Management	13-Nov-08	(NDA 22-324, REMOXY XRT Capsules, Pain Therapeutics Inc.	Inclusion of physiochemical attributes for labelling	N/A	Label should not be changed for tamper proof and physiochemical	N/A	N/A	Drug not approved	NDA	
Anesthetic and Analgesic, Drug Safety and Risk Management	14-Nov-08	(NDA) 22-321, EMBEDA Capsules, Alpharma Pharmaceuticals L.L.C	Inclusion of data in labelling about naltrexone release and reduction in abuse	N/A	Ok to include in caution section and cautions about dosing	Yes	2009	2009 Drug Label	NDA	
Antimicrobial	01-Apr-08 and 02-Apr-08	Not related to any paticular drug	The committee discussed product development and clinical trial design for both mild/moderate and moderate/severe community acquired pneumonia (CAP). A primary objective for committee deliberations was to discuss issues relating to the identification of an appropriate noninferiority margin for active controlled trials.	N/A	N/A	N/A	N/A	N/A	N/A	Meeting for discussion on product development and clinical trial design for community acquired pneumonia
Antimicrobial	16-Jul-08	(NDA) 022-171, doripenem powder, Johnson and Johnson Pharmaceutical Research and Development, LLC	Scientific justification to support non-inferiory margin of 20%	Yes: 3 No: 10	Not able to confirm what the correct value should be. Important to define this for future studies	N/A	N/A	N/A	N/A	Only for discussion. No specific recommendations made by committee
Antimicrobial	16-Jul-08	(NDA) 022-171, doripenem powder,	Clinical efficacy adequately demonstrated	Yes: 7 No: 6	No clear consensus, but drug is similar to other	N/A	N/A	N/A	N/A	Only for discussion. No

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Johnson and Johnson Pharmaceutical Research and Development, LLC			approved drugs. Irregularity in methodology and conduct made data suspect					specific recommendations made by committee
Antimicrobial	16-Jul-08	(NDA) 022-171, doripenem powder, Johnson and Johnson Pharmaceutical Research and Development, LLC	Safe to use in the proposed indication	Yes: 8 No: 5	Overall safe, but further analysis needed to confirm. Data's lack of efficacy is also a concern	N/A	N/A	N/A	N/A	Only for discussion. No specific recommendations made by committee
Antimicrobial	18-Nov-08	Not related to any paticular drug	Justifications of the non-inferiority margin for complicated skin and skin structure infections	N/A	N/A	N/A	N/A	N/A	N/A	Meeting for discussion on NI margin for complicated skin and skin structure infections
Antimicrobial	19-Nov-08	NDA 022-110 Telavancin, Theravance, Inc. and Astellas Pharma, Inc.	Safety and effectiveness for the treatment of cSSSI	Yes: 21 No: 5	Renal toxicity, QTc prolongation, and teratogenic effects of the drug should be addressed in labeling. Post marketing studies for nephrotoxicity	Yes	2009	2009 Drug Label	NDA	
Antimicrobial	19-Nov-08	NDA 022-110 Telavancin, Theravance, Inc. and Astellas Pharma, Inc.	Risk management to prevent unintended use in pregnant women	Yes: 25 No: 1	Pregnancy tests prior to initiation of therapy, partnerships with hospitals to prospectively collect data on use of the drug in pregnant women, pregnancy registries to track the outcomes of use in pregnant women, educate women on the risks associated with use of the drug during pregnancy	Yes	2009	2009 Drug Label	NDA	
Antimicrobial	19-Nov-08	NDA 022-153, oritavancin, Targanta Therapeutics Corp.	Safety and effectiveness of oritavancin for the treatment of cSSSI	Yes: 8 No: 10	At least one additional study using a single appropriate dose should be performed in the MRSA population	Yes	2014	2014 Drug Label	NDA	
Antimicrobial	20-Nov-08	NDA 022-269, iclaprim, Arpida AG.	Safety and effectiveness of iclaprim for the treatment of cSSSI	Yes: 2 No: 17	Additional studies required for 10% margin with vancomycin as the control, effectiveness of iclaprim for resistant cSSSI infections, studies of oral	Yes	N/A	Drug not approved	NDA	Drug not approved as recommended by committee

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
					iclaprim					
Antimicrobial	20-Nov-08	NDA 022-269, iclaprim, Arpida AG.	Limitations on the use of iclaprim	Yes: 15 No: 3	Limit use in following populations - long QT syndromes, pregnant women	Yes	N/A	Drug not approved	NDA	Drug not approved as recommended by committee
Antimicrobial	3-Dec-08	NDA 22-268, artemether 20 mg/lumefantrine 120 mg, Novartis Pharmaceuticals Corporation	Safety and efficacy of treatment of uncomplicated Plasmodium falciparum malaria	Efficacy - Yes: 18, No: 0 Safety Yes: 17 No: 0	Additional study for PK PD and drug interactions are required post marketing Additional information on label - risks during pregnancy, special populations, QT interval, etc.	Yes	2009	2009 Drug Label	NDA	
Antimicrobial	3-Dec-08	NDA 22-268, artemether 20 mg/lumefantrine 120 mg, Novartis Pharmaceuticals Corporation	Safety and efficacy in patients with mixed P. falciparum and P. vivax infections	Yes: 9 No: 8	Add to label - Limited information on efficacy in patients with mixed P. falciparum and P. vivax infections	Yes	2009	2009 Drug Label	NDA	
Antiviral, Nonprescription	29-Oct-08	Not related to any paticular drug	The committee provided advice on types of studies and trial designs for an influenza antiviral MedKit for the treatment or prophylaxis of influenza during a pandemic and discussed publicly the proposed development program that would support an application for such a MedKit.	N/A	N/A	N/A	N/A	N/A	N/A	Meeting for disscusion on on types of studies and trial designs for an influenza antiviral MedKit
Antiviral	2-Dec-08	(NDA) 20-725, Creon (Pancrelipase Delayed-Release Capsules), Solvay Pharmaceuticals, Inc	Risk of cross infection - should additional testing be done for infection PPV, PCV, etc?	Yes: 6 No: 10	Some members felt the need for additional testing for PPV, PCV, but less than 50% votes	N/A	N/A	N/A	N/A	Not enough votes to support
Antiviral	2-Dec-08	(NDA) 20-725, Creon (Pancrelipase Delayed-Release Capsules), Solvay Pharmaceuticals, Inc	Is detailed plan for continued risk assessment required from Solvay?	Yes: 15 No: 1	Include specifications for when and how the company would pick up the signal and to notify the FDA when a signal is found in the herd.	Yes	2009	CDER Summary review for NDA application	NDA	
Antiviral	2-Dec-08	(NDA) 20-725, Creon (Pancrelipase Delayed-Release	Post marketing plan for continued viral risk identification	Yes: 16 No: 0	Serologic testing would be most beneficial as well as prospective studies and	No	N/A	Search for post marketing studies till date	NDA	Advise not implemented - no relevant post marketing

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Capsules), Solvay Pharmaceuticals, Inc			possible collaboration with organizations such as the NIH, Cystic Fibrosis Foundation and National Pancreas Foundation					studies found
Antiviral	2-Dec-08	(NDA) 20-725, Creon (Pancrelipase Delayed-Release Capsules), Solvay Pharmaceuticals, Inc	Information regarding risk from viral contamination in product labelling	Yes: 16 No: 0	No specific viruses should be listed while the label should be written honest, fair, and generic	Yes	2009	2009 Drug Label	NDA	
Arthritis	29-Jul-08	(BLA) 125276, ACTEMRA (tocilizumab), Hoffmann-La Roche, Inc	Approval of tocilizumab for the treatment of patients with moderately to severely active rheumatoid arthritis	Yes: 10 No: 1	The committee recommended having a large enough study to detect an increased risk of CVD and demyelination.	Yes	2011	https://www.ncbi.nlm.nih.gov/pubmed/21852254 https://www.ncbi.nlm.nih.gov/pubmed/24187110	BLA	
Arthritis	23-Nov-08	(NDA) 21856, ULORIC (febuxostat), Takeda Pharmaceuticals North America, Inc	Approval of febuxostat for the treatment of chronic gout	Yes: 12 No: 0 Abstain: 1	Committee members agreed that further studies should be conducted postapproval to assess the safety of febuxostat.	Yes	2013	https://clinicaltrials.gov/ct2/show/NCT02752633		
Bone, Reproductive and Urologic	8-Sep-08	(NDA) 22-242, FABLYN (lasofoxifene) 0.5 mg/day, Pfizer, Inc.	Increase in mortality in lasofoxifene-treated subjects?	Yes: 2 No: 4 Unable: 7	No sufficient data to make decision	N/A	N/A	N/A	N/A	
Bone, Reproductive and Urologic	8-Sep-08	(NDA) 22-242, FABLYN (lasofoxifene) 0.5 mg/day, Pfizer, Inc.	Are safety findings for venous thromboembolic events a concern?	Yes: 2 No: 9 Unable: 2	Risk is similar to other similar drugs Recommends long term follow-up to determine risk over many years	N/A	N/A	N/A	N/A	Drug not approved
Bone, Reproductive and Urologic	8-Sep-08	(NDA) 22-242, FABLYN (lasofoxifene) 0.5 mg/day, Pfizer, Inc.	Is there a population women in which the benefit of treatment outweighs the risks?	Yes: 9 No: 3 Abstain: 1	Generally, should be limited to women with osteoporosis and high risk of fracture (20% risk for vertebrae fracture and 10% risk for hip fractures). Label should reflect limitation of current data	Yes	N/A	Drug not approved	NDA	Drug not approved as recommended by committee due to limit on populations
Cardiovascular & Renal	25-Jun-08	(NDA) 22-275, tolvaptan (proposed trade name SAMSKA), Otsuka Pharmaceutical Development &	Approve of tolvaptan for use in the chronic treatment of hypervolemic or euvolemic hyponatremia?	Yes: 8 No: 3	Committee members wanted more data on the people who were excluded from the study and other specific populations.	Yes	2015	https://www.ncbi.nlm.nih.gov/pubmed/25740389		

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Commercialization, Inc								
Cardiovascular & Renal	24-Jun-08	Not related to any paticular drug	The committee discussed safety considerations in the development of ultrasound contrast agents, based upon the experience with new drug application (NDA) 21-064, NDA 20-899 and the Investigational New Drug Application for Sulphur hexafluoride microbubble injection	N/A	N/A	N/A	N/A	N/A	N/A	committee discussed safety considerations in the development of ultrasound contrast agents
Cardiovascular & Renal	10-Dec-08	(NDA) 22-349, IMAGIFY (perflubutane polymer microspheres) injectable suspension, Acusphere Inc	Sufficient diagnostic benefit to justify the risks associated?	Yes: 1 No: 16 Abstain: 1	1) better define an evidence based non inferiority margin, 2) clarify the truth standard, 3) randomization, 4) larger safety data base, 5) broader population typical of potential market population, 6) determine the incremental value of perfusion and wall motion with contrast over wall motion alone (with and without contrast), and 7) consider ways to design a study with an enriched population where benefit to risk considerations may more readily be evidenced	Yes	N/A	Drug not approved	NDA	Drug not approved as recommended by committee
Dermatologic and Ophthalmic	29-May-08	(NDA) 22-212, difluprednate ophthalmic emulsion, Sirion Therapeutics, Inc	Approved of difluprednate ophthalmic emulsion for the treatment of ocular inflammation and pain following cataract surgery	Yes: 3 No: 0 Abstain: 1	Recommendation for Phase 4 studiese: 1.intra-ocular pressure (IOP) screening in post-operative cataract surgery patients 2.subgroup studies of rate of response in steroid responders 3. pediatric studies	Yes	2008	Drug label, https://clinicaltrials.gov/ct2/show/NCT01124045	NDA	
Dermatologic and Ophthalmic	17-Jun-08	(BLA) 125261, ustekinumab, Centocor, Inc	Provided sufficient information to inform patients/physicians regarding when/how to	Yes: 1 No: 10	Recommend to provide more information to patients about when to stop treatment	Yes	2009	2009 Drug Label	BLA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			stop treatment with ustekinumab							
Dermatologic and Ophthalmic	17-Jun-08	(BLA) 125261, ustekinumab, Centocor, Inc	Concern about the potential malignancy demonstrated by this class of compounds	Yes: 11 No: 0	Important to communicate these findings and risks to prescribers	Yes	2009	2009 Drug Label	BLA	
Dermatologic and Ophthalmic	17-Jun-08	(BLA) 125261, ustekinumab, Centocor, Inc	Do you recommend approval of ustekinumab for the treatment of adult patients with moderate to severe plaque psoriasis	Yes: 11 No: 0	Most members recommended that the product be labelled for prescriber administration only Further studies and registries needed for long term safety	No	N/A	2009 Drug Label	BLA	Recommendation for presriber administration not implemented
Dermatologic and Ophthalmic	18-Jun-08	(sBLA) 103795/5350, etanercept, Immune x Corp.	Sufficient information regarding the risk of infection in the target pediatric population	Yes: 12 No: 1	Risk of infection to be adequately labelled	Yes	2011	2012 Drug Label	sBLA	
Dermatologic and Ophthalmic	18-Jun-08	(sBLA) 103795/5350, etanercept, Immune x Corp.	Sufficient information regarding the risk of malignancy	Yes: 4 No: 7 Abstain: 2	Further information is needed in the form of pediatric registry	Yes	2013	ClinicalTrials.gov Identifier: NCT00078793	sBLA	
Dermatologic and Ophthalmic	18-Jun-08	(sBLA) 103795/5350, etanercept, Immune x Corp.	Recommend approval of etanercept in pediatric patients prior to the completion of this safety study	Yes: 9 No: 3 Abstain: 1	Moderate psoriasis patient population not be considered for approval, only the most severe pediatric plaque psoriasis patients should use Enbrel	No	N/A	2012 Drug Label	sBLA	All pediatric population with plaque psoriasis is not included
Dermatologic and Ophthalmic	18-Jun-08	(sBLA) 103795/5350, etanercept, Immune x Corp.	What age group would you recommend for plaque psoriasis- 4 to 17 years?	Yes: 7 No: 0 Abstain: 6	Concern in low age range. Recommended for 4 to 17 yrs	No	N/A	2012 Drug Label	sBLA	All pediatric population with plaque psoriasis is not included
Dermatologic and Ophthalmic	5-Dec-08	(NDA) 22-308, besifloxacin ophthalmic suspension, Bausch & Lomb, Inc.	Should it be approved?	Yes: 9 No: 0	Add language for use in patients with preexisting dry eye and other corneal surface conditions. Refer to moxifloxacin labeling for guidance	No	N/A	2009 Drug Label	NDA	Language in label not added
Dermatologic and Ophthalmic	5-Dec-08	(NDA) 22-369, bimatoprost ophthalmic solution, 0.03%, Allergan, Inc.	Do benefits outweigh the risks?	Yes: 9 No: 0	Label should include: • Continued use is necessary • Wording of ocular pigmentation in layman terms • Information on side effects and drug interactions • What conditions should you call an ophthalmologist • Language to include	Yes	2012	2011 Drug Label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
					Lumigan® has been tested in children although this product to date has not been tested					
Dermatologic and Ophthalmic	5-Dec-08	(NDA) 22-369, bimatoprost ophthalmic solution, 0.03%, Allergan, Inc.	Should additional Phase 4 studies be performed	Yes: 5 No: 3 Abstain: 1	• pediatric and adolescent studies • studies including patients with autoimmune disease or on chemotherapy • studies including patients of various ethnicities • lower lash studies	Yes	2010	ClinicalTrials.gov Identifier: NCT01229423	NDA	
Drug Safety and Risk Management	1-Feb-08	(NDA) 22-054, INJECTAFER, Luitpold Pharmaceuticals, Incorporated	Does safety and efficacy data support benefit-risk assessment without qualifiers or restrictions?	Yes: 2 No: 14 Abstain: 1	Additional trials utilizing currently available intravenous iron products as the active comparators in broader populations, trials to assess the risk of using Injectafer in women who are not iron deficient, etc	Yes	2013	2013 Drug label	NDA	
Drug Safety and Risk Management	1-Feb-08	(NDA) 22-054, INJECTAFER, Luitpold Pharmaceuticals, Incorporated	Does efficacy and safety data support a favorable benefit-risk assessment for women who have had an unsatisfactory response to oral iron or were intolerant of oral iron?	Yes: 10 No: 5 Abstain: 2	Restrictive prescribing (i.e., not for use in chronic kidney disease patients), large randomized clinical trials that involve chronic kidney disease patients and other high risk groups, trials which further explore serious adverse events, etc	Yes	2013	2013 Drug label	NDA	
Endocrinologic and Metabolic	1-Jul-08 and 02-Jul-08	Not related to any paticular drug	The committee discussed the role of cardiovascular assessment in the pre-approval and postapproval settings for drugs and biologics developed for the treatment of type 2 diabetes mellitus.	N/A	N/A	N/A	N/A	N/A	N/A	Recommendation regarding current design and conduct of Phase 2 and 3 trials for anti-diabetic therapies
Endocrinologic and Metabolic	21-Oct-08	(BLA) 125291, alglucosidase alfa (MYOZYME) Genzyme Corporation	Do you agree for Approval under Accelerated Approval? Has clinical benefit, but post marketing study required?	Yes: 14 No: 3	Limit approval to patients with symptom onset > 24 months of age without evidence of hypertrophic cardiomyopathy REMS template to be used for patient restriction	Yes	2010	https://www.centerwatch.com/news-online/2014/08/04/fda-expands-approval-of-lumizyme-to-treat-pompe-disease/	BLA	FDA label is for 2014, so had to use other public sources
Endocrinologic and Metabolic	21-Oct-08	(BLA) 125291, alglucosidase alfa	Additional post marketing studies for	Yes: 15 No: 2	Like to see a head-to-head study of the 160 L vs.	Yes	2010	https://www.centerwatch.com/news-	BLA	FDA label is for 2014, so had to

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		(MYOZYME) Genzyme Corporation	safety and efficacy?		2000 L product to be conducted. Not ethical to conduct a Placebo control trial design. Carefully monitoring and assessing patients for adverse events			online/2014/08/04/fda-expands-approval-of-lumizyme-to-treat-pompe-disease/		use other public sources
Gastrointestinal	23-Jan-08	(NDA) 21-775, ENTEREG (alvimopan), Adolor Corporation	Overall benefits of treatment with alvimopan outweigh the potential risks for short-term in-hospital use in patients following partial large or small bowel resection surgery with primary anastomosis?	Yes: 9 No: 6	1) a Phase-4 trial to monitor tlte risk of the specific (cardiovascular, neoplastic and bone fractures) or other potential events or 2) to implement a more thorough follow-up in the future studies or potential indications.	Yes	2008	ClinicalTrials.gov Identifier: NCT00708201	NDA	
Oncologic	12-Mar-08	(BLA) 125268, proposed trade name NPLATE (romiplostim), Amgen Inc.	Demonstrate a favorable risk-benefit profile for certain patients with chronic ITP?	Yes: 10 No: 0	Use limited to patients with a diagnosis of chronic ITP Program should incorporate flexibility for physician judgment Systematic, regular assessment of all patients for significant clinical reactions	Yes	2008	2008 Drug label	BLA	
Oncologic	13-Mar-08	ARANESP (darbepoetin alfa), EPOGEN (epoetin alfa), PROCRIT (epoetin alfa), Amgen, Inc. MIRCERA (methoxy polyethylene glycol-epoetin beta, Hoffman-La Roche Inc.	PREPARE trial: Should the current indication be modified to include a statement that ESA use is not indicated for patients receiving potentially curative treatments?	Yes: 11 No: 2 Abstain: 1	Include a statement that ESA use is not indicated for patients receiving potentially curative treatments	Yes	2008	Drug labels for all drugs		
Oncologic	13-Mar-08	ARANESP (darbepoetin alfa), EPOGEN (epoetin alfa), PROCRIT (epoetin alfa), Amgen, Inc. MIRCERA (methoxy polyethylene glycol-	Current indication be modified to include a statement that ESA use is not indicated for patients with breast and/or head & neck cancers?	Yes: 9 No: 5	Modify labels	Yes	2008	Drug labels for all drugs		

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		epoetin beta, Hoffman-La Roche Inc.								
Oncologic	13-Mar-08	ARANESP (darbepoetin alfa), EPOGEN (epoetin alfa), PROCRIT (epoetin alfa), Amgen, Inc. MIRCERA (methoxy polyethylene glycol-epoetin beta, Hoffman-La Roche Inc.	Should the FDA require the implementation of an informed consent/patient agreement for the treatment of chemotherapy induced anemia?	Yes: 8 No: 5 Abstain: 1	Adequate patient education is necessary, however written informed consent not required	Yes	2008	Drug labels for all drugs		
Oncologic	16-Apr-08	Not related to any paticular drug	The subcommittee considered and discussed opportunities for enhancing global pediatric oncology drug development and expanding international regulatory interactions for development and authorization of medicines for use in children aged 0 to 17 years.	N/A	N/A	N/A	N/A	N/A	N/A	Discussion on development and authorization of medicines for use in children aged 0 to 17 years.
Oncologic	30-May-08	(NDA) 022-291, proposed trade name PROMACTA (eltrombopag olamine), GlaxoSmithKline	Do the current clinical data demonstrate a favorable risk-benefit profile for the use of eltrombopag in the "short term" treatment of patients with chronic ITP?	Yes: 16 No: 0	Committee members noted that they felt that the drug was efficacious but would like more safety data in specific populations.	Yes	2013	https://clinicaltrials.gov/ct2/show/NCT01762761	NDA	
Oncologic	16-Dec-08	Not related to any paticular drug	(BLA) 125084, trade name ERBITUX (cetuximab), ImClone Systems, Incorporated, and BLA 125147, trade name VECTIBIX (panitumumab), Amgen, Incorporated in the context of K-ras as a predictive and/or prognostic	N/A	N/A	N/A	N/A	N/A	N/A	Discussion focuses on the type and amount of data needed to support product labeling using biomarkers.

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			biomarker in oncology drug development.							
Peripheral and Central Nervous System	23-Oct-08	Not related to any paticular drug	The committee discussed the clinical development of radionuclide imaging products for the detection of amyloid to assist in the diagnosis of Alzheimer's Disease.	N/A	N/A	N/A	N/A	N/A	N/A	Discussion on strengths and weaknesses of the Phase 3 studies
Pharmaceutical Science and Clinical Pharmacology	18-Mar-08	Not related to any paticular drug	Committee discussion on (I) The New Clinical Pharmacogenomics (PGx) concept paper. Key issues in the concept paper included an' industry survey on the collection ofPGx samples, and the applications ofPGx in clinical development were presented; and (2) discussed and provided comments on Quantitative Clinical Pharmacology: Critical Path Opportunities	N/A	N/A	N/A	N/A	N/A	N/A	The regulatory experience, designs and implications of pediatric studies were discussed.
Pharmaceutical Science and Clinical Pharmacology	19-Mar-08	Not related to any paticular drug	The committee discussed and provided comments on the Renal Impairment Concept Paper.	N/A	N/A	N/A	N/A	N/A	N/A	
Pharmaceutical Science and Clinical Pharmacology	22-Jul-08	Not related to any paticular drug	(1) received presentations from the Office of Pharmaceutical Science (OPS) and discussed current thinking on issues pertaining to the use of nanotechnology in drug manufacturing, drug delivery, or drug products, and (2) received an update from OPS, discussed, and made comments on current strategies and	N/A	N/A	N/A	N/A	N/A	N/A	Mainly discussion on CDER guidance needed for the development of nanotechnology derived drug applications

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			directions for the testing of lead in pharmaceutical products.							
Pharmaceutical Science and Clinical Pharmacology	23-Jul-08	Not related to any paticular drug	Received and discussed presentations from the Office of Generic Drugs	N/A	N/A	N/A	N/A	N/A	N/A	
Psychopharmacologic	6-Feb-08	(NDA) 22-173 ZYPREXA ADHERA (olanzapine pamoate depot), Eli Lilly and Company	Has OP Depot been shown to be effective for the treatment of acutely exacerbated and maintenance treatment of schizophrenic?	Yes: 11 No: 0	The committee recommended that the label include the following: a mandatory observation period post injection	Yes	2009	2009 Drug Label	NDA	
Psychopharmacologic	6-Feb-08	(NDA) 22-173 ZYPREXA ADHERA (olanzapine pamoate depot), Eli Lilly and Company	Has OP Depot been shown to be acceptably safe for the treatment of acutely exacerbated schizophrenic patients	Yes: 10 No: 0 Abstain: 1	Labeling should include the notation that women and ethnic minority individuals were underrepresented in the clinical trials in which the profound sedation/delirium adverse effects were observed.	No	2009	2009 Drug Label	N/A	
Psychopharmacologic, Peripheral and Central Nervous System	10-Jul-08	Not related to any paticular drug	The committee discussed issues related to Anti-epileptic Drugs and suicidality.	N/A	N/A	N/A	N/A	N/A	N/A	The committee discussed issues related to Anti-epileptic Drugs and suicidality.
Pulmonary-Allergy, Drug Safety and Risk Management	10-Dec-08 and 11-Dec-08	Not related to any paticular drug	To discuss the benefit and risk assessment of long acting beta-2 adrenergic agonists for the treatment of asthma in adults and children.	N/A	N/A	N/A	N/A	N/A	N/A	Benefit and risk assessment of long acting beta-2 adrenergic agonists for the treatment of asthma in adults and children.

2009 Meetings

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Anesthetic and Analgesic, Drug Safety and Risk Management	30-Jan-09	Propoxyphene and propoxyphenecombination products	Does balance of risk and benefit support continued marketing of propoxyphene-containing	Yes: 12 No: 14	Recommend conclusive high quality study of efficacy and additional data about the risks of propoxyphene and the	Yes	Jun-09	https://www.medicalnewstoday.com/articles/208732.php	N/A	In June 2009, FDA asked drug makers to conduct

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			products for mild to moderate pain?		alternative analgesics					additional studies. With new data, drug was withdrawn from market
Anesthetic and Analgesic, Drug Safety and Risk Management	29-Jun-09 and 30-Jun-09	Address public health problem of liver injury related to the use of acetaminophen	Do you recommend the maximum total daily dose (4 grams/day) of acetaminophen in nonprescription single ingredient and combination products be lowered	Yes: 21 No: 16	Physicians can prescribe higher doses. Patients who need higher doses should be under a physicians care	Yes	Jul-11	https://www.pharmacytimes.com/news/maximum-dose-for-tylenol-lowered	N/A	
Anesthetic and Analgesic, Drug Safety and Risk Management	29-Jun-09 and 30-Jun-09	Address public health problem of liver injury related to the use of acetaminophen	Do you recommend that the maximum nonprescription single adult dose be limited to 650 mg?	Yes: 24 No: 13	No specific recommendation	No	N/A	Tylenol label	N/A	
Anesthetic and Analgesic, Drug Safety and Risk Management	29-Jun-09 and 30-Jun-09	Address public health problem of liver injury related to the use of acetaminophen	If the current doses of nonprescription products are lowered, do you recommend that the current maximum dosage of acetaminophen (i.e., 2 x 500 mg) be switched to prescription status?	Yes: 26 No: 11	No specific recommendation	No	N/A	Tylenol label	N/A	
Anesthetic and Analgesic, Drug Safety and Risk Management	29-Jun-09 and 30-Jun-09	Address public health problem of liver injury related to the use of acetaminophen	Do you recommend that pack size limits be implemented for nonprescription acetaminophen products?	Yes: 17 No: 20	No specific recommendation	No	N/A	Tylenol label	N/A	
Anesthetic and Analgesic, Drug Safety and Risk Management	29-Jun-09 and 30-Jun-09	Address public health problem of liver injury related to the use of acetaminophen	Eliminate nonprescription acetaminophen combination products?	Yes: 13 No: 24	No specific recommendation	Yes	N/A		N/A	Products were not eliminated
Anesthetic and Analgesic, Drug Safety and Risk Management	29-Jun-09 and 30-Jun-09	Address public health problem of liver injury related to the use of acetaminophen	Only one concentration of nonprescription acetaminophen liquid be available?	Yes: 36 No: 1	No specific recommendation	Yes	Jul-11	http://www.consumermedsafety.org/medication-safety-articles/item/470-dosing-and-concentration-changes-for-over-the-counter-otc-infants-acetaminophen	N/A	
Anesthetic and Analgesic, Drug Safety and Risk	29-Jun-09 and 30-Jun-	Address public health problem of liver injury related	Eliminating the prescription acetaminophen combination products?	Yes: 20 No: 17	No specific recommendation	No	N/A		N/A	Dose was restricted, but products not

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Management	09	to the use of acetaminophen								eliminated
Anesthetic and Analgesic, Drug Safety and Risk Management	29-Jun-09 and 30-Jun-09	Address public health problem of liver injury related to the use of acetaminophen	For prescription uses, do you recommend that "unit-of-use" packages be required?	Yes: 27 No: 10	No specific recommendation	No	N/A		N/A	
Anesthetic and Analgesic, Drug Safety and Risk Management	29-Jun-09 and 30-Jun-09	Address public health problem of liver injury related to the use of acetaminophen	Require a boxed warning for prescription acetaminophen combination products?	Yes: 36 No: 1	No specific recommendation	Yes	Jan-11	https://www.fda.gov/Drugs/DrugSafety/ucm239821.htm	N/A	
Anesthetic and Analgesic, Drug Safety and Risk Management	23-Sep-09	(NDA) 21-217, EXALGO (hydromorphone HCl), Neuromed Pharmaceuticals, Inc.	Based on the risks associated, what do you recommend for risk management?	N/A	REMS program as endorsed by the sponsor Phased-in introduction of Exalgo into the market - prescribe by a particular set of preactitioners for restricted patient population	Yes	2010	https://www.accessdata.fda.gov/drugsatfda_docs/label/2010/021217s001REMSExalgo.pdf	NDA	
Anesthetic and Analgesic, Drug Safety and Risk Management	24-Sep-09	(NDA) 22-272, OxyContin (oxycodone hydrochloride controlled-release) Tablets, Purdue Pharma L.P.	Should this application for a reformulated OxyContin should be approved?	Yes: 14 No: 4 Abstain: 1	Higher doses are a concern for accidental use Need for post marketing studies Do not mis-represent the tamper proof property	Yes	2008	Same recommendations as 2008 meeting	NDA	
Antimicrobial	2-Jun-09	(NDA) 22-398, cethromycin oral tablets, sponsored by Advanced Life Sciences	Do the data presented demonstrate the safety of cethromycin for the treatment of community-acquired pneumonia?	Yes: 11 No: 3 Abstain: 1	Product label: Possible renal and hepatic toxicities Possible exacerbations of myasthenia gravis Possible drug-drug and food-drug interactions due to cethromycin's metabolism through the cytochrome P450 3A4 dependent pathway Additional studies in geriatric patients, patients with renal impairments, etc.	N/A	N/A	https://www.drugs.com/history/restanza.html	NDA	Drug not approved
Antimicrobial	2-Jun-09	(NDA) 22-398, cethromycin oral tablets, sponsored by Advanced Life Sciences	Do the data presented demonstrate the efficacy of cethromycin for the treatment of community-acquired pneumonia?	Yes: 3 No: 11 Abstain: 1	Additional studies using a superiority trial design, mortality and symptom based measures of efficacy, and a macrolide-resistant patient population	Yes	N/A	https://www.drugs.com/history/restanza.html	NDA	Drug not approved
Antimicrobial	3-Jun-09	Not related to any paticular drug	Discussed issues related to the development of drugs for the treatment of	N/A	N/A	N/A	N/A	N/A	N/A	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			tuberculosis, including drug resistant tuberculosis							
Antimicrobial	26-Oct-09	Not related to any paticular drug	Discuss updating susceptibility test information in systemic antibacterial drug product labeling	N/A	N/A	N/A	N/A	N/A	N/A	
Antimicrobial	27-Oct-09	(BLA) 125349 for raxibacumab injection manufactured by Human Genome Sciences, Inc	Does evidence from animal models evaluating raxibacumab at 40 mg/kg IV predict response for treatment of humans with inhalational anthrax disease?	Yes: 16 No: 7 Abstain: 1	Further studies should include special populations, including the pediatric population Additional studies were requested to determine the benefit of raxibacumab in relation to timing post exposure Studies related to timing of administration, proper dosing of antimicrobials, and use of different antimicrobials were suggested	No	2009	2012 Drug label	BLA	Peadiatric studies not performed
Antimicrobial	27-Oct-09	(BLA) 125349 for raxibacumab injection manufactured by Human Genome Sciences, Inc	Should evidence be requested that raxibacumab makes a contribution to the efficacy over the antimicrobial alone (in rabbit and monkey animal models)?	Yes: 17 No: 5 Abstain: 2	Additional studies where standard or suboptimal doses of antibiotic therapy in humans are used to see contributing effect of raxibacumab, use of timing to mimic course of infection in human, and the use of rabbits instead of primates	Yes	2009	2012 Drug label	BLA	Drug label indicates clinical trials performed
Antimicrobial	27-Oct-09	(BLA) 125349 for raxibacumab injection manufactured by Human Genome Sciences, Inc	Do you recommend any additional studies?	N/A	Study to determine if the antigen-antibody complex is the reason for increased pathology due to complement being activated for CNS effects Studies to determine safety in the pediatric and elderly population Studies are also needed to distinguish the effects of the infection, toxins, and the immune response	No	2009	2012 Drug label	BLA	Peadiatric and geriatric studies not performed
Antimicrobial	9-Dec-09	Not related to any paticular drug	Discuss endpoints and other clinical trial design issues in the development of antibacterial products for the treatment of community-acquired bacterial pneumonia	N/A	N/A	N/A	N/A	N/A	N/A	
Antimicrobial	10-Dec-09	(NDA) 050-814, inhaled aztreonam,	Substantial evidence of the efficacy and safety of 75	Yes: 15 No: 2	Risk of bronchospasm should be added to labelling	Yes	2010	2012 Drug Label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		manufactured by Gilead Sciences, Inc.	mg three times daily of AZLI?		Another issue that should be addressed in the labeling was cycling of the drug with the other options available					
Antiviral	8-Oct-09	(NDA) 022–128, maraviroc 300 milligram tablets, Pfizer, Inc	Do the safety, efficacy, and resistance data presented support the approval of MVC in treatment-naïve HIV-1 infected patients with chemokine (C-C motif) receptor 5 (CCR5) - tropic only virus?	Yes: 10 No: 4	There was a general consensus from the committee that additional pharmacokinetic data or concentration data is needed to look at concentration responses and to look at specific populations like in young, black, lower CD4 count. Maraviroc should be compared to other regimens such as PIs and NNRTIs including regimens.	Yes	2009	https://clinicaltrials.gov/ct2/show/NCT00884858	sNDA	
Arthritis	16-Jun-09	(BLA) 125293, KRYSTEXXA (pegloticase), Savient Pharmaceuticals, Inc	In view of the data submitted for safety and efficacy, do you recommend approval of pegloticase for the treatment of refractory chronic gout?	Yes: 14 No: 1	1. Members were interested in seeing data on the use of pegloticase in dialysis patients and transplant patients. 2. Members felt that pegloticase should be indicated for use in refractory gout. 3.	Yes	2010	https://www.ncbi.nlm.nih.gov/pubmed/25816806	BLA	Addditional info from 2010 FDA Label
Arthritis	16-Sep-09	(BLA) 125338, Xiaflex (collagenase clostridium histolyticum), sponsored by Auxilium Pharmaceuticals, Inc	In view of the data available for safety and efficacy, do you recommend approval of Auxilium's clostridial collagenase for the treatment of patients with advanced Dupuytren's Disease?	Yes: 12 No: 0	Phase 4 post marketing study.	Yes	2010	https://clinicaltrials.gov/ct2/show/NCT01226121	BLA	Addditional info from 2010 FDA Label
Bone, Reproductive and Urologic	13-Aug-09	(BLAs) 125-320, 125-331, 125-332, and 125-333, proposed trade name PROLIA (denosumab) subcutaneous injection, 60 milligrams (mg), Amgen Inc	Is a favorable risk/benefit ratio demonstrated for denosumab for the treatment of bone loss associated with hormone ablation therapy in women with breast cancer receiving aromatase inhibitors?	Yes: 2 No: 13	The committee voted against a favorable risk/benefit ratio demonstrated for denosumab for the treatment of bone loss associated with hormone ablation therapy in women with breast cancer receiving aromatase inhibitors.	No	2010	2010 Drug Label	BLA	
Bone, Reproductive and Urologic	13-Aug-09	(BLAs) 125-320, 125-331, 125-332, and 125-333, proposed trade name PROLIA (denosumab)	Is a favorable risk/benefit ratio demonstrated for denosumab for the prevention of bone loss associated with hormone ablation therapy in women	Yes: 0 No: 14	The committee had concerns that long term safety of treatment was not demonstrated, especially with respect to progression of the breast cancer.	No	2010	2010 Drug Label	BLA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		subcutaneous injection, 60 milligrams (mg), Amgen Inc	with breast cancer receiving aromatase inhibitors?							
Bone, Reproductive and Urologic	13-Aug-09	(BLAs) 125-320, 125-331, 125-332, and 125-333, proposed trade name PROLIA (denosumab) subcutaneous injection, 60 milligrams (mg), Amgen Inc	Is a favorable risk/benefit ratio demonstrated for denosumab for the treatment of bone loss associated with hormone ablation therapy in men with prostate cancer receiving androgen deprivation therapy?	Yes: 9 No: 4	Efficacy was demonstrated in reducing fractures and the safety risk was demonstrated with hard markers, not surrogates.	Yes	2010	2010 Drug Label	BLA	
Bone, Reproductive and Urologic	13-Aug-09	(BLAs) 125-320, 125-331, 125-332, and 125-333, proposed trade name PROLIA (denosumab) subcutaneous injection, 60 milligrams (mg), Amgen Inc	Is a favorable risk/benefit ratio demonstrated for denosumab for the prevention of bone loss associated with hormone ablation therapy in men with prostate cancer receiving androgen deprivation therapy?	Yes: 3 No: 11	The possible risk did not justify use as there is no data to identify the subgroup most likely to have a decline in Bone Mineral Density (BMD).	No	2010	2010 Drug Label	BLA	
Cardiovascular & Renal	3-Feb-09	(NDA) 22-307, prasugrel hydrochloride film coated oral tablets, 5 milligrams (mg) and 10 mg, Eli Lilly and Company	Can patients likely to require CABG be identified prior to dosing? If so, should prasugrel be withheld in such patients?	No voting	Prference should be given to the use of prasugrel only following coronay angiography to allow assessment of the likelihood of requiring coronary bypass surgery There should be guidance for physicians to make their decision including information about bleeding	Yes	2010	2010 Drug Label	NDA	
Cardiovascular & Renal	3-Feb-09	(NDA) 22-307, prasugrel hydrochloride film coated oral tablets, 5 milligrams (mg) and 10 mg, Eli Lilly and Company	Should labeling discourage use of prasugrel in patients with a history of stroke/TIA or in whom stroke/TIA develop during treatment with prasugrel?	No voting	All members agreed that prasugrel should not be used in these patients	Yes	2010	2010 Drug Label	NDA	
Cardiovascular & Renal	3-Feb-09	(NDA) 22-307, prasugrel hydrochloride film coated oral tablets, 5 milligrams (mg)	What, if anything, should labeling say about use of prasugrel in patients according to weight?	No voting	Some of the suggestions include: information about the risk for bleeding, PK data, consideration of decreasing the dose, and adding information when available from the Trilogy	Yes	2010	2010 Drug Label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		and 10 mg, Eli Lilly and Company			Trial					
Cardiovascular & Renal	3-Feb-09	(NDA) 22-307, prasugrel hydrochloride film coated oral tablets, 5 milligrams (mg) and 10 mg, Eli Lilly and Company	What, if anything, should labeling say about use of prasugrel in patients according to concomitant GPIIb/IIIa inhibitor?	No voting	It was suggested that a statement of no effect would be informative and that the increase in TIMI major bleeding with extended use of the inhibitors should be mentioned	No	2010	2010 Drug Label	NDA	No effect statement is provided, but no mention of increased bleeding risk
Cardiovascular & Renal	3-Feb-09	(NDA) 22-307, prasugrel hydrochloride film coated oral tablets, 5 milligrams (mg) and 10 mg, Eli Lilly and Company	What, if anything, should labeling say about use of prasugrel in patients according to age?	No voting	A caution is warranted Labeling should indicate that elderly may have greater risk with declining age with lower benefit; warning about, but not barring use	Yes	2010	2010 Drug Label	NDA	
Cardiovascular & Renal	3-Feb-09	(NDA) 22-307, prasugrel hydrochloride film coated oral tablets, 5 milligrams (mg) and 10 mg, Eli Lilly and Company	What is the best method to warn for Cancer risk?	No voting	Almost all were in agreement that the information should be in the adverse reactions section	Yes	2010	2010 Drug Label	NDA	
Cardiovascular & Renal	3-Feb-09	(NDA) 22-307, prasugrel hydrochloride film coated oral tablets, 5 milligrams (mg) and 10 mg, Eli Lilly and Company	Should prasugrel be approved to treat patients with acute coronary syndromes, presenting with either UA/NSTEMI or STEMI?	Yes: 9 No: 0	Guidance to inform physicians of the increased risk of CABG needs to be provided Avoiding use in patients with prior stroke/TIA Guidance to inform physicians of the increased risk for low weight patients needs to be provided Guidance, to inform physicians of the increased risk for elderly, needs to be provided	Yes	2010	2010 Drug Label	NDA	
Cardiovascular & Renal	18-Mar-09	(NDA) 22-425, dronedarone 400 milligrams oral tablets, Sanofi Aventis	Can you ignore all-cause mortality, because it should never have been in the analysis plan, and, if so, is there a reasonable basis for a claim on cardiovascular death?	No voting	Committee agreed that they shouldn't get claim for all-cause mortality and that quality of data regarding cardiovascular death is suspect	Yes	2010	2010 Drug Label	NDA	
Cardiovascular & Renal	18-Mar-09	(NDA) 22-425, dronedarone 400 milligrams oral	Who should not receive dronedarone? Who should be restricted?	No voting	Should not be used if Heart failure class 3 or Low ejection fraction <35%	No	2010	2010 Drug Label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		tablets, Sanofi Aventis			Restrictions should include clinical instability, limits should reflect severity, and would also restrict due to acuity					
Cardiovascular & Renal	18-Mar-09	(NDA) 22-425, dronedarone 400 milligrams oral tablets, Sanofi Aventis	Should dronedarone be approved to treat patients with non-permanent atrial fibrillation?	Yes: 10 No: 3	Members would not support a claim for mortality or cardiovascular death Claim should be narrow in scope, prevention of cardiovascular hospitalization driven by atrial fibrillation/flutter There should be a boxed warning for (class III-IV) heart failure patients	Yes	2010	2010 Drug Label	NDA	
Cardiovascular & Renal	19-Mar-09	(NDA) 22-406, rivaroxaban oral tablets (10 milligrams) Johnson & Johnson Pharmaceutical Research & Development, L.L.C	Favorable risk-benefit profile for rivaroxaban?	Yes: 15 No: 2	Concerns about rivaroxaban being used in patients with liver disease, with risk for bleeding, at risk for bleeding with re-operation and in patients undergoing neurosurgery	No	Jul-09	https://www.drugs.com/nda/xarelto_090716.html	NDA	FDA did not approve the drug, but asked for more data on ongoing trials
Cardiovascular & Renal	19-Mar-09	(NDA) 22-406, rivaroxaban oral tablets (10 milligrams) Johnson & Johnson Pharmaceutical Research & Development, L.L.C	Lower dose would optimize benefit-risk in patients with renal and/or hepatic dysfunction and/or on CYP3A4, P-gp inhibitors. Should a lower dose be available to treat this population?	Yes: 5 No: 9 Abstain: 3	Not enough data	N/A	N/A	https://www.drugs.com/nda/xarelto_090716.html	NDA	Drug not approved
Cardiovascular & Renal	28-Jul-09	(NDA) 22–449 binodenoson injectable, lyophilized solid 250 micrograms vial, King Pharmaceuticals Research and Development, Inc.	Do the Phase 3 study results establish high binodenoson and adenosine MPI agreement?	Yes: 5 No: 11	Additional study(ies) of of adenosine test-retest variability) and verification of agreement between binodenoson-based images and adenosine-based images	Yes	Oct-09	https://www.drugs.com/history/corvue.html	NDA	Drug not approved
Cardiovascular & Renal	29-Jul-09	(sNDA) 20–850/S–025, telmisartan tablets, 80 milligrams, Boehringer Ingelheim	Should telmisartan be approved to reduce cardiovascular events in patients at high risk for such events?	Yes: 0 No: 7	Data were not strong enough to support an unrestricted approval, since the data were not convincing that telmisartan preserved most of the expected effectiveness of ramipril	Yes	Oct-09	http://www.cardiobrief.org/2009/10/19/telmisartan-gets-fda-approval-for-cv-prevention-in-acei-intolerant-	sNDA	Broad approval not given

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Pharmaceuticals, Inc.						patients/		
Cardiovascular & Renal	29-Jul-09	(sNDA) 20–850/S–025, telmisartan tablets, 80 milligrams, Boehringer Ingelheim Pharmaceuticals, Inc.	Should telmisartan be approved to reduce cardiovascular events in patients at high risk that can not tolerate ramipril?	Yes: 5 No: 2	No specific recommendation	Yes	Oct-09	http://www.cardiobrief.org/2009/10/19/telmisartan-gets-fda-approval-for-cv-prevention-in-acei-intolerant-patients/	sNDA	
Cardiovascular & Renal	7-Dec-09	NDA 21-560, from Novartis Pharmaceuticals Corporation, for everolimus oral tablets	Has efficacy been demonstrated for the prophylaxis of acute rejection in de novo renal transplant recipients?	Yes: 11 No: 1	No specific recommendation	N/A	N/A	N/A	NDA	Only for discussion
Cardiovascular & Renal	7-Dec-09	NDA 21-560, from Novartis Pharmaceuticals Corporation, for everolimus oral tablets	Has safety been demonstrated for the prophylaxis of acute rejection in de novo renal transplant recipients?	Yes: 9 No: 3	REMS program required for additional information obtained about the long term safety concerns Need for prescribers to be provided information about labs that should be monitored and need for specific instructions for therapeutic drug monitoring	Yes	Apr-10	https://www.drugs.com/newdrugs/novartis-receives-us-fda-approval-zortress-everolimus-prevent-organ-rejection-adult-kidney-2123.html	NDA	
Cardiovascular & Renal	7-Dec-09	NDA 21-560, from Novartis Pharmaceuticals Corporation, for everolimus oral tablets	Do you recommend that everolimus be approved for the prophylaxis of acute rejection in de novo renal transplant recipients?	Yes: 11 No: 1	No specific recommendation	Yes	Apr-10	https://www.drugs.com/newdrugs/novartis-receives-us-fda-approval-zortress-everolimus-prevent-organ-rejection-adult-kidney-2123.html	NDA	
Cardiovascular and Renal, Drug Safety and Risk Management	8-Dec-09	General discussion on FDA-approved gadolinium-based contrast agents used with magnetic resonance imaging (MRI) scans	Do available data establish a higher NSF risk for certain GBCAs?	No voting	Two agents identified with higher NSF risk - Omniscan and Optimark. Sponsors had already contraindicated	N/A	N/A	N/A	N/A	Only for discussion
Cardiovascular and Renal, Drug Safety and Risk Management	8-Dec-09	General discussion on FDA-approved gadolinium-based contrast agents used with magnetic resonance imaging (MRI) scans	How can we help minimize risks of NSF?	No voting	A glomerular filtration rate < 30 mL/min/1.73 m2 is not a bad dividing point in patients with chronic kidney disease	N/A	N/A	N/A	N/A	Only for discussion

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Dermatologic and Ophthalmic	26-Jun-09	NDA 22-288 Bepotastine Besilate (Bepreve) 1.5% Ophthalmic Solution ISTA Pharmaceuticals, Inc	Do you think adequate safety and efficacy for bepotastine ophthalmic solution has been demonstrated for the treatment of itching due to allergic conjunctivitis?	Yes: 7 No: 0	The committee suggested labeling the product as mast cells stabilizer and/or an antihistamine depending on the targeted audience for the labeling	Yes	2009	2009 Drug Label	NDA	
Dermatologic and Ophthalmic	26-Jun-09	NDA 22-358 Sodium Hyaluronate Ophthalmic Solution 0.18% River Plate Biotechnology, Inc	Do you think adequate safety and efficacy for sodium hyaluronate ophthalmic solution, 0.18% has been demonstrated for the treatment of the signs and symptoms of dry eye disease?	Yes: 1 No: 6	The issue of lack of substantive back-ups from the secondary endpoints supported the committee in its deliberation.	Yes	2009	Not approved	NDA	
Endocrinologic and Metabolic	1-Apr-09	NDA 22-350 Saxagliptin tablets, Bristol-Myers Squibb	Has the applicant provided appropriate evidence of cardiovascular safety to conclude that saxagliptin rules out unacceptable excess cardiovascular risk relative to comparators?	Yes: 10 No: 2	Phase 4 post marketing study. The drug needs to be studied in higher risk population.	Yes	2010	https://www.ncbi.nlm.nih.gov/pubmed/28296055	NDA	https://www.drugbank.ca/drugs/DB06335/clinical_trials?conditions=DBCOND0045727%2CDBCOND0029752%2CDBCOND0066959&phase=4&purpose=treatment&status=completed
Endocrinologic and Metabolic	2-Apr-09	NDA 22-341 Liraglutide injection, Novo Nordisk Inc.	Has the applicant provided appropriate evidence of cardiovascular safety to conclude that liraglutide rules out unacceptable excess cardiovascular risk relative to comparators?	Yes: 8 No: 5	No specific recommendation	Yes	Jan-10	2010 Drug Label	NDA	
Endocrinologic and Metabolic	2-Apr-09	NDA 22-341 Liraglutide injection, Novo Nordisk Inc.	Has the applicant provided adequate data on the animal thyroid C-cell tumor findings to demonstrate that these findings are not relevant to humans?	Yes: 1 No: 12	No specific recommendation	No	Jan-10	2010 Drug Label	NDA	Drug approved, but not as first line
Endocrinologic and Metabolic	2-Apr-09	NDA 22-341 Liraglutide injection, Novo Nordisk Inc.	Assuming the remainder of the risk:benefit data are acceptable, do the available data on thyroid C-cell tumors permit marketing of liraglutide?	Yes: 6 No: 6 Abstain: 1	No specific recommendation	No	Jan-10	2010 Drug Label	NDA	Drug approved, but not as first line
Endocrinologic and Metabolic	2-Apr-09	NDA 22-341 Liraglutide	Assuming the remainder of the risk:benefit data are	Yes: 12 No: 0	Further follow-up in post marketing studies	Yes	Jan-10	https://www.fda.gov/Drugs/DrugSafet	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		injection, Novo Nordisk Inc.	acceptable, do the available data on papillary thyroid cancer permit marketing of liraglutide?	Abstain: 1				y/ucm198543.htm		
Endocrinologic and Metabolic	15-Dec-09	(sNDA) 21–366, CRESTOR (rosuvastatin calcium) tablets, AstraZeneca Pharmaceuticals LP	Has the sponsor established sufficient benefit to offset the observed risks to support the use of rosuvastatin?	Yes: 12 No: 4 Abstain: 1	FDA should be cautious in defining the population for the extended use of this drug with regard to labeling and marketing materials. There should be warning in the labeling regarding the possible adverse risk factors such as DM (class-effect), confusional state and weight gain	No	N/A	2010 Drug Label	sNDA	Drug approved, but no warnings as recommended
Gastrointestinal	19-May-09	FDA Archive not accessible	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not able to open the minutes link
Oncologic	31-Mar-09	(sBLA) 125085/169, Avastin (bevacizumab), Genentech, Incorporated	Is the response seen in this application of sufficient magnitude?	Yes: 10 No: 0	No specific recommendation	Yes	May-09	https://www.drugs.com/newdrugs/fda-grants-accelerated-approval-avastin-brain-cancer-glioblastoma-has-progressed-following-prior-1342.html	sBLA	
Oncologic	29-May-09	(BLA) 125326, proposed trade name Arzerra (ofatumumab), GlaxoSmithKline	Are the results reasonably likely to predict clinical benefit in patients with CLL that is refractory to fludarabine and alemtuzumab?	Yes: 10 No: 3	Future safety monitoring was recommended	Yes	Oct-09	https://www.drugs.com/newdrugs/fda-approves-arzerra-ofatumumab-chronic-lymphocytic-leukemia-1750.html	BLA	
Oncologic	15-Jul-09	(NDA) 022-447, YONDELIS (trabectedin) powder, Centocor Ortho Biotech Products, L.P.., in combination with DOXIL	Does the addition of trabectedin to Doxil represent a favorable benefit-risk analysis in this patient population?	Yes: 1 No: 14	No specific recommendation	Yes	Sep-09	https://www.drugs.com/nda/trabectedin_090910.html	NDA	Drug not approved
Oncologic	15-Jul-09	(sNDA) 050-718/S-039, DOXIL (doxorubicin HCl liposome injection) for intravenous infusion, Centocor Ortho Biotech	Does the addition of Doxil to docetaxel in this first line patient population represent a favorable benefit/risk analysis?	Yes: 0 No: 13	No specific recommendation	Yes	Aug-09	https://www.cancernetwork.com/breast-cancer/new-doxil-based-regimens-dont-fly-fda-advisors	sNDA	Drug not approved

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Products, L.P.								
Oncologic	1-Sep-09	(sNDA) 021-673/S-009, CLOLAR (clofarabine) Injection for intravenous use, Genzyme Corporation	Is a randomized, controlled trial needed to establish the efficacy and safety of Clolar for the indication of treatment of previously untreated adults aged 60 years or older with acute myeloid leukemia with at least one unfavorable baseline prognostic factor?	Yes: 9 No: 3	With such a heterogeneous population and without a RCT, it is not possible to adequately assess the risk/benefit ratio of Clolar If Clolar was approved, a new standard would be set and the bar would be lowered	Yes	Sep-09	2016 Drug Label	sNDA	Drug not approved
Oncologic	1-Sep-09	(NDA) 022-489, proposed trade name ONRIGIN (laromustine) Injection, Vion Pharmaceuticals, Inc.	Should a randomized study defining the efficacy and safety of laromustine in the population proposed for the indication be completed prior to approval of laromustine?	Yes: 13 No: 0	No specific recommendation	Yes	Dec-09	https://www.drugs.com/nda/onrigin_091214.html	NDA	Drug not approved
Oncologic	2-Sep-09	(NDA) 022-393, with the proposed trade name ISTODAX (romidepsin) Injection, manufactured by Gloucester Pharmaceuticals, Inc.	Do the results of the two romidepsin single arm studies represent a favorable risk-benefit profile for patients with previously treated CTCL?	Yes: 10 No: 0 Abstain: 1	Randomized controlled trial would be better, but may be skipped due to rarity of disease. Long term safety of romidepsin should be evaluated if approved.	Yes	Nov-09	https://www.drugs.com/newdrugs/fda-approves-gloucester-pharmaceuticals-istodax-patients-cutaneous-t-cell-lymphoma-1762.html	NDA	Long term safety study - https://clinicaltrials.gov/ct2/show/NCT02296398
Oncologic	2-Sep-09	(NDA) 022-393, with the proposed trade name ISTODAX (romidepsin) Injection, manufactured by Gloucester Pharmaceuticals, Inc.	FDA has approved drugs in CTCL on the basis of single-arm trials. Should randomized studies be required for future approvals?	Yes: 7 No: 3 Abstain: 1	It may be difficult to find an acceptable comparator for CTCL and would be difficult to enroll patients on a randomized controlled trial	Yes	Nov-09	https://www.drugs.com/newdrugs/fda-approves-gloucester-pharmaceuticals-istodax-patients-cutaneous-t-cell-lymphoma-1762.html	NDA	
Oncologic	2-Sep-09	NDA 022-468, with the proposed trade name FOLOTYN (pralatrexate) Injection, manufactured by Allos Therapeutics, Inc.	Are the response rate and duration of response results "reasonably likely" to predict for clinical benefit?	Yes: 10 No: 4	No specific recommendation	Yes	Sep-09	https://www.drugs.com/newdrugs/fda-approves-folotyn-pralatrexate-peripheral-t-cell-lymphoma-1666.html	NDA	
Oncologic	5-Oct-09	(sBLA)	Is there a favorable	Yes: 6	No specific recommendation	No	Oct-09	https://www.reuter	sBLA	Drug not

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		103949/5153.0, PEGINTRON (peginterferon alfa-2b) injection, manufactured by Schering Corporation	risk/benefit assessment for peg-interferon alfa-2b for the adjuvant treatment of stage III melanoma?	No: 4				s.com/article/scheringplough-pegitron/update-1-fda-concerns-remain-over-new-use-for-schering-drug-idUSN30430052200 91030		approved
Oncologic	5-Oct-09	(NDA) 022-465, proposed trade name VOTRIENT (pazopanib) tablets, manufactured by GlaxoSmithKline	Is the benefit-to-risk profile demonstrated for pazopanib acceptable for the treatment of patients with advanced RCC?	Yes: 10 No: 0	If approved, strongly recommended post-market monitoring of potential liver toxicity	Yes	Oct-09	2009 Drug Label	NDA	
Oncologic	15-Dec-09	Not related to any paticular drug	Considered and discussed FDA expectations regarding the development of pediatric formulations for cancer drugs. Considered and discussed the development of dosing regimens in infants with cancer.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oncologic	16-Dec-09	(sNDA) 021-743/S-016, TARCEVA (erlotinib) tablets, by OSI Pharmaceuticals, Inc.	Should Erlotinib be approved for the proposed indication?	Yes: 1 No: 12	Study had design flaws and limitations because patients in the control arm were not offered Tarceva at disease progression. Subgroups that would benefit from maintenance therapy needed to be studied further and defined	No	Apr-10	https://www.gene.com/media/press-releases/12727/2010-04-16/fda-approves-tarceva-as-a-maintenance-th	sNDA	OSI submitted new data to FDA in Jan-2010 to support the application
Oncologic	17-Dec-09	(NDA) 022–555, HEXVIX (hexaminolevulinate as hydrochloride) Kit, as HEXVIX solution for intravesical use, by Photocure ASA.	Do the data establish a favorable diagnostic benefit/risk assessment for Hexaminolevulinate hydrochloride when used with PDD System cystoscopy?	Yes: 9 No: 8	No specific recommendation	Yes	Jun-10	2010 Drug Label	NDA	
Peripheral and Central Nervous System	7-Jan-09	(NDA) 20-427, vigabatrin, Ovation Pharmaceuticals, Inc.	Can the committee envision any combination of patient population and conditions of use that would support approval?	Yes: 24 No: 0	Should be reserved for patients with complex partial seizures who are refractory to good trials of several anticonvulsants. Sabril (vigabatrin) should be made available only under restricted conditions and continued access to the drug	Yes	Aug-09	https://www.drugs.com/newdrugs/lundbeck-inc-announces-fda-marketing-approval-sabril-two-difficult-epilepsies-	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
					should be linked to results of ophthalmologic monitoring. There should be a requirement for periodic ophthalmologic monitoring - at baseline, after 3 months, every 4-6 months thereafter and a period after discontinuation. Studies of visual loss should be conducted as a post-marketing requirement.			1567.html		
Peripheral and Central Nervous System	7-Jan-09	(NDA) 20-427, vigabatrin, Ovation Pharmaceuticals, Inc.	Does the committee recommend that Sabril (vigabatrin) be approved for the treatment of refractory complex partial seizures in adults?	Yes: 24 No: 0	No specific recommendation	Yes	Aug-09	https://www.drugs.com/newdrugs/lundbeck-inc-announces-fda-marketing-approval-sabril-two-difficult-epilepsies-1567.html	NDA	
Peripheral and Central Nervous System	8-Jan-09	NDA 22-006, vigabatrin, Ovation Pharmaceuticals, Inc.	Has the sponsor provided substantial evidence for vigabatrin as a treatment of infantile spasms?	Yes: 25 No: 0	Study (post-approval) whether chronic treatment with vigabatrin provides an additional benefit beyond a brief treatment course. Sabril should not be approved for use in any specific subset of patients, but rather be approved for all patients with infantile spasms. Patients who may have pre-existing visual conditions should be cautioned about the adverse effects. Sabril (vigabatrin) should only be available under a REMS and under restricted conditions.	Yes	Aug-09	https://www.drugs.com/newdrugs/lundbeck-inc-announces-fda-marketing-approval-sabril-two-difficult-epilepsies-1567.html	NDA	
Peripheral and Central Nervous System	8-Jan-09	NDA 22-006, vigabatrin, Ovation Pharmaceuticals, Inc.	Does the committee recommend that Sabril (vigabatrin) should be approved for treatment of infantile spasms?	Yes: 23 No: 0	No specific recommendation	Yes	Aug-09	https://www.drugs.com/newdrugs/lundbeck-inc-announces-fda-marketing-approval-sabril-two-difficult-epilepsies-1567.html	NDA	
Peripheral and Central Nervous	11-Aug-09	NDA 22–454, Ioflupane I 123	Do the available data indicate a favorable risk to	Yes: 11 No: 2	Post marketing studies for - use of DaTSCAN as a screening	Yes	Jan-10	ClinicalTrials.gov Identifier:	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
System		Injection (proposed trade name DaTSCAN), GE HealthCare	benefit profile for use of DaTSCAN?	Abstain: 1	tool, use of DaTSCAN for diagnosis of early disease or disease progression, studies to evaluate possible medication interactions.			NCT00382967		
Peripheral and Central Nervous System	14-Oct-09	(NDA) 22-250, AMPRIVA (fampridine) 10 milligram (mg) tablets, manufactured by Acorda Therapeutics, Inc	Has the sponsor demonstrated substantial evidence of effectiveness of fampridine as a treatment to improve walking in patients with multiple sclerosis?	Yes: 12 No: 1	No specific recommendation	Yes	Jan-10	Name changed to AMPYRA 2010 Drug Label	NDA	
Peripheral and Central Nervous System	14-Oct-09	(NDA) 22-250, AMPRIVA (fampridine) 10 milligram (mg) tablets, manufactured by Acorda Therapeutics, Inc	Should the sponsor be required to evaluate the effects of doses lower than 10 mg twice daily?	Yes: 12 No: 1	Requirement of studies of lower dosages should not prohibit the approval of the product at the proposed 10 mg twice daily dosing	Yes	Jan-10	Name changed to AMPYRA 2010 Drug Label	NDA	
Peripheral and Central Nervous System	14-Oct-09	(NDA) 22-250, AMPRIVA (fampridine) 10 milligram (mg) tablets, manufactured by Acorda Therapeutics, Inc	Do you conclude that there are conditions under which fampridine SR could be considered safe in use for this indication?	Yes: 10 No: 2 Abstain: 1	Should not be used in patients with moderate to severe renal insufficiency and in patients with known seizure disorder or are at high risk for seizures. No need for pre-screening EEG before initiation.	Yes	Jan-10	Name changed to AMPYRA 2010 Drug Label	NDA	
Pharmaceutical Science and Clinical Pharmacology	4-Aug-09	Not related to any paticular drug	The committee discussed bioequivalence recommendations for oral vancomycin hydrochloride products	N/A	N/A	N/A	N/A	N/A	N/A	Same as question/topic
Pharmaceutical Science and Clinical Pharmacology	5-Aug-09	Not related to any paticular drug	The committee discussed: Topic 1: Status Update on Bioequivalence for Highly-variable drugs Topic 2: Challenges in the Development of Transdermal Drug Delivery Systems (TDDS) Topic 3: Classifying Pre-Surgical Preparations as Sterile Products Topic 4: Status and Implementation of ICH Q8, Q9, and Q10 Quality	N/A	N/A	N/A	N/A	N/A	N/A	Same as question/topic

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			Guidelines							
Psychopharmacologic	7-Apr-09	(NDA) 20-644, Serdolect (sertindole) tablets, Lundbeck USA	Has sertindole been shown to be effective for the treatment of suicidal behavior in schizophrenia? Has sertindole been shown to be acceptably safe for the treatment of schizophrenia?	Yes: 1 No: 12	The committee agreed the cardiovascular risk does pose an obstacle to the use of sertindole in the treatment of schizophrenia.	Yes	2009	Drug not approved by FDA	NDA	drug effective AC voted yes, drug not approved?
Psychopharmacologic	8-Apr-09	(sNDAs) 22-047/S-010/S-011/S012,Seroquel XR (quetiapine fumarate), Astra Zeneca Pharmaceuticals LP	Has Seroquel XR been shown to be acceptably safe as an adjunctive treatment for MDD?	Yes: 6 No: 3	The committee felt that randomized trials with long-term follow-up is needed to adequately identify the risk.	Yes	2013	https://clinicaltrials.gov/ct2/show/NCT01971203	sNDA	
Psychopharmacologic	9-Jun-09 and 10-Jun-09	NDA 20-639/S-045 and S-046: SEROQUEL (quetiapine fumarate) Tablets, AstraZeneca Pharmaceuticals LP	Has Seroquel been shown to be safe and effective for the treatment of schizophrenia in pediatric patients ages 13-17?	Safety - Yes: 16, No: 0, Abstain: 2 Efficacy - Yes: 17, No: 1	1. Need for label to have warnings on suicidality 2. Label will clearly indicate the studies used for approval	Yes	2009	2009 Drug Label	NDA	
Psychopharmacologic	9-Jun-09 and 10-Jun-09	NDA 20-639/S-045 and S-046: SEROQUEL (quetiapine fumarate) Tablets, AstraZeneca Pharmaceuticals LP	Has Seroquel been shown to be safe and effective for the treatment of bipolar mania in pediatric patients ages 10-17?	Safety - Yes: 13, No: 0, Abstain: 5 Efficacy - Yes: 17, No: 0, Abstain: 1	Label to indicate population in which drug was studied to clearify which patient population this drug product is intended to treat.	Yes	2009	2009 Drug Label	NDA	
Psychopharmacologic	9-Jun-09 and 10-Jun-09	NDA 20-825/S-032: GEODON (ziprasidone hydrochloride) Capsules, Pfizer Inc	Has Geodon been shown to be effective and safe for the treatment of bipolar mania in pediatric patients ages 10-17?	Safety - Yes: 8, No: 1, Abstain: 9 Efficacy - Yes: 12, No: 2, Abstain: 4	No specific recommendation	No	Oct-09	https://www.wsj.com/articles/SB10001424052748704448304575196264170067920	NDA	Drug not approved
Psychopharmacologic	9-Jun-09 and 10-Jun-09	NDA 20-592/S-040 and S-041: ZYPREXA (olanzapine) Tablets, Eli Lilly and Company	Has Zyprexa been shown to be effective and safe for the treatment of schizophrenia in pediatric patients ages 13-17?	Safety - Yes: 10, No: 4, Abstain: 4 Efficacy -	Need for label to clarify that prescribers consider other treatment options first before prescribing Zyprexa.	Yes	Dec-09	2009 Drug Label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
				Yes: 11, No: 5, Abstain: 2						
Psychopharmacologic	9-Jun-09 and 10-Jun-09	NDA 20-592/S-040 and S-041: ZYPREXA (olanzapine) Tablets, Eli Lilly and Company	Has Zyprexa been shown to be effective and safe for the treatment of bipolar mania in pediatric patients ages 13-17?	Safety - Yes: 11, No: 4, Abstain: 3 Efficacy - Yes: 17, No: 0, Abstain: 1	Label to provide guidance on monitoring for weight gain and metabolic effects and clearly indicate the patient population that was studied for this indication	Yes	Dec-09	2009 Drug Label	NDA	
Psychopharmacologic	9-Jun-09 and 10-Jun-09	SEROQUEL, GEODON and ZYPREXA	Overall recommendations for all 3 drugs, if approved	N/A	Label should indicate that patients be reassessed during prolonged use Label should recommend monitoring of pediatric patients for side effects Label should indicate exact patient population these drug products are intended for Need for Phase IV studies for long-term efficacy and safety Need for head-to-head trials Need for long-term follow-up studies	Yes	Dec-09	Various Clinical trials for Zyprexa and Seroquel	NDA	
Psychopharmacologic	30-Jul-09	(NDA) 22-117, proposed trade name SAPHRIS (asenapine maleate) sublingual tablets, Organon, a part of Schering-Plough Corporation	Is the overall balance acceptable for the acute treatment of adult patients with schizophrenia?	Yes: 9 No: 1 Abstain: 2	The majority of the committee members agreed that the risk-benefit ratio was acceptable.	Yes	2009	2009 Drug Label	NDA	
Psychopharmacologic	30-Jul-09	(NDA) 22-117, proposed trade name SAPHRIS (asenapine maleate) sublingual tablets, Organon, a part of Schering-Plough Corporation	Is the overall balance acceptable for the acute treatment of mania/mixed episodes in adult patients with bipolar I disorder?	Yes: 12 No: 0 Abstain: 0	None	Yes	2009	2009 Drug Label	NDA	
Pulmonary-Allergy	4-Feb-09	(BLA) #125277, KALBITOR, ecallantide injection by Dyax	Do the safety and efficacy data provide substantial and convincing evidence to support the approval of	Yes: 6 No: 5	•stronger precautions to warn about anaphylaxis reactions • comprehensive education regarding monitoring of drug	Yes	2009	2009 Drug Label	BLA	Pediatric Use?

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Corp	ecallantide for the treatment of acute attacks of hereditary angioedema?		after • recommending injections to be given at emergency rooms, allergist's office, urgent care centers for appropriate hypersensitivity monitoring					
Pulmonary-Allergy	18-Nov-09	BLA # 103976, Supplement # 5149 for Xolair (omalizumab), manufactured by Genentech/Novartis	Do the safety and efficacy data provide substantial and convincing evidence to support approval of Xolair for the treatment of asthma in patients 6 to 11 years of age with moderate to severe persistent asthma whose symptoms are inadequately controlled with inhaled corticosteroids?	Yes: 4 No: 10	•Further studies are needed to better understand and characterize the malignancy and anaphylaxis risks • Explore duration of therapy in children • Further study immune complexes over extended duration of therapy	No	2014	http://www.rtmagazine.com/2016/07/fda-approves-genentechs-xolair-allergic-asthma-children/	BLA	Check FDA implementation?
Pulmonary-Allergy	19-Nov-09	(NDA) No. 21-395 for the approved product Spiriva HandiHaler (tiotropium inhalation powder), manufactured by Boehringer Ingelheim	Do the data from trials 205.235 (UPLIFT) and 205.266 (VA study) provide substantial and convincing evidence to support the claim that Spiriva HandiHaler reduces COPD exacerbations? Do the data from trial 205.235 (UPLIFT) adequately address the potential safety signal of stroke events?	Yes: 11 No: 1	Most committee members agreed that the UPLIFT trial data was adequate to address the safety signal of stroke events and no further studies are needed.	Yes	2009	2009 Drug Label	NDA	
Pulmonary-Allergy	20-Nov-09	(NDA) #22-368 for Aridol (mannitol bronchial challenge test), manufactured by Pharmaxis Ltd	Do the data provide substantial and convincing evidence to support the use of the mannitol bronchial challenge test to assess bronchial hyperresponsiveness to aid in diagnosing patients who have symptoms of asthma or symptoms that are suggestive of asthma?	In patients 18 years of age and older; Yes: 12 No: 3	A majority of the committee members were comfortable with the safety profile and consistency of evidence for use in the less than 18 years of age group, whereas, utilization was questioned in the 50 years of age and older.	Yes	2010	https://www.biospace.com/article/releases/fda-approves-pharmaxis-ltd-s-aridol-bronchial-challenge-test-kit-for-the-assessment-of-bronchial-hyperresponsiveness-/	NDA	

2010 Meetings

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Anesthetic and Analgesic, Drug Safety and Risk Management	22-Apr-10	(NDA) 22-451 ACUROX (oxycodone HCl and niacin) Tablets, Acura Pharmaceuticals, Inc.	Should Acurox be approved for the indication of the treatment of moderate to severe pain	Yes: 1 No: 19	Does not adequately address abuse deterrence to be included in the label Populations of patients studied be expanded to include those who are actually at risk of becoming abusers Sponsor should conduct a trial to check long term effect of niacin and development of tolerance to its effect	Yes	Apr-10	https://www.drugs.com/nda/acurox_100504.html	NDA	Drug not approved
Anesthetic and Analgesic, Drug Safety and Risk Management	22-Jul-10 and 23-Jul-10	Not related to any paticular drug	Discuss Risk Evaluation and Mitigation Strategies (REMS) for extended-release and long-acting opioid analgesics	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Anesthetic and Analgesic	19-Aug-10	(NDA) 22516, CYMBALTA (duloxetine HCL) Capsules, by Eli Lilly and Company	Does data provide adequate evidence of efficacy for the management of chronic low back pain?	Yes: 8 No: 5 Abstain: 1	No specific recommendation	Yes	Nov-10	2010 Drug Label	sNDA	
Anesthetic and Analgesic	19-Aug-10	(NDA) 22516, CYMBALTA (duloxetine HCL) Capsules, by Eli Lilly and Company	Does data provide adequate evidence of efficacy for the treatment of chronic pain due to osteoarthritis?	Yes: 4 No: 9 Abstain: 1	Additional studies to demonstrate efficacy in a larger group of patients	No	Nov-10	2010 Drug Label	sNDA	Osteoarthiritis use is also approved
Anesthetic and Analgesic	19-Aug-10	(NDA) 22516, CYMBALTA (duloxetine HCL) Capsules, by Eli Lilly and Company	Does the 120 mg dose provide additional efficacy over the 60 mg dose?	Yes: 2 No: 12	Additional studies be done in a larger group of patients to support this dosage	Yes	Nov-10	2010 Drug Label	sNDA	
Anesthetic and Analgesic	19-Aug-10	(NDA) 22516, CYMBALTA (duloxetine HCL) Capsules, by Eli Lilly and Company	Does the safety profile and overall risk-benefit profile warrant expansion of the indication?	Yes: 9 No: 4 Abstain: 1	No specific recommendation	Yes	Nov-10	2010 Drug Label	sNDA	
Anesthetic and Analgesic	19-Aug-10	(NDA) 22516, CYMBALTA (duloxetine HCL) Capsules, by Eli Lilly and Company	Should this supplement for expansion of the pain indications for duloxetine to a broader population be approved?	Yes: 8 No: 6	Requested that additional studies include a large sample of patients of varying ethnicities and age groups	Yes	Nov-10	2010 Drug Label	sNDA	
Anesthetic and Analgesic, Drug Safety and Risk Management	21-Oct-10 and 22-Oct-10	Not related to any paticular drug	Discuss considerations for the design of postmarketing studies for OxyContin and Embeda to assess the	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			known serious risks of these products							
Antimicrobial	29-Apr-10	(NDA) 21-242, artesunate rectal suppositories, submitted by the World Health Organization (WHO)	Do you recommend approval of a single 100 mg dose of artesunate rectal suppository for children under 6 years of age?	Yes: 13 No: 2	Post-marketing studies for antimicrobial resistance were recommended	No information available	N/A	No information available	NDA	
Antimicrobial	29-Apr-10	(NDA) 21-242, artesunate rectal suppositories, submitted by the World Health Organization (WHO)	Do you recommend approval of a single 400 mg dose artesunate rectal suppository for children over 6 years of age and adults?	Yes: 1 No: 14	Weight measurements and time from insertion of suppository to definitive care be recorded in additional studies Studies involving more than one site be conducted Effects of dosing multiple 100 mg rectal suppositories be gathered	No information available	N/A	No information available	NDA	
Antimicrobial	7-Sep-10	(NDA) 200327, for ceftaroline fosamil for injection, submitted by Cerexa, Inc	Has the applicant demonstrated the safety and efficacy of ceftaroline for the requested indication of community-acquired bacterial pneumonia (CABP)? In your response, please discuss the strengths and weaknesses of the FDA sensitivity analyses.	Yes: 21 No: 0	The Committee unanimously agreed that both safety and efficacy of ceftaroline were demonstrated for the requested indication of CABP.	Yes	2010	2010 Drug Label	NDA	
Antimicrobial	7-Sep-10	(NDA) 200327, for ceftaroline fosamil for injection, submitted by Cerexa, Inc	Has the applicant demonstrated the safety and efficacy of ceftaroline for the requested indication of complicated skin and skin structure infections (cSSSI)? In your response, please discuss the strengths and weaknesses of the FDA sensitivity analyses.	Yes: 18 No: 0	The Committee unanimously agreed that both safety and efficacy of ceftaroline were demonstrated for the requested indication of cSSSI.	Yes	2010	2010 Drug Label	NDA	
Antiviral	2-Jun-10	(BLA 125283), motavizumab, single-dose liquid solution 50 mg/0.5 mL and 100 mg/1 mL vials, MedImmune	Given the potential benefits and risks, should motavizumab be licensed for marketing?	Yes: 3 No: 14	There was a general consensus that there are many questions still to be answered in additional clinical studies. Some members were concerned they did not have enough information to explain the risks and benefits of motavizumab versus palivizumab to	Yes	2010	Drug not approved	BLA	https://www.drugs.com/history/motavizumab.html

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
					patient families and would feel uncomfortable recommending motavizumab.					
Arthritis, Drug Safety and Risk Managment	12-May-10	(NDA) 22-478, naproxcinod 375 milligram capsule, sponsored by NicOx S.A	Please vote on whether naproxcinod should be approved for the indication of the treatment of the signs and symptoms of osteoarthritis, taking into account the efficacy, pharmacokinetic and safety findings.	Yes: 1 No: 16	The committee suggested more studies in high risk populations, including elderly, individuals with preexisting cardiovascular risk factors, and GI risk factors be performed. The committee also suggested additional studies be performed on naproxcinod's interaction with other agents, particularly those that are vasoactive, platelet-active, or GI related.	Yes	2010	https://www.drugs.com/history/naproxcinod.html	NDA	Additional info - drug not approved
Arthritis, Drug Safety and Risk Managment	20-Aug-10	(NDA) 22-531, sodium oxybate, 375 milligrams per milliliter (mg/ml) oral solution, sponsored by Jazz Pharmaceuticals	Does the risk/benefit balance favor approval of sodium oxybate for the treatment of fibromyalgia?	Yes: 2 No: 20	The committee requested additional information on efficacy and cognitive functioning. In addition, the committee requested comparative studies and studies with patients on other pain medications and comorbidities	Yes	2010	https://www.medscape.com/viewarticle/727273		Additional info - drug not approved
Arthritis	16-Nov-10	(BLA) 125370, belimumab, proposed trade name BENLYSTA, sponsored by Human Genome Sciences	Do the efficacy and safety data provide substantial evidence to support approval of belimumab at a dose of 10 mg/kg at 2-week intervals for the first 3 doses and at 4-week intervals thereafter for reducing disease activity in adult patients with active, autoantibody-positive, systemic lupus erythematosus who are receiving standard therapy?	Yes: 13 No: 2	There was consensus that the language in the labeling should clearly state patients with severe renal and central nervous system disease were not evaluated.	Yes	2010	2011 Drug Label	BLA	
Bone, Reproductive and Urologic	17-Jun-10	(NDA) 22-474, (ulipristal acetate) tablets, 30 milligrams (mg), Laboratoire HRA Pharma	Sufficient information to conclude that ulipristal reduces the likelihood of pregnancy? Sufficient information to conclude that safety profile for ulipristal is acceptable for the proposed indication?	Yes: 11 No: 0	A. Labeling to recommend pregnancy testing prior to dosing if pregnancy cannot be excluded by history or examination B. Pharmacovigilance monitoring of spontaneous reports for pregnancy outcomes C. Postmarketing requirements	Yes	2010	Drug label	NDA	
Bone, Reproductive	18-Jun-10	(NDA) 22-526, (flibanserin)	Considering the available data on efficacy and safety,	Yes: 0 No: 11	The Committee felt that that the efficacy of flibanserin was not	Yes	2010	https://www.drugs.com/history/addyi.	NDA	Drug not approve in 2010. approved

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
and Urologic		tablets, 100 milligrams (mg), Boehringer Ingelheim Pharmaceuticals, Inc	has the Applicant demonstrated that the overall risk/benefit profile of flibanserin for the treatment of HSDD in premenopausal women is acceptable?		sufficiently robust to justify the risks. The Committee felt that data needed to be provided on the long term use of flibanserin. Further documentation of improved sexual desire is critical for reconsideration of this medication for treatment of HSDD.			html		later in 2015
Cardiovascular & Renal	11-Jan-10	(sNDA) 21-742, nebivolol tablets, Forest Laboratories, Inc.	Would you recommend approval of nebivolol for heart failure?	Yes: 0 No: 8	Non inferiority trial would need to be done, for another betablocker	Yes	Feb-10	https://www.drugstorenews.com/pharmacy/fda-declines-approve-bystolic-heart-failure-treatment/	sNDA	Drug not approved
Cardiovascular & Renal	11-Jan-10	(sNDA) 21-742, nebivolol tablets, Forest Laboratories, Inc.	Should nebivolol be approved in any heart failure population to reduce mortality and cardiovascular hospitalization?	Yes: 0 No: 8	Placebo-controlled trial should not be conducted and a non inferiority trail would be needed	Yes	Feb-10	https://www.drugstorenews.com/pharmacy/fda-declines-approve-bystolic-heart-failure-treatment/	sNDA	Drug not approved
Cardiovascular & Renal	1-Mar-10	(BLA) 125,288, from Bristol-Myers Squibb, for belatacept injectable	Given the overall benefits and risks, do you recommend that belatacept be approved for the prophylaxis of acute rejection in de novo renal transplant recipients?	Yes: 13 No: 5	Longer term studies are essential to evaluate the clinical benefits of the drug Registry recommended to monitor the incidence of PTLD, as well as REMS and observational studies	No	May-10	https://www.drugs.com/nda/belatacept_100503.html	BLA	Drug not approved after the meeting. FDA requested additional info and approved after that was provided
Cardiovascular & Renal	28-Jul-10	(NDA) 22–433, ticagrelor tablets, 90 milligrams, manufactured by AstraZeneca LP	Should ticagrelor be approved for reduction of thrombotic events in patients with non-ST-elevation and ST-elevation, Acute Coronary Syndrome (ACS) intended to be managed by PCI or medically?	Yes: 7 No: 1	There should be no limitations on its use with the caveat that language about US vs non-US results should be included Need to address the US versus non-US results and the ASA dose issues in a post-approval trial	No	Dec-10	https://www.drugs.com/nda/brilinta_101217.html	NDA	Drug not approved after the meeting. FDA requested additional info and approved after that was provided
Cardiovascular & Renal	29-Jul-10	Not related to any paticular drug	Discussion was to help the agency determine what studies to request for products intended to treat pediatric PAH	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cardiovascular & Renal	20-Sep-10	(NDA) 22–512, dabigatran etexilate mesylate capsules, sponsored by Boehringer	What, if anything, should labeling say about the risk of hepatotoxicity?	No voting	No need to include statement for risk of hepatotoxicity as no short term signal, although possible verbiage could be included that additional long	Yes	Oct-10	2010 Drug Label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Ingelheim Pharmaceuticals, Inc.			terms studies need to be done.					
Cardiovascular & Renal	20-Sep-10	(NDA) 22–512, dabigatran etexilate mesylate capsules, sponsored by Boehringer Ingelheim Pharmaceuticals, Inc.	Should dabigatran be approved for the reduction of stroke and non-CNS systemic embolism in patients with non-valvular atrial fibrillation?	Yes: 9 No: 0	6 members favored both doses, while 4 members favored only 150mg	Yes	Oct-10	2010 Drug Label	NDA	
Cardiovascular & Renal	18-Oct-10	Results of TREAT study of ARANESP (darbepoetin alfa), manufactured by Amgen, Inc.	Should the indication for darbepoetin for the treatment of anemia associated with chronic renal failure for patients not on dialysis be withdrawn?	Yes: 1 No: 15 Abstain: 1	Safety concerns, especially thromboses (including stroke, and cardiovascular risk) were present and these should be discussed between the physician and patient	Yes	Oct-10	2011 Drug Label	N/A	
Cardiovascular & Renal	18-Oct-10	Results of TREAT study of ARANESP (darbepoetin alfa), manufactured by Amgen, Inc.	Should the control group regimen as used in TREAT be adopted as the dose-schedule for use in patients not on dialysis?	Yes: 5 No: 9 Abstain: 3	No specific recommendation	Yes	Oct-10	2011 Drug Label	N/A	
Cardiovascular & Renal	18-Oct-10	Results of TREAT study of ARANESP (darbepoetin alfa), manufactured by Amgen, Inc.	Should the control arm regimen as used in TREAT be adopted as the dose-schedule for use for the anemia associated with CKD in dialysis patients?	Yes: 2 No: 13 Abstain: 2	No specific recommendation	Yes	Oct-10	2011 Drug Label	N/A	
Cardiovascular & Renal	18-Oct-10	Results of TREAT study of ARANESP (darbepoetin alfa), manufactured by Amgen, Inc.	Should the use of darbepoetin alfa be avoided for all patients with CKD with a prior history of stroke?	Yes: 4 No: 10 Abstain: 3	No specific recommendation	Yes	Oct-10	2011 Drug Label	N/A	
Cardiovascular & Renal	8-Dec-10	Not related to any paticular drug	General advice on the appropriate clinical study design for thromboxane receptor antagonists for prevention of cardiovascular events	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Drug Safety and Risk Management	14-Sep-10	Not related to any paticular drug	The committee discussed the abuse potential of the drug dextromethorphan and the public health benefits and risks of dextromethorphan use as a cough suppressant in	N/A	N/A	N/A	N/A	N/A	N/A	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			prescription and nonprescription drug products.							
Endocrinologic and Metabolic	12-Jan-10	(sNDA) 21–348, ZAVESCA (miglustat) Capsules, Actelion Pharmaceuticals Ltd.	Do you consider that the clinical data included in the Zavesca application for NP-C provide substantial evidence of efficacy?	Yes: 6 No: 7	No specific recommendation	Yes	Mar-10	http://www.pharmatimes.com/news/fda_rejects_actelions_zavesca_for_rare_np-c_disease_981662	sNDA	Drug not approved
Endocrinologic and Metabolic	12-Jan-10	(sNDA) 21–348, ZAVESCA (miglustat) Capsules, Actelion Pharmaceuticals Ltd.	Does this application raise concerns about the adequacy of the safety assessments or the safety findings for Zavesca at the proposed dose in NP-C patients?	Yes: 5 No: 7 Abstain: 1	Monitoring serum growth hormone, insulin-like growth factor-1 (IGF1), height, and body mass index (BMI) to help determine if the agent was associated with decreased growth potential Performing lymphocyte and platelet assessments, active post-marketing evaluation was important	Yes	Mar-10	http://www.pharmatimes.com/news/fda_rejects_actelions_zavesca_for_rare_np-c_disease_981662	sNDA	Drug not approved
Endocrinologic and Metabolic	12-Jan-10	(sNDA) 21–348, ZAVESCA (miglustat) Capsules, Actelion Pharmaceuticals Ltd.	Does the risk/benefit profile of Zavesca support its approval for treatment of NP-C?	Yes: 10 No: 3	Post marketing swallowing studies, patient monitoring registry, and such neurologic monitoring as gait assessment and muscle strength Skin biopsy with assessment of fibroblast disease involvement Monitoring peripheral lymphocytes, growth rate, and bone age	No	Mar-10	http://www.pharmatimes.com/news/fda_rejects_actelions_zavesca_for_rare_np-c_disease_981662	sNDA	Drug not approved
Endocrinologic and Metabolic	13-Jan-10	(NDA) 22-562, CARBAGLU (carglumic acid) Tablets, Orphan Europe, S.A.R.L.	Do the data support the effectiveness of Carbaglu for treatment of acute hyperammonemia in NAGS deficiency?	Yes: 11 No: 1	Dose of 100 – 250 mg/kg/day is appropriate	Yes	Mar-10	2010 Drug Label	NDA	
Endocrinologic and Metabolic	13-Jan-10	(NDA) 22-562, CARBAGLU (carglumic acid) Tablets, Orphan Europe, S.A.R.L.	Do you have safety concerns that should be addressed?	Yes: 5 No: 5 Abstain: 2	Medication appears safe over the short-term	Yes	Mar-10	2010 Drug Label	NDA	
Endocrinologic and Metabolic	13-Jan-10	(NDA) 22-562, CARBAGLU (carglumic acid) Tablets, Orphan Europe, S.A.R.L.	Does the risk/benefit profile of Carbaglu support its approval for treatment of hyperammonemia in NAGS deficiency?	Yes: 12 No: 0	Monitoring be required for patients receiving treatment Additional animal studies of at least two years, addressing chronic toxicity and carcinogenicity should be performed Use of a registry to monitor	Yes	Mar-10	ClinicalTrials.gov Identifier: NCT03409003	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
					patients receiving Carbaglu					
Endocrinologic and Metabolic	27-May-10	NDA 22-505, EGRIFTA (tesamorelin acetate), Theratechnologies, Inc	Does the overall risk-benefit assessment of a fixed-dose regimen of Egrifta (tesamorelin) 2 mg/day support its approval for the treatment of excess abdominal fat in HIV-infected patients with lipodystrophy?	Yes: 16 No: 0	Conducting post-approval, long-term, observational or prospective trials Maintaining detailed patient registry to examine specific cardiovascular outcomes Phase IV studies to explore other clinical outcomes such as Quality of Life (QOL), pulmonary function, and frequency of sleep apnea, and liver and cardiac abnormalities	Yes	10-Nov	https://www.drugs.com/newdrugs/fda-approves-egrifta-tesamorelin-first-only-reduction-excess-abdominal-fat-hiv-infected-patients-2401.html	NDA	ClinicalTrials.gov Identifier: NCT01579695
Endocrinologic and Metabolic, Drug Safety and Risk Management	13-Jul-10 and 14-Jul-10	Cardiovascular safety of AVANDIA (rosiglitazone maleate) Tablets, GlaxoSmithKline	Based on the available data, do you recommend FDA allow continued marketing of rosiglitazone with changes?	Yes: 20 No: 12 Abstain: 1	Use should be via controlled access program Strict monitoring should be required and in-depth safety/adverse event data should be collected via the program Labeling should be revised to limit the product to second-line use Labeling should be revised to add a black-box warning regarding the potential for CV-events	Yes	Sep-10	https://www.fda.gov/Drugs/DrugSafety/ucm241411.htm	N/A	http://wayback.archive-it.org/7993/20170113112400/http://www.fda.gov/downloads/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/UCM226959.pdf
Endocrinologic and Metabolic	15-Jul-10	(NDA) 22-580, proposed tradename QNEXA (phentermine/topiramate) Controlled Release Capsules, by VIVUS, Inc.	Do you believe the overall benefit-risk assessment of PHEN/TPM (QNEXA) is favorable to support its approval for the treatment of obesity in individuals?	Yes: 6 No: 10	Need for studies representing broader population and data which provide for a more comprehensive assessment of risks	Yes	Oct-10	https://www.drugs.com/nda/qnexa_101029.html	NDA	Drug not approved
Endocrinologic and Metabolic	15-Sep-10	Post marketing trial results for (NDA) 20–632, MERIDIA (sibutramine hydrochloride monohydrate) Capsules, sponsored by Abbott Laboratories	Do you recommend MERIDIA to be allowed to continue marketing with changes?	Yes: 8 No: 8	No specific recommendation	Yes	Oct-10	https://www.webmd.com/diet/news/20101008/fda-rejects-weight-loss-drug-meridia#1	N/A	Drug withdrawn from market
Endocrinologic and Metabolic	16-Sep-10	(NDA) 22–529, with the proposed trade name	Does available data demonstrate that the potential benefits of	Yes: 5 No: 9	Post approval-active surveillance be conducted such as registry, and large post	Yes	Oct-10	https://diatribe.org/issues/26/new-now-next/3	NDA	Drug not approved

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		LORQESS (lorcaserin hydrochloride) Tablets, sponsored by Arena Pharmaceuticals, Inc.	lorcaserin outweigh the potential risks?		approval trials to follow up on endpoints More pre-market studies be conducted					
Endocrinologic and Metabolic	7-Dec-10	(NDA) 20–0063, CONTRAVE (naltrexone HCl/bupropion HCl) extended release tablets, manufactured by Orexigen Therapeutics, Inc.	Do you believe that available data demonstrate that potential benefits of naltrexone/bupropion outweigh the potential risks?	Yes: 13 No: 7	Approval should be granted with provisions for a larger study Risk for seizure is appropriately communicated in product labeling Clear warnings for use in elderly patients and patients with a history of depression	No	Jan-11	https://www.drugs.com/nda/contrave_110201.html	NDA	Drug not approved after the meeting. FDA asked for more data and approved when new trial was conducted
Gastrointestinal	23-Feb-10	(NDA) 22-554 for XIFAXAN (rifaximin) Tablets 550 mg, manufactured by Salix Pharmaceuticals	In light of the safety and efficacy data presented in this application, does the risk benefit profile support approval of rifaximin for an indication of maintenance of remission from HE (i.e., decreasing the risk for episodes of overt HE)	Yes: 14 No: 4	• A need to conduct Phase IV post-marketing studies; • The conduct of further studies: on patients with MELD score of 25 or greater (the most ill patients) and for a longer duration; • Labeling to reflect comcomitant use with lactulose and suggested use only in patients with Childs Class A and B	Yes	2010	2010 Drug Label	NDA	Additional source - https://www.drugbank.ca/drugs/DB01220/clinical_trials?conditions=DBCOND0000786%2CDBCOND0028911&phase=4&purpose=treatment&status=completed
Gastrointestinal	4-Nov-10	Not related to any paticular drug	The Committee discussed the adequacy of endoscopically documented gastric ulcers as an outcome measure to evaluate drugs intended to prevent gastrointestinal complications of nonsteroidal anti-inflammatory drugs (NSAIDs) including aspirin.	N/A	N/A	N/A	N/A	N/A	N/A	
Gastrointestinal	5-Nov-10	Not related to any paticular drug	The Committee discussed results from clinical trials of proton pump inhibitors in gastroespohageal reflux disease (GERD) in patients less than one year of age.	N/A	N/A	N/A	N/A	N/A	N/A	
Oncologic	22-Mar-10	NDA 022-481, with the proposed	Is this single incomplete trial adequate to support	Yes: 0 No: 9	Most members agreed that the sponsor should develop	Yes	2010	https://www.drugs.com/history/pixuvr	NDA	Additional info - drug not

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		trade name PIXUVRI (pixantrone dimaleate) injection, manufactured by Cell Therapeutics, Inc	approval?		pixantrone further as it was felt that pixantrone has biologic activity based on the data presented. Some members felt that pixantrone should potentially be developed as a combination regimen. It was commented that the risk/benefit ratio of pixantrone should be defined further as some members were concerned over the toxicity profile of pixantrone.			i.html		approved
Oncologic	22-Mar-10	(NDA) 022-374, with the proposed trade name OMAPRO (omacetaxine mepesuccinate) for injection, manufactured by ChemGenex Pharmaceuticals	Should a well characterized in vitro diagnostic to identify patients with the T315I mutation be required and reviewed by the FDA and correlated to clinical trial results prior to approval of omacetaxine for the proposed indication?	Yes: 7 No: 1	Members agreed that omacetaxine has biologic activity and it was noted that the expanded access route may be a possibility for this product in those that may benefit from treatment.	Yes	2012	https://www.drugs.com/history/synribo.html	NDA	Additional info - 2012 drug label
Oncologic	20-Jul-10	(sBLAs) 125085/191 and 192 for AVASTIN (bevacizumab), manufactured by Genentech, Inc	Does the addition of bevacizumab to docetaxel represent a favorable risk/benefit analysis for the initial treatment of patients with metastatic breast cancer?	Yes: 0 No: 13		Yes	Dec-10	http://wayback.archive-it.org/7993/20170111075911/http://www.fda.gov/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/ucm193900.htm	sBLA	Breast cancer indication removed from drug
Oncologic	20-Jul-10	(sBLAs) 125085/191 and 192 for AVASTIN (bevacizumab), manufactured by Genentech, Inc	Does the addition of bevacizumab to taxanes, anthracyclines or capecitabine represent a favorable risk/benefit analysis for the initial treatment of patients with metastatic breast cancer?	Yes: 1 No: 12		Yes	Dec-10	http://wayback.archive-it.org/7993/20170111075911/http://www.fda.gov/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/ucm193900.htm	sBLA	Breast cancer indication removed from drug
Oncologic	20-Jul-10	(sBLAs) 125085/191 and 192 for AVASTIN (bevacizumab), manufactured by	Do AVADO and RIBBON1 results provide confirmatory evidence of clinical benefit of bevacizumab in	Yes: 0 No: 13	Indication for treatment of metastatic breast cancer should be removed from the Avastin label	Yes	Dec-10	http://wayback.archive-it.org/7993/20170111075911/http://www.fda.gov/Drugs/	sBLA	Breast cancer indication removed from drug

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Genentech, Inc	combination with paclitaxel for the initial treatment of MBC?					DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/ucm193900.htm		
Oncologic	30-Nov-10	(1) crizotinib, Pfizer, Inc., (2) pralatrexate, Allos Therapeutics, (3) denosumab, Amgen, Inc., and (4) eribulin, Eisai Inc.	General discussion on issues relating to development of each product for pediatric use and guidance to facilitate Written Requests for pediatric studies	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oncologic	1-Dec-10	(sNDA) 020180/034, PROSCAR (finasteride) tablets, Merck & Co., Inc	Is the finasteride risk/benefit profile favorable for reduction in the risk of prostate cancer in men ≥55 years of age?	Yes: 0 No: 17 Abstain: 1	No specific recommendation	Yes	Jun-11	https://www.fda.gov/Drugs/DrugSafety/ucm258314.htm	sNDA	Additional warning added on label
Oncologic	1-Dec-10	(sNDA) 021319/024, AVODART (dutasteride) Soft Gelatin Capsules, GlaxoSmithKline	Is the dutasteride risk/benefit profile favorable for reduction in the risk of prostate cancer in men?	Yes: 2 No: 14 Abstain: 2	No specific recommendation	Yes	Feb-11	http://www.cancernetwork.com/practice-policy/fda-denies-approval-avodart-prostate-cancer-prevention	sNDA	Drug not approved
Oncologic	2-Dec-10	(NDA) 022-405, Zictifa (vandetanib) Tablets, AstraZeneca Pharmaceuticals LP	If there is a population in which the risk-benefit profile is acceptable, should additional doses of vandetanib be evaluated as a post-marketing requirement to determine the optimal dose?	Yes: 10 No: 0	Lower dose level should be studied further as having a lower dose could also decrease the toxicity profile Dosage schedule also to be studied further	Yes	Apr-11	https://www.fda.gov/Drugs/InformationOnDrugs/ApprovedDrugs/ucm381453.htm	NDA	ClinicalTrials.gov Identifier: NCT01496313
Peripheral and Central Nervous System	6-May-10	(sNDA) 22-432, H.P. ACTHAR Gel (repository corticotropin injection), 80 USP units per milliliter, Questcor Pharmaceuticals	Has the sponsor submitted sufficient evidence of the safety of Acthar Gel at an effective dosing regimen?	Yes: 20 No: 1 Abstain: 2	•Labeling should clearly state which adverse events should be monitored, such as blood pressure, relapse, adrenal insufficiency, and infection • The REMS may include: physician education prior to prescribing, patient registry, use of specialty pharmacy, and post-marketing studies to include data on second course outcomes with relapse reporting.	Yes	2010	http://regulatorydoctor.us/wp-content/uploads/2014/10/H.P.-Acthar-Gel-repository-corticotropin-injection-for-the-treatment-of-infantile-spasms.pdf	sNDA	Additional info from 20101 drug label
Peripheral and Central Nervous	10-Jun-10	(NDA) 22-527, fingolimod 0.5	First-dose effects of fingolimod include	Yes: 25 No: 0	The committee members unanimously agreed that	Yes	2010	2010 Drug Label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
System		milligram (mg) capsules, by Novartis Pharmaceuticals Corporation	bradycardia and heart conduction abnormalities. Based on the data presented to you, should patients be required to receive the first dose in a monitored setting?		patients should be required to receive the first dose in a monitored setting due to the risk of bradycardia and heart conduction abnormalities and that a baseline ECG should be obtained before starting therapy.					
Peripheral and Central Nervous System	11-Aug-10	(NDA) 22-345, with the proposed trade name POTIGA (ezogabine) Tablets, by Valeant Pharmaceuticals North America	Substantial evidence of effectiveness consists of data from adequate and well-controlled clinical trials ("trials" usually interpreted as more than one). Has the sponsor provided substantial evidence of the effectiveness for ezogabine as adjunctive treatment in partial onset seizures?	Yes: 13 No: 0	The committee members unanimously agreed that the sponsor has provided substantial evidence of the effectiveness for ezogabine as adjunctive treatment for adults with partial onset seizures.	Yes	2011	2011 Drug Label	NDA	
Peripheral and Central Nervous System	11-Aug-10	(NDA) 22-345, with the proposed trade name POTIGA (ezogabine) Tablets, by Valeant Pharmaceuticals North America	Urinary retention appears to be a significant safety issue for ezogabine. Do you believe that urinary retention can be mitigated by patient monitoring?	Yes: 11 No: 0 Abstain: 2	The majority of the committee agreed that adequate patient monitoring can mitigate the risk of urinary retention.	Yes	2011	2011 Drug Label	NDA	
Peripheral and Central Nervous System, Drug Safety and Risk Management	3-Nov-10	Not related to any paticular drug	The committee discussed a number of safety conserns with IV administration of the anti-seizure drug phentoin and phosphentoin	N/A	N/A	N/A	N/A	N/A	N/A	
Pharmaceutical Science and Clinical Pharmacology	17-Mar-10	Not related to any paticular drug	The Committee discussed and provided comments on the following topics: (1) General scientific issues related to the application of pharmacogenomics in the early stages of drug development. (2) a new patient-centric clinical pharmacology approach to drug safety; (3) the design and analysis of clinical pharmacology studies focusing on how the renal function changes in the way	N/A	N/A	N/A	N/A	N/A	N/A	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			the body absorbs, distributes, metabolizes and excretes a drug in patients with kidney impairment; (4) scientific considerations and recent developments in transporter-mediated drug interactions.							
Pharmaceutical Science and Clinical Pharmacology	13-Apr-10	Not related to any paticular drug	(1) revising the BE approaches for critical dose drugs; and (2) the use of partial area under the curve (AUC) for the evaluation of abbreviated new drug applications (ANDAs) for products with complex pharmacokinetic profiles.	N/A	N/A	N/A	N/A	N/A	N/A	
Pharmaceutical Science and Clinical Pharmacology	14-Apr-10	Not related to any paticular drug	(1) receive presentations from the Office of Generic Drugs (OGD) on a proposal for revision of the bioequivalence (BE) approaches, specifically to discuss the addition of a limitation on point estimates; (2) receive presentations on an awareness topic to highlight some issues associated with product instability (3) receive and discuss presentations from Office of Pharmaceutical Science (OPS) on the regulatory challenges of drug-induced phospholipidosis	N/A	N/A	N/A	N/A	N/A	N/A	
Psychopharmacologic	16-Sep-10	(sNDA) 21-897/015, VIVITROL (naltrexone for extendedrelease injectable suspension) sponsored by Alkermes, Inc	Should this supplement for treatment for opioid dependence be approved?	Yes: 12 No: 1	The majority of the committee members agreed that VIVITROL should be approved for the treatment of opioid dependence.	Yes	2010	https://www.drugs.com/history/vivitrol.html	sNDA	
Pulmonary-Allergy	9-Mar-10	(NDA) # 22-535, pirfenidone by	Does the committee recommend approval of	Yes: 9 No: 3	Overall, the committee voted favorably for the approval of	No	Jul-05	https://www.drugs.com/history/esbriet	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		InterMune	pirfenidone for the treatment of patients with IPF to reduce decline in lung function?		pirfenadone for the proposed indication.			.html		
Pulmonary-Allergy, Drug Safety and Risk Management	10-Mar-10 and 11-Mar-10	Not related to any paticular drug	The Committees discussed the design of medical research studies (known as "clinical trial design") to evaluate serious asthma outcomes (such as hospitalizations, a procedure using a breathing tube known as intubation, or death) with the use of the class of asthma medications known as long acting beta-2 adrenergic agonists in the treatment of asthma in adults, adolescents, and children.	N/A	N/A	N/A	N/A	N/A	N/A	
Pulmonary-Allergy	7-Apr-10	(NDA) No. 22-522, Roflumilast (DAXAS®) manufactured by Forest Research Institute	Do the efficacy and safety data provide substantial evidence to support the approval of roflumilast at a dose of 500 mcg once daily for the indication of maintenance treatment of COPD associated with chronic bronchitis in patients at risk of exacerbations?	Yes: 5 No: 10	The majority of the panel members that voted "NO" discussed that drug efficacy is present, but not strong; benefits are meager; benefit does not outweigh the safety profile of the drug; and place in therapy is still unknown.	No	2010	https://www.drugs.com/history/daliresp.html	NDA	

2011 Meetings

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Anesthetic and Analgesic	10-Mar-11	Not related to any paticular drug	(1) Receive updates regarding neurodegenerative findings in juvenile animals exposed to anesthetic drugs, as well as results from human epidemiological studies usinganesthesia in children (2) discuss the relevance of these findings to pediatric patients and provide guidance for future	N/A	N/A	N/A	N/A	N/A	N/A	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			preclinical and clinical studies; and (3) discuss the potential implications of these data upon the practice of pediatric anesthesia as well as the communication of the risk of sedative/anesthetic agents to prescribers and parents.							
Antimicrobial	5-Apr-11	(NDA) 20-1699, for fidaxomicin tablets, submitted by Optimer Pharmaceuticals, Inc	Has the applicant demonstrated the safety and effectiveness of fidaxomicin for the requested indication, treatment of Clostridium difficile-associated diarrhea (CDAD).	Yes: 13 No: 0	Members expressed that the risks associated with use of this drug in pregnancy should be further explored.	Yes	2011	2011 Drug Label	NDA	
Antimicrobial	3-Nov-11	Not related to any paticular drug	The committee discussed clinical trial design issues for the development of antibacterial drugs for the treatment of Community-Acquired Bacterial Pneumonia (CABP) and the draft document entitled "Guidance for Industry, Community-Acquired Bacterial Pneumonia: Developing Drugs for Treatment", published March 2009	N/A	N/A	N/A	N/A	N/A	N/A	
Antimicrobial	4-Nov-11	Not related to any paticular drug	The committee discussed clinical trial design issues in the development of antibacterial drugs for the treatment of Hospital-Acquired Bacterial Pneumonia (HABP), including VentilatorAssociated Bacterial Pneumonia (VABP) and the draft document entitled "Guidance for Industry, Hospital-Acquired Bacterial Pneumonia and Ventilator-Associated Bacterial Pneumonia: Developing Drugs for Treatment"	N/A	N/A	N/A	N/A	N/A	N/A	
Antiviral	27-Apr-11	(NDA) 202-258, boceprevir (a hepatitis C virus protease inhibitor), manufactured by MERCK & Co	Considering the overall potential risk and benefits of boceprevir, do the available data support approval of boceprevir for treatment of patients with chronic hepatitis C genotype 1 in combination with pegylated interferon and ribavirin?	Yes: 18 No: 0	The committee recommended drug-drug interaction studies with HIV medications, antidepressants, milk thistle, buprenorphine and methadone as additional postmarketing studies.	Yes	2011	https://www.mdmag.com/medical-news/fda-updates-warning-label-for-hepatitis-c-antiviral-drug	NDA	Additional info - 2011 Drug Label
Antiviral	28-Apr-11	(NDA) 201-917, telaprevir (a hepatitis C virus protease inhibitor), manufactured by VERTEX	Considering the overall risks and benefits, do the available data support approval of telaprevir for treatment of treatment-naive and treatment-experienced patients with chronic hepatitis C genotype 1 in	Yes: 18 No: 0	The committee agreed that stronger studies are needed for the prior relapsers and the current data is not as robust for this	Yes	Jul-05	2011 Drug Label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Pharmaceuticals, Inc	combination with pegylated interferon and ribavirin?		subset of population.					
Antiviral	14-Dec-11 and 15-Dec-11	Not related to any paticular drug	The committee discussed pathways for the development of drugs intended to treat variola virus infection (smallpox) in the event of an outbreak, including the use of animal models of other orthopoxviruses (the group of viruses that includes smallpox) as potential evidence of efficacy.	N/A	N/A	N/A	N/A	N/A	N/A	
Arthritis	21-Jun-11	BLA 125319 for Ilaris (canakinumab) by Novartis Pharmaceuticals	Do the efficacy and safety data provide substantial evidence to support approval of canakinumab at a dose of 150 mg subcutaneously for treatment of gouty arthritis attacks in patients who cannot obtain adequate response with NSAIDS or colchicine?	Yes: 1 No: 11	It was noted that although the drug has been shown to be efficacious, there is not enough long term safety data and data in high risk patients to support approval.	Yes	2011	Drug not approved	BLA	https://www.drugs.com/history/ilaris.html
Arthritis	21-Jun-11	BLA 125319 for Ilaris (canakinumab) by Novartis Pharmaceuticals	Do the efficacy and safety data provide substantial evidence to support approval of canakinumab at a dose of 150 mg subcutaneously for the additional claim that canakinumab has shown to extend the time to next attack and reduce frequency of subsequent attacks?	Yes: 0 No: 12	It was noted that there is not enough long term efficacy data and similar safety concerns as previously discussed.	Yes	2011	Drug not approved		https://www.drugs.com/history/ilaris.html
Bone, Reproductive and Urologic, Drug Safety and Risk Management	9-Sep-11	Benefits and risks of long-term bisphosphonate use for the treatment and prevention of osteoporosis	Do you recommend that the label should further clarify the duration of use for bisphosphonates?	Yes: 17 No: 6	Frequency of re-evaluation is important as the risk versus benefit ratio may change over time Rare serious adverse events should be included in this section of the label	No	N/A	2012 drug labels	N/A	Labelling was not changed to include frequency of monitoring
Bone, Reproductive and Urologic, Drug Safety and Risk Management	8-Dec-11	Benefits and risks of drospirenone-containing oral contraceptives	Do you believe that the benefits of DRSP-containing oral contraceptives for prevention of pregnancy outweigh their risks?	Yes: 15 No: 11	No specific recommendation	Yes	Apr-12	https://www.fda.gov/Drugs/DrugSafety/ucm299305.htm	N/A	
Bone, Reproductive and Urologic, Drug Safety and Risk Management	8-Dec-11	Benefits and risks of drospirenone-containing oral contraceptives	Do you believe the current DRSP labels adequately reflect the risk/benefit profile for these products?	Yes: 5 No: 21	Information regarding the potential risk of venous thromboembolism should be included. Inclusion of summary from all studies, including the FDA study, including numeric results.	Yes	Apr-12	2012 drug labels	N/A	https://www.fda.gov/Drugs/DrugSafety/ucm299305.htm

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
					Simplify label by providing the epidemiologic data in Table format					
Bone, Reproductive and Urologic, Drug Safety and Risk Management	9-Dec-11	ORTHO EVRA (norelgestromin/ethinyl estradiol transdermal system), Janssen Pharmaceuticals, Inc.	Do you believe that the benefits of Ortho Evra transdermal contraceptive patch for prevention of pregnancy outweigh the risks?	Yes: 19 No: 5	No specific recommendation	Yes	2012	2012 drug label	N/A	
Bone, Reproductive and Urologic, Drug Safety and Risk Management	9-Dec-11	ORTHO EVRA (norelgestromin/ethinyl estradiol transdermal system), Janssen Pharmaceuticals, Inc.	Do you believe the current Ortho Evra label adequately reflects the risk/benefit profile for the product?	Yes: 3 No: 20 Abstain: 1	Label should be more visual and include tables and figures Should include discussion on absolute risk as well as relative risks Add information regarding risk factors for and possible long-lasting outcomes of VTE and PE	Yes	2012	2012 drug label	N/A	
Cardiovascular and Renal, Drug Safety and Risk Management	2-May-11	Not related to any paticular drug	Discussion on safety considerations of ultrasound contrast agents based on post marketing studies	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cardiovascular & Renal	8-Sep-11	(NDA) 202439, rivaroxaban tablets, Johnson & Johnson Pharmaceutical Research and Development, L.L.C	Should rivaroxaban be approved for the reduction of stroke and non-CNS systemic embolism in patients with non-valvular atrial fibrillation?	Yes: 9 No: 2 Abstain: 1	Rivaroxaban met criteria as an effective alternative to warfarin. Considered to merit a claim for patients failing other anticoagulant therapies. Constraints on the indicated population for patients with end stage renal disease, end stage liver disease, those well-controlled on warfarin without reasons to switch, and those with low body weight	Yes	2011	2011 Drug Label	NDA	
Dermatologic and Ophthalmic	17-Jun-11	(BLA) 125387, aflibercept ophthalmic solution, proposed trade name EYLEA, sponsored by Regeneron Pharmaceuticals, Inc	Do you think adequate safety and efficacy for aflibercept injection has been demonstrated for the treatment of neovascular age-related macular degeneration (AMD)?	Yes: 10 No: 0	- In the dosage and administration section, state the loading dose of 3 initial monthly injections of 2mg first, then 2mg once every 2 months. - The refrigerated	Yes	2011	201 FDA Label	BLA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
					temperature range should be defined.					
Dermatologic and Ophthalmic, Drug Safety and Risk Management	1-Dec-11	Not related to any paticular drug	Discussion on REMS program for isotretinoin (iPLEDGE) as an example of a REMS that has ETASU	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dermatologic and Ophthalmic, Drug Safety and Risk Management	1-Dec-11	Not related to any paticular drug	Discussion on general issues related to impact of REMS with ETASU on the healthcare system and patient access	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endocrinologic and Metabolic	19-May-11	(NDA) 22224, TRILIPIX (fenofibric acid) delayed release capsules, Abbott Laboratories	Should FDA require a clinical trial to test that, in high-risk men and women at LDL-C goal on a statin with residually high TG and low HDL-C, add-on therapy with Trilipix versus placebo significantly lowers the risk for MACE?	Yes: 13 No: 0	Require the additional trial to obtain more comprehensive results that are more supportive of the effectiveness of add-on therapy with Trilipix in lowering the risk for MACE	Yes	Nov-11	https://www.fda.gov/Drugs/DrugSafety/ucm278837.htm	N/A	
Endocrinologic and Metabolic	19-May-11	(NDA) 22224, TRILIPIX (fenofibric acid) delayed release capsules, Abbott Laboratories	Do you recommend FDA allow continued marketing for Trilipix's indication for co-administration with a statin?	Yes: 9 No: 4	Revise labeling to incorporate findings from the ACCORD-Lipid trial	Yes	Nov-11	https://www.fda.gov/Drugs/DrugSafety/ucm278837.htm	N/A	
Endocrinologic and Metabolic	19-Jul-11	(NDA) 202293 dapagliflozin, manufactured by Bristol-Myers Squibb and AstraZeneca	Do the efficacy and safety data provide substantial evidence to support approval of dapagliflozin?	Yes: 6 No: 9	Additional safety data is necessary prior to approval. Data be obtained in minority patients, the elderly, patients with hepatic insufficiency and patients with mild to moderate renal impairment. Longer term trials should be conducted to collect further data on patients with genital and urinary tract infections	Yes	Jan-12	https://www.medpagetoday.com/endocrinology/diabetes/30747	NDA	
Endocrinologic and Metabolic	2-Nov-11	(sNDA) 21-687 and 21-445, VYTORIN (ezetimibe/simvastatin) and ZETIA (ezetimibe) tablets, MSP	Do the efficacy and safety data provide evidence to support approval of Vytorin 10/20 mg for prevention of major vascular events in patients with pre-dialysis chronic kidney disease?	Yes: 16 No: 0	No specific recommendation	No	Jan-12	https://www.forbes.com/sites/larryhusten/2012/01/25/fda-rejects-proposed-chronic-kidney-disease-	sNDA	Drug not approved

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		(Merck/Schering-Plough) Singapore Company, LLC						indication-for-vytorin/#4ec1b0646ebc		
Endocrinologic and Metabolic	2-Nov-11	(sNDA) 21-687 and 21-445, VYTORIN (ezetimibe/simvastatin) and ZETIA (ezetimibe) tablets, MSP (Merck/Schering-Plough) Singapore Company, LLC	Do the efficacy and safety data provide evidence to support approval of Vytorin 10/20 mg for prevention of major vascular events in patients with end-stage renal disease receiving dialysis?	Yes: 6 No: 10	No specific recommendation	Yes	Jan-12	https://www.forbes.com/sites/larryhusten/2012/01/25/fda-rejects-proposed-chronic-kidney-disease-indication-for-vytorin/#4ec1b0646ebc	sNDA	Drug not approved
Gastrointestinal	12-Jan-11	(NDA) 022486, for Sollpura (liprotamase) Capsules, by Alnara Pharmaceuticals	Do the results constitute substantial evidence of the efficacy of liprotamase for the treatment of patients with EPI due to CF?	Adults - Yes: 3, No: 9 Children - Yes: 0, No: 12	Additional studies prior to approval - long term study, look at CFA on customary diet, head to head comparisons with current porcine therapies, etc.	Yes	Apr-11	https://www.medpagetoday.com/gastroenterology/pancreaticdiseases/26006	NDA	Drug not approved
Gastrointestinal	12-Jan-11	(NDA) 022486, for Sollpura (liprotamase) Capsules, by Alnara Pharmaceuticals	Do the benefits outweigh the potential risks of liprotamase for the treatment of patients with EPI?	Yes: 4 No: 7 Abstain: 1	Additional studies - surveillance of rare adverse events, dosing studies, weight gain and growth observations over an extended time period, etc.	Yes	Apr-11	https://www.medpagetoday.com/gastroenterology/pancreaticdiseases/26006	NDA	Drug not approved
Gastrointestinal, Drug Safety and Risk Management	20-Jul-11	Closed session, no transcript or minutes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gastrointestinal	21-Jul-11	(sBLA) 103772/5301 Infliximab, REMICADE, by Centocor Ortho Biotech, Inc.	Does the benefit:risk profile support approval of Remicade for the pediatric UC indications of induction of clinical remission?	Yes: 14 No: 0 Abstain: 0	No specific recommendation	Yes	Sep-11	2013 Drug Label	sBLA	Indication approved
Gastrointestinal	21-Jul-11	(sBLA) 103772/5301 Infliximab, REMICADE, by Centocor Ortho Biotech, Inc.	Does the benefit:risk profile support approval of Remicade for the pediatric UC indications of maintenance of clinical remission?	Yes: 10 No: 3 Abstain: 1	No specific recommendation	Yes	Sep-11	2013 Drug Label	sBLA	Indication approved
Gastrointestinal	21-Jul-11	(sBLA) 103772/5301 Infliximab, REMICADE, by Centocor Ortho Biotech, Inc.	Does the benefit:risk profile support approval of Remicade for the pediatric UC indications of induction of mucosal healing?	Yes: 13 No: 1 Abstain: 0	No specific recommendation	No	Sep-11	2013 Drug Label	sBLA	Indication not approved
Gastrointestinal	21-Jul-11	(sBLA) 103772/5301 Infliximab,	Does the benefit:risk profile support approval of Remicade for the	Yes: 5 No: 8	Inadequate and unconvincing data to	Yes	Sep-11	2013 Drug Label	sBLA	Indication not approved

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		REMICADE, by Centocor Ortho Biotech, Inc.	pediatric UC indications of maintenance of mucosal healing?	Abstain: 1	support the proposed pediatric indication of maintaining mucosal healing at a dose of 5 mg/kg IV every 8 weeks					
Gastrointestinal	21-Jul-11	(sBLA) 103772/5301 Infliximab, REMICADE, by Centocor Ortho Biotech, Inc.	Does the benefit:risk profile support approval of Remicade for the pediatric UC indications of eliminating corticosteroid use?	Yes: 2 No: 12 Abstain: 0	Very limited data to support eliminating corticosteroid use and there are differences in dynamics and variability between the adult and pediatric populations. Data inadequate for eliminating corticosteroid use if product is dosed at 5 mg/kg IV 0, 2, & 6 weeks, then every 8 weeks	Yes	Sep-11	2013 Drug Label	sBLA	Indication not approved
Gastrointestinal	16-Nov-11	XIFAXAN (rifaximin) by Salix Pharmaceuticals, Inc.	General discussion on design of clinical trials	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gastrointestinal	17-Nov-11	Not related to any paticular drug	General discussion on design and size of premarketing cardiovascular safety development programs	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nonprescription	17-May-11 and 18-May-11	Oral over-the-counter (OTC) drug products containing acetaminophen	Should weight-based dosing directions be added to the existing age-based labeled dosing directions for children ages 2-12?	Yes: 21 No: 0	Dosing instructions should be simple, dosing chart should list youngest age to oldest age group, include the dosing frequency, label should clearly state that weight-based dosing is preferred	Yes	May-11	https://mydoctor.kaiserpermanente.org/mas/Images/Ibuprofen%20and%20Acetaminophen%20(Tylenol)%20Recommended%20Pedi%20Dosing%20(00065-000)_tcm88-726453.pdf	N/A	
Nonprescription	17-May-11 and 18-May-11	Oral over-the-counter (OTC) drug products containing acetaminophen	Do the pharmacokinetic (PK), safety, and efficacy data support addition of new labeled dosing directions corresponding to a 10-15 mg/kg dose for children 6 months to 2 years of age?	Yes: 21 No: 0	New label should include an antipyretic claim, but not analgesic claim	Yes	May-11	https://mydoctor.kaiserpermanente.org/mas/Images/Ibuprofen%20and%20Acetaminophen%20(Tylenol)%20Recommended%20Pedi%20Dosing%20(00065-000)_tcm88-726453.pdf	N/A	
Nonprescription	17-May-11 and 18-May-	Oral over-the-counter (OTC) drug products containing	In what ways can the labeling, packaging, and the container/closure system be improved such that	No voting	Use of a flow restrictor or some other system to minimize/eliminate	Yes	May-11	https://mydoctor.kaiserpermanente.org/mas/Images/I	N/A	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
	11	acetaminophen	medication errors can be minimized?		excessive dosing Dosing devices should be appropriate for the formulation and use "mL" only Use of a safety dosing syringe in order to reduce accidental ingestion by children			buprofen%20and%20Acetaminophen%20(Tylenol)%20Recommended%20Pedi%20Dosing%20(00065-000)_tcm88-726453.pdf		
Nonprescription	17-May-11 and 18-May-11	Oral over-the-counter (OTC) drug products containing acetaminophen	Should the agency consider restricting to single concentration for pediatric acetaminophen-containing solid oral dosage forms?	Yes: 17 No: 3 Abstain: 1	No specific recommendation	Yes	May-11	https://www.billingsclinic.com/app/files/public/1069/Acetaminophen-Dosage-Table.pdf	N/A	
Oncologic	8-Feb-11	Not related to any paticular drug	General discussion on possible ways to improve planning and conduct of trials to confirm clinical benefit (post marketing requirements)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oncologic	12-Apr-11	(sNDA) 022334/S-009, AFINITOR (everolimus) tablets, application submitted by Novartis Pharmaceuticals Corp.	Is the benefit-risk analysis favorable in the treatment of patients with advanced pancreatic neuroendocrine tumors based on demonstrated efficacy and safety profile?	Yes: 10 No: 0	No specific recommendation	Yes	May-11	https://www.drugs.com/newdrugs/novartis-gains-fda-approval-afinitor-first-new-nearly-three-decades-patients-advanced-pancreatic-net-2648.html	sNDA	
Oncologic	12-Apr-11	sNDA 021938/S-013, SUTENT (sunitinib malate) capsules, Pfizer, Inc.	Is the benefit:risk profile favorable for the treatment of patients with unresectable pancreatic neuroendocrine tumors?	Yes: 8 No: 2	No specific recommendation	Yes	May-11	https://www.drugs.com/newdrugs/fda-approves-sutent-rare-type-pancreatic-cancer-2678.html	sNDA	
Oncologic	14-Jul-11	(BLA) 125388, ADCETRIS (brentuximab vedotin) for injection, Seattle Genetics, Inc.	Should the FDA grant accelerated approval for Brentuximab vedotin for the treatment of patients with Hodgkin lymphoma who relapse after autologous stem cell transplant?	Yes: 10 No: 0	No specific recommendation	Yes	Aug-11	https://www.drugs.com/newdrugs/fda-approves-adcetris-two-types-lymphoma-2819.html	BLA	
Oncologic	14-Jul-11	BLA 125399, ADCETRIS (brentuximab vedotin) for injection, Seattle Genetics, Inc.	Should the FDA grant accelerated approval for brentuximab vedotin in the treatment of patients with relapsed or refractory systemic ALCL?	Yes: 10 No: 0	Need for additional trials to further elucidate the risk:benefit profile of the drug, particularly toxicities and long-term safety data	Yes	Aug-11	https://www.drugs.com/newdrugs/fda-approves-adcetris-two-types-lymphoma-2819.html	BLA	
Oncologic	14-Sep-11	(NDA) 021825, FERRIPROX	Is there a favorable benefit/risk profile for deferiprone in the	Yes: 10 No: 2	Accelerated approval	Yes	Oct-11	https://www.drugs.com/newdrugs/f	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		(deferiprone) film-coated tablets, CATO Research Ltd.	treatment of patients in whom current chelation therapy is inadequate?					da-approves-ferriprox-patients-excess-iron-body-2896.html		
Oncologic	14-Sep-11	Not related to any paticular drug	Consider possible trial designs and suitable clinical endpoints to establish efficacy that would support a labeled indication for treatment of non-metastatic CRPC after PSA progression on ADT	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oncologic	1-Nov-11	Not related to any paticular drug	Pediatric development plans for four products that were either recently approved by FDA, are in late stage development	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oncologic	2-Nov-11	Not related to any paticular drug	Discussed regulatory, academic and industry perspectives regarding the development of anticoagulant products (products to suppress clotting of blood) in children	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oncologic	7-Dec-11	(NDA) 202324, INLYTA (axitinib) tablets, Pfizer Inc.	Is the benefit:risk evaluation favorable for axitinib treatment in patients with advanced RCC after failure of a first-line systemic therapy?	Yes: 13 No: 0	No specific recommendation	Yes	Jan-12	https://www.drugs.com/newdrugs/fda-approves-inlyta-advanced-renal-cell-carcinoma-3072.html	NDA	
Oncologic	7-Dec-11	(NDA) 202799, peginesatide injection, Affymax, Inc.	Is there a favorable benefit to risk evaluation for peginesatide for use in patients with anemia associated with chronic renal failure who are on dialysis?	Yes: 15 No: 1 Abstain: 1	No specific recommendation	Yes	Mar-12	https://www.drugs.com/newdrugs/affymax-takeda-announce-fda-approval-omontys-peginesatide-anemia-due-chronic-kidney-ckd-adult-3156.html	NDA	
Peripheral and Central Nervous System	20-Jan-11	(NDA) 202,008, Florbetapir F 18 Injection, sponsored by Avid Radiopharmaceuticals	Do the available data support the approval of Amyvid™ at the present time? Discuss the basis for the vote, including any database deficiencies and ways to resolve these deficiencies (such as the collection of new premarketing or postmarketing data).	Yes: 3 No: 13	The committee encouraged FDA to review additional data resulting from implementation and testing of a reader training program aimed at improving reader consistency.	Yes	2011	https://www.drugs.com/history/amyvid.html	NDA	
Peripheral and Central Nervous	20-Jan-11	(NDA) 202,008, Florbetapir F 18 Injection, sponsored	If there were implementation of a training program that demonstrated accurate diagnosis within the autopsy	Yes: 16 No: 0	The majority of the committee members requested the addition of	Yes	2011	https://www.drugs.com/history/amyvid.html	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
System		by Avid Radiopharmaceuticals	standard/population and a demonstration of a reader consistency in the population of intended application such as exemplified by A05, would the available data support the approval of Amyvid?		this fifth question so that they may voice their desire to see Amyvid approved contingent upon additional data and resolution of the reader training method concerns.					
Peripheral and Central Nervous System	21-Jan-11	NDA 201,277, Gadobutrol, sponsored by Bayer HealthCare Pharmaceuticals	Do the clinical trial and postmarketing data support gadobutrol approval?	Yes: 16 No: 0	• Dosing chart to include doses for infants less than 22 lbs • Dosing chart to include doses for patients who are morbidly obese	Yes	2011	2011 Drug Label	NDA	
Peripheral and Central Nervous System	10-Mar-11	(sNDA) 022115/S-006, LAMICTAL XR (lamotrigine extended-release tablets), sponsored by SmithKline Beecham Corporation d/b/a GlaxoSmithKline,	Has the sponsor submitted substantial evidence of effectiveness for Lamictal XR as monotherapy for the treatment of partial seizures?	Yes: 10 No: 2	The majority of the committee agreed that the sponsor submitted substantial evidence of effectiveness for Lamictal XR as monotherapy for the treatment of partial seizures.	Yes	2011	2011 Drug Label	sNDA	
Peripheral and Central Nervous System	17-Oct-11	(sNDA) 21641 (013) for AZILECT (rasagiline mesylate) Tablets, Teva Neuroscience, Inc.	Has the sponsor provided substantial evidence of effectiveness for rasagiline as a treatment to delay clinical disease progression in patients with Parkinson's disease?	Yes: 0 No: 17	No specific recommendation	Yes	Jan-12	http://ir.tevapharm.com/phoenix.zhtml?c=73925&p=irol-SECText&TEXT=aHR0cDovL2FwaS50ZW5rd2l6YXJkLmNvbS9maWxpbmcueG1sP2lwYWdlPTgwNzkyNzgmRFNFUT0xJlNFUT0yNiZTUURFU0M9U0VDVElPTl9QQUdFJmV4cD0mc3Vic2lkPTU3	sNDA	
Pharmaceutical Science and Clinical Pharmacology	2-Mar-11	Not related to any paticular drug	The committee discussed innovative approaches to the development of drugs for orphan and rare diseases to support decisions such as dose and trial design selection.	N/A	N/A	N/A	N/A	N/A	N/A	
Pharmaceutical Science and Clinical Pharmacology	26-Jul-11	Not related to any paticular drug	The committee discussed presentations by the Office of Generic Drugs (OGD) on bioequivalence issues and quality standards relative to narrow therapeutic index (NTI) drug products as a class.	N/A	N/A	N/A	N/A	N/A	N/A	

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Pharmaceutical Science and Clinical Pharmacology	27-Jul-11	Not related to any paticular drug	The committee discussed current strategies for the FDA's Office of Pharmaceutical Science (OPS) implementation of Quality by Design (QbD) principles within its review offices, incorporating an update on the International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH) activities.	N/A	N/A	N/A	N/A	N/A	N/A	
Psychopharmacologic	12-Dec-11	(NDA) 022549, ADASUVE (loxapine) inhalation powder, Alexza Pharmaceuticals, Inc.	Should Adasuve (loxapine) inhalation powder be approved for use as a single dose in 24 hours when used with the FDA proposed REMS as a treatment for agitation in patients with schizophrenia or bipolar mania?	Yes: 9 No: 8 Abstain: 1	Study needed for a cohort of patients treated with this product in an emergency room setting	No	May-12	https://www.drugs.com/nda/adasuve_120503.html	NDA	Approval delayed due to concerns about manufacturing facility
Pulmonary-Allergy	8-Mar-11	(NDA) 022-383, indacaterol maleate (Arcapta™ Neohaler™) by Novartis Pharmaceuticals Corporation	Do the efficacy and safety data provide substantial evidence to support approval of indacaterol inhalation powder at dose of 75 mcg for the long term, once-daily maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD) including chronic bronchitis and/or emphysema?	Yes: 13 No: 4	Conduct post-marketing studies and long term studies	Yes	2011	2011 Drug Label	NDA	https://www.drugbank.ca/drugs/DB05039/clinical_trials?conditions=DBCOND0053271&phase=4&purpose=treatment&status=completed
Pulmonary-Allergy	8-Mar-11	(NDA) 022-383, indacaterol maleate (Arcapta™ Neohaler™) by Novartis Pharmaceuticals Corporation	Do the efficacy and safety data provide substantial evidence to support approval of indacaterol inhalation powder at dose of 150 mcg for the long term, once-daily maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD) including chronic bronchitis and/or emphysema?	Yes: 5 No: 12	Conduct post-marketing studies and long term studies	Yes	2011	2011 Drug Label	NDA	https://www.drugbank.ca/drugs/DB05039/clinical_trials?conditions=DBCOND0053271&phase=4&purpose=treatment&status=completed
Pulmonary-Allergy	23-Jun-11	(NDA) 22150, icatibant solution for injection (proposed tradename Firazyr), Shire Human Genetic Therapies	Do the efficacy and safety data provide substantial evidence to support approval of icatibant for the treatment of acute attacks of hereditary angioedema in patients 18 years of age and older?	Yes: 12 No: 1	No specific recommendation	Yes	2011	2011 Drug Label	NDA	

2012 Meetings

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Anesthetic and Analgesic	9-Feb-12	(sNDA) 22395/S-013, QUTENZA (capsaicin 8%) Patch, by NeurogesX, Inc	Based on the currently available data, is the risk-benefit profile acceptable for Qutenza to be approved for this indication?	Yes: 0 No: 11 Abstain: 1	The committee stated that although the drug poses a low risk, there is no substantial evidence to support the efficacy of Qutenza for the management of neuropathic pain associated with HIV-PN.	Yes	2012	2012 Drug Label	sNDA	
Anesthetic and Analgesic	7-Dec-12	(NDA) 202880, by Zogenix Inc., for hydrocodone bitartrate extended-release capsules (proposed trade name Zohydro ER)	Based on the data presented and discussed today, do the efficacy, safety and riskbenefit profile of Zohydro ER support the approval of this application?	Yes: 2 No: 11 Abstain: 1	The committee agreed that standards for opioid product approval should be raised in light of the current public health concerns of abuse and misuse. The committee stated that the FDA should not approve ER/LA opioids without tamper-resistant or abusedeterrent formulations, and that additional risk mitigation features should be adopted to strengthen the current ER/LA Opioid Analgesic REMS.	No	2013	2012 Drug Label	NDA	https://www.pharmacist.com/article/controversy-surrounds-fda-approval-zohydro
Antimicrobial, Nonprescription	2-Apr-12	Not related to any paticular drug	The committees met to provide advice on types of consumer studies needed to assess proper use of a MedKit containing doxycycline to be taken in the event of anthrax exposure.	N/A	N/A	N/A	N/A	N/A	N/A	
Antimicrobial	3-Apr-12	Ciprofloxacin, National Institute of Allergy and Infectious Diseases (NIAID)	Do the animal model results provide substantial evidence of effectiveness of ciprofloxacin for the treatment of humans with pneumonic plague?	Yes: 10 No: 0	No specific recommendation	N/A	N/A	N/A	N/A	Not a new drug. This study was jointly conducted by FDA. Drug already approved
Antimicrobial	4-Apr-12	NDA 20-634, NDA 20-635, and NDA 21-721, Levaquin (levofloxacin) tablets, injection, and oral solution, Johnson and Johnson Pharmaceutical Research and	Do the animal model results provide substantial evidence of effectiveness of levofloxacin for the treatment of humans with pneumonic plague?	Yes: 10 No: 0	No specific recommendation	N/A	N/A	N/A	N/A	Not a new drug. Review of post-marketing study results

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Development, LLC								
Antimicrobial	5-Sep-12	(NDA) 201688, tobramycin inhalation powder, application submitted by Novartis Pharmaceuticals Corporation	Has the applicant demonstrated adequate evidence of safety and efficacy to support the use of tobramycin inhalation powder (TIP) in the management of cystic fibrosis patients infected with Pseudomonas aeruginosa?	Yes: 13 No: 0	No specific recommendation	Yes	Mar-13	https://www.cff.org/News/News-Archive/2013/FDA-Approves-New-Powder-Form-of-CF-Drug-TOBI%C2%AE/	NDA	
Antimicrobial	2-Nov-12	(BLA) 125349, raxibacumab injection, Human Genome Sciences, Inc.	Do the results provide substantial evidence that raxibacumab (40 mg/kg IV single dose in adults) is reasonably likely to produce clinical benefit for the treatment of humans with inhalational anthrax?	Yes: 16 No: 1 Abstain: 1	Label should have guidance on the logistical use of this product during a large-scale emergency event. Label emphasizing that product will not protect against central nervous system infections such as meningitis due to its inability to penetrate the blood-brain barrier.	Yes	Dec-12	2012 Drug Label	BLA	
Antimicrobial	2-Nov-12	(BLA) 125349, raxibacumab injection, Human Genome Sciences, Inc.	Do the results from raxibacumab safety trials in healthy volunteers and studies in animals support an acceptable risk benefit profile given the benefits of the therapy?	Yes: 18 No: 0	Label should reinforce that safety of this drug was evaluated in healthy humans rather than patients with inhalational anthrax. Additional studies for doses, infusion time, etc.	Yes	Dec-12	2012 Drug Label	BLA	
Antimicrobial	28-Nov-12	(NDA) 204384, bedaquiline tablets, submitted by Janssen Therapeutics	Do the data provide substantial evidence of efficacy of bedaquiline for proposed indication of treatment of pulmonary tuberculosis due to MDR M. tuberculosis?	Yes: 18 No: 0	Evidence is ok for accelerated approval only, not for regular approval	Yes	Dec-12	https://www.nytimes.com/2013/01/01/business/fda-approves-new-tuberculosis-drug.html	NDA	
Antimicrobial	28-Nov-12	(NDA) 204384, bedaquiline tablets, submitted by Janssen Therapeutics	Do the data provide substantial evidence of safety of bedaquiline for proposed indication of treatment of pulmonary tuberculosis due to MDR M. tuberculosis?	Yes: 11 No: 7	Evidence is ok for accelerated approval only, not for regular approval. Mortality differences discovered in trials should be included in product labeling	Yes	Dec-12	https://www.nytimes.com/2013/01/01/business/fda-approves-new-tuberculosis-drug.html	NDA	
Antimicrobial	29-Nov-12	(NDA) 22407, VIBATIV (telavancin hydrochloride)	Do the results provide substantial evidence of the safety and effectiveness of	Yes: 6 No: 9	Additional data showing non-inferiority to vancomycin are needed	Yes	Jun-13	https://www.drugs.com/newdrugs/fda-approves-vibativ-hospitalized-patients-	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		sterile powder for injection, Theravance, Inc.	telavancin for the requested indication of treatment?					bacterial-pneumonia-3824.html		
Antimicrobial	29-Nov-12	(NDA) 22407, VIBATIV (telavancin hydrochloride) sterile powder for injection, Theravance, Inc.	Do the results provide substantial evidence of the safety and effectiveness of telavancin for the treatment of nosocomial pneumonia when other alternatives are not suitable?	Yes: 13 No: 2	Should be limited to situations where alternative treatments are not available, and these limitations should be included in the labeling. Strongly advised there be cautionary labeling related to use of telavancin in renal dysfunction	Yes	Jun-13	2014 Drug label	NDA	
Antiviral	10-May-12	Supplement for new drug application (NDA) 21-752, TRUVADA® (emtricitabine/tenofovir disoproxil fumarate), submitted by Gilead Sciences, Inc	Does the current application support a favorable risk-benefit assessment adequate to approve TRUVADA® for a PrEP indication in: a. HIV-uninfected men who have sex with men (MSM)?	Yes: 19 No: 3	There was a general consensus that baseline HIV testing is crucial. A two to four month frequency for repeat testing was recommended. Hepatitis B virus testing at baseline. There would be an opportunity to vaccinate susceptible patients.	Yes	2012	2012 Drug Label	sNDA	
Antiviral	10-May-12	Supplement for new drug application (NDA) 21-752, TRUVADA® (emtricitabine/tenofovir disoproxil fumarate), submitted by Gilead Sciences, Inc	Does the current application support a favorable risk-benefit assessment adequate to approve TRUVADA® for a PrEP indication in: b. HIV-uninfected partners in serodiscordant couples?	Yes: 19 No: 2 Abstain: 1	Same as above	Yes	2012	2012 Drug Label	sNDA	
Antiviral	10-May-12	Supplement for new drug application (NDA) 21-752, TRUVADA® (emtricitabine/tenofovir disoproxil fumarate), submitted by Gilead Sciences, Inc	Does the current application support a favorable risk-benefit assessment adequate to approve TRUVADA® for a PrEP indication in: c. Other individuals at risk for acquiring HIV through sexual activity?	Yes: 12 No: 8 Abstain: 2	Same as above	Yes	2012	2012 Drug Label	sNDA	
Antiviral	11-May-12	(NDA) 203100, for a fixed-dose combination tablet	Considering the overall risks and benefits, do the available data support	Yes: 13 No: 1	Longer-term safety monitoring focusing on renal and bone parameters.	Yes	N/A	2012 Drug Label	NDA	https://ichgcp.net/clinical-trials-registry/NCT02

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		of elvitegravir/cobicistat/emtricitabine/tenofovir disoproxil fumarate, submitted by Gilead Sciences, Inc	approval of elvitegravir/cobicistat/emtricitabine/tenofovir disoproxil fumarate as a complete regimen for treatment of HIV-1 infection in treatment-naïve adults?							351908
Arthritis	12-Mar-12	Not related to any paticular drug	The committee discussed the anti-nerve growth factor (anti-NGF) drug class that is currently under development and the safety issues possibly related to these drugs.	N/A	N/A	N/A	N/A	N/A	N/A	
Arthritis	8-May-12	Supplemental biologics license application 125249, ARCALYST (rilonacept) injection, Regeneron Pharmaceuticals, Inc	Do the efficacy and safety data support the approval of rilonacept 80 mg subcutaneously once weekly (following a 160 mg loading dose) for 16 weeks for the prevention of gout flares during the initiation of uric acid-lowering therapy in adult patients with gout?	Yes: 0 No: 11	The committee stated that more efficacy data and long term safety data was needed in patients who are intolerant of or refractory to standard therapy, have more severe forms of gout (tophaceous), and low renal function. The committee also stated that these studies should have treatment durations and follow-ups longer than 16 weeks.	Yes	2012	Drug label	sBLA	Drug not approved
Arthritis	9-May-12	(NDA) 203214, tofacitinib tablets, Pfizer Inc	Do the efficacy and safety data provide substantial evidence to support approval of tofacitinib for the treatment of moderately to severely active rheumatoid arthritis in patients who have had inadequate response to one or more DMARDs?	Yes: 8 No: 2	The committee stated that tofacitinib should only be considered after attempting treatment with another biologic agent given that the currently available biologics have more efficacy and safety data. They further stated that tofacitinib should be initiated at a dose of 5 mg twice daily and escalated as needed.	Yes	2012	2012 Drug Label	NDA	
Arthritis	20-Dec-12	(NDA) 22151, rintatolimod injection (proposed trade name AMPLIGEN) submitted by Hemispherx Biopharma, Inc	Based on the information included in the briefing materials and presentations, has the applicant provided sufficient efficacy and safety data to support marketing of Ampligen for the treatment of chronic fatigue syndrome (CFS)?	Yes: 5 No: 8 No Voting: 1	The committee members who voted "No" recommended that a well designed and appropriately controlled study, with Agency input, is necessary to address the major safety and efficacy gaps in the Ampligen development program. In addition, the committee members stated that the applicant needs to further investigate which selective	Yes	2012	https://www.drugs.com/history/ampligen.html	NDA	Drug not approved

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
					subgroups, including subgroups based on severity of disease, would respond well to Ampligen.					
Bone, Reproductive and Urologic	20-Jan-12	(NDA) 22-139, progesterone gel 8%, Columbia Laboratories, Inc.	Is the overall risk/benefit profile of progesterone gel acceptable to support approval in the US?	Yes: 4 No: 13	No specific recommendation	Yes	Feb-12	https://www.prnewswire.com/news-releases/watson-receives-complete-response-letter-from-fda-for-progesterone-vaginal-gel-8-140545013.html	NDA	Drug not approved
Bone, Reproductive and Urologic	5-Apr-12	Mirabegron (YM178), under New Drug Application (NDA) 202611, submitted by Astellas Pharma Global Development Inc.	Considering all the available data, including information from the briefing documents and today's discussion, does the overall benefit-risk assessment support approval of mirabegron for the treatment of overactive bladder?	Yes: 7 No: 4 Abstain: 1	To further clarify the overall clinical benefit and effects on quality of life	Yes	Jul-05	2012 Drug label	NDA	
Cardiovascular & Renal	23-Feb-12	(NDA) 203202, proposed trade name NORTHERA (droxidopa capsules), submitted by Chelsea Therapeutics, Inc	Should droxidopa be approved for the treatment of symptomatic neurogenic orthostatic hypotension in patients with primary autonomic failure (Parkinson's Disease, Multiple System Atrophy, and Pure Autonomic Failure), Dopamine Beta Hydroxylase Deficiency, and Non-Diabetic Autonomic Neuropathy?	Yes: 7 No: 4 No Voting: 1 Abstain: 1	Advisory committee noted that the safety profile for droxidopa can be mitigatedthrough labeling and postmarketing studies as the risks of the drug are not unpredictable.	No	Mar-12	https://www.drugs.com/nda/northera_120328.html	NDA	Drug not approved
Cardiovascular & Renal	23-May-12	(sNDA) 202439/S-002, XARELTO (rivaroxaban tablets), submitted by Janssen Pharmaceuticals, Inc	Should rivaroxaban be approved for use in the treatment of ACS?	Yes: 4 No: 6 Abstain: 1	Committee members stated that the drug is potentially approvable with a 2nd trial; preferably at the 2.5 mg dose. If approved, the 2.5 mg should be recommended. If approved, rivaroxaban will be given with prasugrel and ticagrelor because people don't read labels.	Yes	2012	https://www.forbes.com/sites/larryhusten/2012/06/21/fda-rejects-acs-indication-for-rivaroxaban-xarelto/#2177f28e48ad	NDA	Drug not approved
Cardiovascular & Renal	13-Sep-12	(NDA) 203009, lixivaptan, submitted by	Should lixivaptan be approved for the treatment of	Yes: 0 No: 8	No specific recommendation	Yes	Nov-12	https://www.drugs.com/nda/lixivaptan_121101.html	NDA	Drug not approved

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Cardiokine Biopharma, LLC,	hypervolemic hyponatremia associated with heart failure?							
Cardiovascular & Renal	13-Sep-12	(NDA) 203009, lixivaptan, submitted by Cardiokine Biopharma, LLC,	Should lixivaptan be approved for the treatment of euvolemic hyponatremia associated with SIADH?	Yes: 3 No: 5	Further studies were needed to evaluate safety signals and there should be enough confidence to rule out particular safety signals.	Yes	Nov-12	https://www.drugs.com/nda/lixivaptan_121101.html	NDA	Drug not approved
Cardiovascular & Renal	13-Sep-12	NDA 203826, phenylephrine hydrochloride injection, USP, submitted by West-Ward Pharmaceutical Corp	Should phenylephrine be approved "to increase blood pressure in acute hypotensive states, such as shock and peri-operative hypotension?	Yes: 2 No: 8	The indication was too broad - would require data similar to a non-inferiority study against other agents. Consensus for approval for an indication in neuraxial anesthesia and peri-operative hypotension	Yes	2012	2012 Drug Label	NDA	Drug approved with smaller indication as recommended by advisory panel
Dermatologic and Ophthalmic	27-Feb-12	Not related to any paticular drug	The committee was asked to comment on the appropriateness of marketing a single bottle of anti-inflammatory ophthalmic products for use in both eyes for post-surgical indications as it relates to the potential risk for infection.	N/A	N/A	N/A	N/A	N/A	N/A	Advice on the potential risk and approaches to mitigating that risk, including limits to fill size where appropriate.
Dermatologic and Ophthalmic	26-Jul-12	(sBLA) 125156 for LUCENTIS (ranibizumab injection) by Genentech, Inc.	Do you recommend for approval, the 0.5 mg dose of Lucentis (ranibizumab injection) administered monthly in the treatment of diabetic macular edema?	Yes: 8 No: 2	No specific recommendation	Yes	2012	https://www.drugs.com/history/lucentis.html	sBLA	FDA drug label
Dermatologic and Ophthalmic	26-Jul-12	(sBLA) 125156 for LUCENTIS (ranibizumab injection) by Genentech, Inc.	Do you recommend for approval, the 0.3 mg dose of Lucentis (ranibizumab injection) administered monthly in the treatment of diabetic macular edema?	Yes: 10 No: 0	No specific recommendation	Yes	2012	https://www.drugs.com/history/lucentis.html	sBLA	FDA drug label
Dermatologic and Ophthalmic	26-Jul-12	(BLA) 125422, ocriplasmin intravitreal injection (proposed tradename, Jetrea) by ThromboGenics, Inc.	Do the benefits of administering ocriplasmin for the treatment of vitreomacular adhesions outweigh the potential risks?	Yes: 10 No: 0	Labelling suggestions: State "for single use in one eye only" Include the term "symptomatic" in the indication Patient information should accompany the labeling	Yes	Oct-12	2012 Drug Label	BLA	

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Drug Safety and Risk Management	12-Dec-12	Not related to any paticular drug	The DSaRM advisory committee met to discuss the various strategies used by the Agency to define and address teratogenic risk, including requiring REMS with ETASU.	N/A	N/A	N/A	N/A	N/A	N/A	
Drug Safety and Risk Management	13-Dec-12	Not related to any paticular drug	The Agency presented information on the risk management of teratogens, some of which have REMS with ETASU.	N/A	N/A	N/A	N/A	N/A	N/A	
Endocrinologic and Metabolic	22-Feb-12	(NDA) 22–580, proposed trade name QNEXA (phentermine/topiramate) Controlled-Release Capsules, manufactured by VIVUS, Inc	Considering all the available data included in the application and today's discussions, does the overall benefit-risk assessment of PHEN/TPM support its approval for the treatment of obesity in individuals with a body mass index (BMI) > 30 kg/m2 or > 27 kg/m2 with weightrelated co-morbidities?	Yes: 20 No: 2	Requirement for a post-approval long-term cardiovascular (CV) safety trial which should be conducted expeditiously.	Yes	2012	2013 Drug Label	NDA	https://clinicaltrials.gov/ct2/show/NCT01834404
Endocrinologic and Metabolic	28-Mar-12 and 29-Mar-12	Not related to any paticular drug	The committee discussed the role of cardiovascular assessment in the pre-approval and post-approval settings for drugs and biologics developed for the treatment of obesity.	N/A	N/A	N/A	N/A	N/A	N/A	
Endocrinologic and Metabolic	10-May-12	(NDA) 22–529, lorcaserin hydrochloride Tablets, sponsored by Arena Pharmaceuticals, Inc.	Do the available data demonstrate that the potential benefits of lorcaserin outweigh the potential risks when used long-term in a population of overweight and obese individuals?	Yes: 18 No: 4 Abstain: 1	Several panel members indicated that valvulopathy should be included in the Risk Evaluation and Mitigation Strategies (REMS) requirements and as part of the warning in the labeling and major adverse cardiovascular events (MACE) should be addressed as part of the Phase 4 postmarketing cardiovascular trials requirements.	Yes	2012	2012 Drug Label	NDA	https://www.nejm.org/doi/10.1056/NEJMoa1808721

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Endocrinologic and Metabolic	17-Oct-12	(NDA) 203858, lomitapide capsules, sponsored by Aegerion Pharmaceuticals, Inc	Based on the information included in the briefing materials and presented today, has the applicant provided sufficient efficacy and safety data to support marketing of lomitapide for the treatment of homozygous familial hypercholesterolemia?	Yes: 13 No: 2	The committee recommended tight control of the distribution of lomitapide to patients with HoFH by limiting access and educating the prescribers (strong Risk Evaluation and Mitigation Strategy [REMS]). The committee also recommended that post-marketing studies should be designed to collect additional long-term safety data. Please see the transcript for details of the committee's discussion.	Yes	N/A	2012 Drug Label	NDA	
Endocrinologic and Metabolic	18-Oct-12	(NDA) 203568, mipomersen injection, sponsored by Genzyme Corporation	Based on the information included in the briefing materials and presented today, has the applicant provided sufficient efficacy and safety data to support marketing of mipomersen for the treatment of homozygous familial hypercholesterolemia?	Yes: 9 No: 6	Long-term post-marking study be conducted to further weigh the risks and benefits of mipomersen.	Yes	2013	2013 Drug Label	NDA	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4344956/
Endocrinologic and Metabolic	7-Nov-12	(NDA) 200677, pasireotide injection (proposed trade name SIGNIFOR) for subcutaneous administration, submitted by Novartis Pharmaceuticals Corporation	Based on the information in the briefing material and the presentations from today, has the applicant provided sufficient evidence for efficacy and safety to support marketing of pasireotide for the treatment of Cushing's disease?	Yes: 10 No: 0	The committee suggested that additional post-marketing studies should monitor endpoints such as hyperglycemia, diabetes, osteoporosis, blood pressure, lipids, death, fracture, infections, stroke, in addition to liver function tests. Please see the transcript for details of the committee's discussion.	Yes	2012	2012 Drug Label	NDA	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5486525/
Endocrinologic and Metabolic	8-Nov-12	(NDA) 203313, insulin degludec/insulin aspart [rDNA origin] injection and (NDA) 203314, insulin degludec [rDNA origin] injection, manufactured by Novo Nordisk Incorporated	Has the applicant provided sufficient efficacy and safety data to support marketing of degludec and degludec/aspart for the treatment of Type 1 and Type 2 diabetes mellitus?	Yes: 8 No: 4	Need for a properly powered and well-designed study to assess the CV risk post-approval	No	Nov-12	https://www.pharmacytimes.com/contributor/timothy-o-shea/2016/05/insulin-degludec-what-pharmacists-should-know	NDA	Drug not approved
Endocrinologi	8-Nov-12	(NDA) 203313,	Should a cardiovascular	Yes: 12	No specific recommendation	Yes	Nov-12	https://www.pharmac	NDA	

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
c and Metabolic		insulin degludec/insulin aspart [rDNA origin] injection and (NDA) 203314, insulin degludec [rDNA origin] injection, manufactured by Novo Nordisk Incorporated	outcomes trial be conducted for degludec and degludec/aspart?	No: 0				ytimes.com/contributor/timothy-o-shea/2016/05/insulin-degludec-what-pharmacists-should-know		
Gastrointestinal	13-Mar-12	Not related to any paticular drug	The committee discussed and provided general advice on the appropriate target populations, objectives and designs of trials intended to evaluate products for the control of hyperbilirubinemia (increased levels of bilirubin in the body) in newborn infants.	N/A	N/A	N/A	N/A	N/A	N/A	
Gastrointestinal	28-Aug-12	(sBLA) 125057/232, for Humira (adalimumab), by Abbott Laboratories	Do the expected benefits outweigh the known and potential risks of Humira for the treatment of patients with moderately to severely active UC based on currently available data? If YES, specify whether your answer is limited to particular population(s) defined by level of disease severity or inadequate response/intolerance to prior therapies.	Yes: 15 No: 2	The panel commented on the need to explore higher doses and since baseline efficacy has already been established, there is a need to maximize efficacy. It was also noted that in addition to the need for exploration of drug dosage issues, the mechanism of action of the drug needs to be looked at more in depth.	Yes	2012	https://www.drugs.com/history/humira.html	sBLA	FDA drug label
Gastrointestinal	16-Oct-12	(NDA) 203441, with the proposed trade name Gattex (teduglutide) for subcutaneous injection, by NPS Pharmaceuticals, Inc	Do the benefits of teduglutide outweigh the potential risks in patients with SBS? Please explain your answer.	Yes: 11 No: 1	Panel members expressed the need for a registry for colorectal and other cancers that follows patients for at least 10 years in addition to the REMS and post-marketing survey oversight.	Yes	2012	2012 Drug Label	NDA	https://www.drugbank.ca/drugs/DB08900/clinical_trials?conditions=DBCOND0060188&phase=4&purpose=treatment&status=completed

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Nonprescription	9-Nov-12	(NDA) 202211, for partial switch from prescription to OTC of oxybutynin transdermal system (OXYTROL FOR WOMEN), MSD Consumer Care, Inc.	Can consumers appropriately self-select to use the oxybutynin transdermal system (TDS) in an over-the-counter (OTC) setting?	Yes: 5 No: 6	Consultation by a pharmacist or physician is warranted before using this product Diagnosis of OAB by a physician should be a component of the label Behavioral therapy should be identified as first line treatment and may be considered for use in conjunction with pharmacotherapy	No	Jan-13	https://www.drugs.com/newdrugs/fda-approves-over-counter-oxytrol-women-overactive-bladder-3664.html	NDA	OTC Drug label has all the recommendations
Oncologic	8-Feb-12	(sBLA) 125320/28 for XGEVA (denosumab) injection, application submitted by Amgen Inc	Has denosumab demonstrated a favorable risk/benefit evaluation for the treatment of castrateresistant prostate cancer at high risk for metastasis?	Yes: 1 No: 12	In regards to the benefit of denosumab, several members felt that the difference in bone metastasis-free survival (BMFS) between the denosumab and placebo arms of the trial was not large enough to establish clear clinical benefit	Yes	2012	Drug not approved for Cancer	sBLA	
Oncologic	9-Feb-12	(sNDA) 21790/010 for Dacogen (decitabine) for injection, application submitted by Eisai Inc	Has Dacogen demonstrated a favorable risk-benefit for the treatment of newly diagnosed AML in patients 65 years and older who are not candidates for induction chemotherapy?	Yes: 3 No: 10 Abstain: 1	Generally, panel members agreed that statistical significance is not imperative for demonstration of clinical benefit, but that it is a major component in assessing the "big picture" of supportive evidence. Further, several members stated that it is critically important when considering a single trial that the results be consistent and robust.	Yes	2012	Drug not approved for Cancer	sNDA	
Oncologic	20-Mar-12	(sNDA) 022465/S-010, with the trade name Votrient (pazopanib hydrochloride) tablets, application submitted by Glaxo Wellcome Manufacturing Pte Ltd doing business as GlaxoSmithKline	Considering the observed improvement in PFS, the absence of an improvement in OS, and the adverse event profile of pazopanib, is the risk benefit assessment favorable for the use of pazopanib in the treatment of patients with advanced soft tissue sarcoma (STS) who have received prior chemotherapy?	Yes: 11 No: 2	In regards to benefit, committee members discussed the value of a 3 month improvement in PFS in this patient population. Members generally agreed that stabilizing these patients to be free of progression was valuable, but that the magnitude of the effect was marginal or modest at best.	Yes	2012	2012 Drug Label	sNDA	
Oncologic	20-Mar-12	(NDA) 022576, with the proposed trade name Taltorvic (ridaforolimus) tablets, application	Has a favorable risk-benefit profile for ridaforolimus as a maintenance therapy for patients with metastatic soft tissue or bone	Yes: 1 No: 13	Has a favorable risk-benefit profile for ridaforolimus as a maintenance therapy for patients with metastatic soft tissue or bone sarcoma who have stable disease or better after 4 or more cycles of	Yes	2012	Drug not approved	sNDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		submitted by Merck Sharp & Dohme Corp	sarcoma who have stable disease or better after 4 or more cycles of chemotherapy been demonstrated?		chemotherapy been demonstrated?					
Oncologic	21-Mar-12	(NDA) 202497, with the proposed trade name Marqibo (vincristine sulfate liposomes injection), application submitted by Talon Therapeutics, Incorporated	Has Marqibo demonstrated a favorable risk-benefit for the treatment of adult patients with Philadelphia chromosome negative acute lymphoblastic leukemia in second or greater relapse or whose disease has progressed following two or more treatment lines of anti-leukemia therapy?	Yes: 7 No: 4 Abstain: 2	Panel members expressed several different perspectives in regard to the risk-benefit profile of Marqibo. Several members discussed a lack of treatment options for the patient population which was studied, and stated that these patients will often receive only supportive therapies.	Yes	2012	2012 Drug Label	NDA	
Oncologic	20-Jun-12	(NDA) 203213, with the established name semuloparin sodium injection, application submitted by sanofi-aventis U.S. LLC	Is there sufficient demonstration of a positive benefit-to-risk assessment to recommend approval of semuloparin for thromboprophylaxis in any population or subpopulation of patients with cancer? If yes, please define this population in your discussion after your vote.	Yes: 1 No: 14 Abstain: 1	In regards to benefit, some panel members expressed skepticism regarding the degree of clinical benefit described by the study results.	Yes	2012	Drug not approved for this indication	NDA	
Oncologic	20-Jun-12	NDA 202714, with the proposed trade name Kyprolis (carfilzomib) for injection, application submitted by Onyx Pharmaceuticals, Inc	Is the risk benefit assessment favorable for the use of carfilzomib in the treatment of patients with relapsed and refractory multiple myeloma who have received at least 2 prior lines of therapy that included a proteasome inhibitor and an immunomodulatory agent?	Yes: 11 No: 0 Abstain: 1	In regards to the risk benefit assessment, several committee members expressed that this must be considered in light of the significantly refractory patient population and the incurable nature of the disease.	Yes	2012	2012 Drug Label	NDA	
Oncologic	24-Jul-12	Not related to any paticular drug	The committee discussed the evaluation of	N/A	N/A	N/A	N/A	N/A	N/A	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			radiographic review in randomized clinical trials using progression-free survival (PFS) as a primary endpoint in non-hematologic malignancies.							
Oncologic	25-Jul-12	Not related to any paticular drug	The committee met to discuss and provide general advice on the extent to which, if any, the pre-surgical identification of clear cell carcinoma of the kidney using an imaging test provides useful clinical information.	N/A	N/A	N/A	N/A	N/A	N/A	
Oncologic	4-Dec-12	Not related to any paticular drug	Discussed issues relating to development of 4 products for pediatric use and provided guidance for written requests	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peripheral and Central Nervous System	24-May-12	(NDA) 202737, tafamidis meglumine capsules, VYNDAQEL, Pfizer, Inc	Are findings sufficiently robust to provide evidence of efficacy similar to that usually provided for a clinical endpoint?	Yes: 4 No: 13	No specific recommendation	Yes	Jun-12	http://www.pharmatimes.com/news/fda_rejects_pfizer_rare_disease_drug_tafamidis_977149	NDA	Drug not approved
Peripheral and Central Nervous System	24-May-12	(NDA) 202737, tafamidis meglumine capsules, VYNDAQEL, Pfizer, Inc	Are findings sufficiently robust to provide evidence of efficacy similar to that usually provided for a biomarker endpoint?	Yes: 13 No: 4	No specific recommendation	Yes	Jun-12	http://www.pharmatimes.com/news/fda_rejects_pfizer_rare_disease_drug_tafamidis_977149	NDA	Drug not approved
Pharmaceutical Science and Clinical Pharmacology	14-Mar-12	Not related to any paticular drug	The committee discussed the clinical pharmacology aspects of pediatric clinical trial design and dosing to optimize pediatric drug development.	N/A	N/A	N/A	N/A	N/A	N/A	
Pharmaceutical Science and Clinical Pharmacology	8-Aug-12	Not related to any paticular drug	During the first session, the committee discussed the uses and limitations of in vitro dissolution testing and proposed future direction for	N/A	N/A	N/A	N/A	N/A	N/A	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			evaluation including possible research. During the second session, the committee received an update on the FDA's recently posted draft guidances for industry on biosimilar products. This was an awareness topic and there was no formal Committee discussion or recommendation.							
Pharmaceutical Science and Clinical Pharmacology	9-Aug-12	Not related to any paticular drug	During the morning session, the committee discussed FDA's draft guidance on tablet scoring. During the afternoon session, the committee discussed: (1) the Center for Drug Evaluation and Research (CDER) Nanotechnology Risk Management Working Group activities; (2) nanotechnology-related research conducted and published by CDER, to include examples related to sunscreens; and (3) the overview and preliminary analysis of nanotechnology-related information collected from drug application submissions.	N/A	N/A	N/A	N/A	N/A	N/A	
Pulmonary-Allergy	23-Feb-12	New drug application 202450, for aclidinium bromide, sponsored by Forest Laboratories	Do the efficacy and safety data provide substantial evidence to support approval of aclidinium 400 mcg twice daily for the maintenance treatment of bronchospasm associated with COPD?	Yes: 12 No: 2	It was recommended that the duration be not less than 12 months, with 24 months or longer being preferable, and that the number of exclusions be kept to a minimum.	Yes	2012	2012 Drug Label	NDA	https://www.drugbank.ca/drugs/DB08897/clinical_trials?conditions=DBCOND0031289&phase=4&purpose=treatment&status=completed

2013 Meetings

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Antimicrobial	17-Oct-13	Not related to any paticular drug	The committee met and discussed susceptibility interpretive criteria for systemic antibacterial drugs and for dosing recommendations in product labeling.	N/A	N/A	N/A	N/A	N/A	N/A	
Antimicrobial	18-Oct-13	(NDA) 204684, miltefosine capsules, submitted by Paladin Therapeutics, Inc	Has the applicant demonstrated the safety and efficacy of miltefosine for the treatment of visceral leishmaniasis?	Yes: 15 No: 1	There were several recommendations regarding what should be included in the label including the importance of adherence, use of contraception for at least four or five months post-therapy, that the medication should be taken with food, guidance on what to do if doses are skipped, and information about the risk of relapse. There was also a recommendation for miltefosine to be administered via directly observed therapy (DOT) to ensure adherence. It was also noted that efficacy was best at doses of at least 2.5 mg/kg/day. Members also stated that clinicians should be aware that parasites may be persistent, and a cure may not be achieved.	Yes	2014	2014 Drug Label	NDA	
Antimicrobial	18-Oct-13	(NDA) 204684, miltefosine capsules, submitted by Paladin Therapeutics, Inc	Has the applicant demonstrated the safety and efficacy of miltefosine for the treatment of cutaneous leishmaniasis?	Yes: 14 No: 2	It was also stated that the label should include information regarding the fact that not all species and strains of cutaneous leishmaniasis are the same.	Yes	2014	2014 Drug Label	NDA	
Antimicrobial	18-Oct-13	(NDA) 204684, miltefosine capsules, submitted by Paladin Therapeutics, Inc	Has the applicant demonstrated the safety and efficacy of miltefosine for the treatment of mucosal leishmaniasis?	Yes: 13 No: 3	It was again noted that the label should include information regarding the fact that not all species and strains of leishmaniasis are the same.	Yes	2014	2014 Drug Label	NDA	
Antiviral	24-Oct-13	(NDA) 205123, simeprevir (a	Considering the overall risks and benefits, does the available data support approval of simeprevir in	Yes: 19 No: 0	The committee noted that more data is needed in a number of patient populations including African Americans, Hispanics, Asians, prior	Yes	2013	2013 Drug Label	NDA	https://www.healio.com/infectious-disease/hepatitis-c/news/print/hcv-

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		hepatitis C virus protease inhibitor), manufactured by Janssen Pharmaceutical Co	combination with pegylated interferon and ribavirin for treatment of HCV genotype 1 infection?		PR nonresponders (null and partial responders), cirrhotic patients, HIV/HCV-coinfected patients, pediatric patients, and patients with co-morbidities (including chronic renal failure).					next/%7Bd8274a86-59a8-4d33-986c-676c352ebee4%7D/fda-warns-of-hepatic-failure-bradycardia-with-simeprevir
Antiviral	25-Oct-13	(NDA) 204671, sofosbuvir (a NS5B polymerase inhibitor), manufactured by Gilead Sciences, Inc	Considering potential risks and benefits does the available data support approval of sofosbuvir in combination with ribavirin for treatment of chronic hepatitis C in adult patients with genotype 2 and 3 infection?	Yes: 15 No: 0	Studies on long term effects of interferon/ribavirin in combination with sofosbuvir	Yes	2013	2013 Drug Label	NDA	https://ichgcp.net/clinical-trials-registry/NCT02592057
Antiviral	25-Oct-13	(NDA) 204671, sofosbuvir (a NS5B polymerase inhibitor), manufactured by Gilead Sciences, Inc	Considering potential risks and benefits does the available data support approval of sofosbuvir in combination with pegylated interferon and ribavirin for treatment of chronic hepatitis C in treatment-naïve adult patients with genotype 1 and 4 infection?	Yes: 15 No: 0	Studies of patients with higher MELD scores than what was presented in the sponsor's presentation	Yes	2013	2013 Drug Label	NDA	https://ichgcp.net/clinical-trials-registry/NCT02592057
Arthritis	22-Jul-13	Not related to any paticular drug	The committee discussed the Assessment of SpondyloArthritis international Society (ASAS) classification criteria for axial spondyloarthritis and the implications of using these criteria for drug approval.	N/A	N/A	N/A	N/A	N/A	N/A	
Arthritis	23-Jul-13	(sBLA) 125057, HUMIRA (adalimumab) injection, by AbbVie Inc	Does the Committee recommend approval of adalimumab for the proposed indication of active non-radiographic axial spondyloarthritis in adults with objective signs of inflammation by elevated CRP or MRI, who have had inadequate response or are intolerant to nonsteroidal antiinflammatory drugs?	Yes: 1 No: 12 Abstain: 1	Those voting "No" commented on the lack of sufficient efficacy data in the ideal intended patient population that may be required for FDA approval for a new indication. It was also noted that an unmet need was recognized, but the indication as worded was felt to be too broad.	Yes	2013	Drug Label	sBLA	Drug not approved for this condintion

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Arthritis	23-Jul-13	(sBLA) 125160, CIMZIA (certolizumab) injection, by UCB, Inc.	Does the Committee recommend approval of certolizumab for the proposed indication of active axial spondyloarthritis, including patients with ankylosing spondylitis?	Yes: 7 No: 6 Abstain: 1	Members voting "No" commented on insecurity with accurately identifying the no-radiographic group and wanted to see data that this is the group that will respond. Few members noted that the number of patients studied was small and they wanted more data and clarity on the definition of active axial spondyloarthritis.	Yes	2013	Drug Label	sBLA	
Bone, Reproductive and Urologic	4-Mar-13	(NDA) 22-506, gabapentin 600 milligram (mg) tablets, submitted by Depomed, Inc	Is the overall risk/benefit profile of gabapentin acceptable to support approval of this product for the proposed indication?	Yes: 2 No: 12	The lack of significant benefit compared to placebo was again raised by the Advisory Committee, as was the short duration of the treatment effect.	Yes	2013	Drug Label	NDA	Drug not approved for this condintion
Bone, Reproductive and Urologic	4-Mar-13	(NDA) 20-4516, paroxetine mesylate 7.5 (mg) tablets, submitted by Noven Therapeutics, Inc.	Is the overall risk/benefit profile of paroxetine mesylate acceptable to support approval of this product for the proposed indication?	Yes: 4 No: 10	Those who voted "yes" noted that they were not concerned about safety, as the side effects are recognized for this medication and the lower dose was recognized as possibly more tolerable for women. It was also noted that this drug had a small beneficial effect, that this drug is already widely used off-label, and that there is a role for nonhormonal treatment	No	2013	Drug Label	NDA	https://www.drugs.com/nda/ldmp_130306.html
Bone, Reproductive and Urologic, Drug Safety and Risk Management	5-Mar-13	Not related to any paticular drug	The committees discussed whether the benefit of calcitonin salmon for the treatment of postmenopausal osteoporosis (thinning and weakening of bones that increase the chance of having a broken bone) outweighs a potential risk of cancer.	N/A	N/A	N/A	N/A	N/A	N/A	
Bone, Reproductive and Urologic, Drug Safety and Risk Management	18-Apr-13	(NDA) 22219, AVEED (testosterone undecanoate) intramuscular injection, submitted by Endo Pharmaceutical Solutions, Inc	Given the severe post-injection reactions that were reported with testosterone undecanoate (TU) in clinical studies and postmarketing experience, do you believe that TU is safe for the proposed indication?	Yes: 9 No: 9	POME and anaphylaxis reactions can increase the risk of unpredictable events. If the drug was approved, FDA should consider including a black box warning as part of the labeling and patient package insert	Yes	May-13	https://www.drugs.com/nda/aveed_130531.html	NDA	Drug not approved

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Bone, Reproductive and Urologic, Drug Safety and Risk Management	18-Apr-13	(NDA) 22219, AVEED (testosterone undecanoate) intramuscular injection, submitted by Endo Pharmaceutical Solutions, Inc	Is applicant's proposed instructions that testosterone undecanoate be administered using a slow (30-60 second) injection, and that patients remain in the office for 30 minutes post-injection sufficient to ameliorate the risk of severe postinjection reactions?	Yes: 1 No: 17	There should be a training program for physicians who are going to administer this medication.	Yes	May-13	https://www.drugs.com/nda/aveed_130531.html	NDA	Drug not approved
Cardiovascular & Renal	5-Aug-13	New Drug Application 204441, tolvaptan tablets, submitted by Otsuka Pharmaceutical Company, Ltd	Considering the risks and benefits of therapy, should tolvaptan be approved to slow kidney disease in adults at risk of rapidly progressing autosomal dominant polycystic kidney disease?	Yes: 6 No: 9	The committee stated the need for study in patients with both less severe kidney disease and more severe kidney disease than what was studied.	Yes	2013	Drug Label	NDA	Drug not approved for this condintion
Cardiovascular & Renal	6-Aug-13	(NDA) 204819, proposed trade name ADEMPAS (riociguat coated tablet), submitted by Bayer HealthCare Pharmaceuticals Inc	Should riociguat be approved for the treatment of PAH of WHO Group 1 and CTEPH of WHO Group 4?	Yes: 11 No: 0	The committee stated that the starting dose should be 0.5 mg or 1 mg and the maximum dose should be 2.5 mg. They stated that prescribers should have the discretion to titrate up to 2.5 mg three times daily as necessary. The committee also stated that there should be language in the prescribing information telling prescribers that above the 1.5 mg dose there is an increased risk of hypotension.	Yes	2013	Drug Label	NDA	
Drug Safety and Risk Management	24-Jan-13 and 25-Jan-13	Not related to any paticular drug	On January 24 and 25, 2013, the committee met to discuss the public health benefits and risks, including the potential for abuse, of drugs containing hydrocodone either combined with other analgesics or as an antitussive.	N/A	N/A	N/A	N/A	N/A	N/A	The committee also discussed the impact of rescheduling these hydrocodone products from Schedule III to Schedule II.
Drug Safety and Risk Management	10-Jul-13	(NDA) 21107, Lotronex (alosetron hydrochloride) tablets, Prometheus Laboratories	Discuss whether the REMS with ETASU for this drug assures safe use, is not unduly burdensome to patient access to the drug, and to the extent practicable, minimizes the	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Inc.	burden to the health care delivery system							
Endocrinologic and Metabolic	10-Jan-13	(NDA) 204042, canagliflozin tablets, proposed trade name INVOKANA, submitted by Janssen Research and Development, LLC	Based on the information included in the briefing materials and presentations today, has the applicant provided sufficient efficacy and safety data to support marketing of canagliflozin for the treatment of Type 2 diabetes mellitus?	Yes: 10 No: 5	The committee members who voted "no" cited similar concerns over unknown cardiovascular risk and usage in moderate renal impairment, which were frequently stated as overriding concerns.	Yes	2013	Drug Label	NDA	
Endocrinologic and Metabolic, Drug Safety and Risk Management	5-Jun-13 and 6-Jun-13	(NDA) 21071, AVANDIA (rosiglitazone maleate) tablets, GlaxoSmithKline.	Based on the totality of available data, including the re-adjudicated results of RECORD, do you recommend removal of REMS?	Yes: 7 No: 19	Members felt that easing the requirements of the REMS would increase access to rosiglitazone as the magnitude of risk was not as severe as originally thought Proposed removing the prescriber certification requirement portion of the REMS allowing prescribers to weigh the risks and benefits with their patients	Yes	Nov-13	https://www.fda.gov/Drugs/DrugSafety/ucm376389.htm	NDA	
Endocrinologic and Metabolic	16-Oct-13	NDA 202057/S-005, Vascepa (icosapent ethyl) Capsules, submitted by Amarin Pharmaceuticals Ireland Ltd	Taking into account the described efficacy and safety data for Vascepa, do you believe that its effects on the described lipid/lipoprotein parameters are sufficient to grant approval for co-administration with statin therapy for the treatment of patients with mixed dyslipidemia and CHD or CHD risk equivalent prior to the completion of REDUCE-IT? Please provide the rationale underlying your recommendation.	Yes: 2 No: 9	The majority of the committee (9 of 11) voted no, stating that although the triglyceride-lowering effect was clear, the clinical benefit remained uncertain. Most expressed that the results of ANCHOR were promising, but FDA should wait on the final results of the CV outcome trial, REDUCE-IT, before approval.	Yes	2013	https://www.drugs.com/history/vascepa.html	NDA	Drug not approved for this indication
Endocrinologic and Metabolic	19-Nov-13	(BLA) 125460 for VIMIZIM (elosulfase alfa), manufactured by BioMarin	Do you recommend approval of Vimizim for the treatment of MPS IVA? A. Yes, I recommend approval for all MPS IVA patients. B. Yes, I	A: 18 B: 2 C: 1	Those who voted "A" commented that there will always be responders and non-responders, but the drug should be approved for all MPS IVA patients and given the opportunity to be treated with the drug. Many	Yes	2014	Drug Label	BLA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Pharmaceutical, Inc	recommend approval for a subgroup of MPS IVA patients. Please describe that subgroup in your response. C. No, I do not recommend approval.		commented that the benefit outweighs the risks, and that a lack of alternative therapy for this disorder has affected their decision.					
Endocrinologic and Metabolic	11-Dec-13	(BLA) 125390, metreleptin for injection, Bristol Myers Squibb	Has the applicant demonstrated substantial evidence that the benefits of metreleptin exceed the risks for the treatment of "pediatric and adult patients with generalized lipodystrophy"?	Yes: 11 No: 1	Recommended additional studies on adverse events associated with the use of metreleptin	Yes	Feb-14	https://www.astrazeneca.com/media-centre/press-releases/2014/us-fda-approved-myalept-lepti-deficiency-treatment-25022014.html#	BLA	
Endocrinologic and Metabolic	11-Dec-13	(BLA) 125390, metreleptin for injection, Bristol Myers Squibb	Has the applicant demonstrated substantial evidence that the benefits of metreleptin exceed the risks for the treatment of "pediatric and adult patients with metabolic disorders associated with partial lipodystrophy, including hypertriglyceridemia and/or diabetes mellitus inadequately controlled on a current therapy, and/or evidence of hepatic steatosis"?	Yes: 2 No: 10	Helpful to consider pre-approval studies in patients with partial lipodystrophy	Yes	Feb-14	https://www.astrazeneca.com/media-centre/press-releases/2014/us-fda-approved-myalept-lepti-deficiency-treatment-25022014.html#	BLA	
Endocrinologic and Metabolic	12-Dec-13	(NDA) 202293, dapagliflozin tablet, submitted by Bristol-Myers Squibb	Based on the information included in the briefing materials and presentations today, do the benefits of dapagliflozin use outweigh identified risks and support marketing of dapagliflozin as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus?	Yes: 13 No: 1	The majority of the committee members agreed that the benefits of dapagliflozin use outweigh identified risks and support marketing of dapagliflozin as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus. Some of the committee members who voted "Yes" commented that the cancer risk does not rise to the level of non-approval	Yes	2014	Drug Label	NDA	
Gastrointestinal, Drug Safety and Risk Management	9-Dec-13	(BLA) for vedolizumab injection (Entyvio), Takeda Pharmaceutical	Considering the currently available nonclinical and clinical data, has the applicant adequately characterized the potential risk of PML with	Yes: 21 No: 1	The committee agreed that concomitant immunosuppresants should not be limited to a specific duration.	Yes	2014	Drug Label	BLA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		s, U.S.A., Inc.	vedolizumab to support approval?							
Gastrointestinal, Drug Safety and Risk Management	9-Dec-13	(BLA) for vedolizumab injection (Entyvio), Takeda Pharmaceuticals, U.S.A., Inc.	Based on currently available efficacy and safety data, do the benefits outweigh the potential risks of vedolizumab (in particular, PML) to support approval for: a. the proposed CD population that have failed steroids or immunosuppressants or TNFα-antagonists? b. patients that have failed immunosuppressants or TNFα-antagonists (i.e., the indicated population would not include patients that failed steroids only)? c. neither a nor b.	A: 14 B: 6 C: 1	The committee members commented that it is important to quantify PML risk and to monitor other infections in addition to PML.	Yes	2014	Drug Label	BLA	
Medical Imaging	14-Feb-13	(NDA) 204781, DOTAREM (gadoterate meglumine injection), submitted by Guerbet LLC,	Is the "risk to benefit" assessment favorable for the use of Gadoterate in CNS magnetic resonance imaging.	Adult - Yes: 17 No: Pediatric Yes: 17 No: 0 Pediatric under 2 Yes: 6 No: 10	The committee discussed a number of possible types of additional information that could support a favorable "risk to benefit" assessment for the use of Gadoterate in CNS magnetic resonance imaging among pediatric patients younger than 2 years of age.	Yes	2013	Drug Label	NDA	
Medical Imaging and Oncologic	3-May-13	Currently approved leukocyte growth factors (LGFs): BLA 103353, NEUPOGEN (filgrastim, Amgen, Inc.), BLA 125031, NEULASTA (pegfilgrastim, Amgen, Inc.), BLA 103362, LEUKINE, (sargramostim, Genzyme, Inc.) and BLA	Is filgrastim therapy reasonably likely to produce clinical benefits in humans exposed to radiation that is likely to induce myelosuppression during or following a radiological/nuclear incident?	Yes: 17 No: 1	No specific recommendation	No	2015	http://med.stanford.edu/content/dam/sm/cancer/documents/Cancer%20Letters/TCL052915.pdf	BLA	Drug not approved at that time. Approved after 3 years when more data was available.

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		125294, TBO-FILGRASTIM (tbo-filgrastim, Sicor Biotech, UAB)								
Nonprescription	31-Jul-13	(sNDA) 20468/S-035, for the switch of triamcinolone acetonide nasal spray from prescription to over-the-counter (OTC) status	Is the risk/benefit profile of triamcinolone acetonide nasal spray supportive of OTC use for temporary relief of symptoms of hay fever or other respiratory allergies for ages 2 years and above?	Yes: 10 No: 6 Abstain: 2	Several committee members who voted "Yes" recommended label changes that include "should not continue use of triamcinolone acetonide nasal spray greater than 1 month if <12 years of age"(due to the concern of potential growth effects in the younger population).	Yes	2013	http://www.news.sanofi.us/2013-10-11-FDA-Approves-Sanofis-Nasacort-Allergy-24HR-for-Over-the-Counter-Use	sNDA	
Oncologic	2-May-13	(NDA) 204408, with the established name tivozanib capsules, submitted by AVEO Pharmaceuticals, Inc	Has the Applicant demonstrated a favorable benefit to risk evaluation for the treatment of renal cell carcinoma in an adequate and well-controlled trial?	Yes: 1 No: 13	Members described difficulty with assessing data as a whole due to confounding aspects of the trial, including a unilateral crossover of patients to the sorafenib arm for post-studytreatment.	Yes	2013	https://www.drugs.com/history/tivozanib.html	NDA	Drug not approved
Oncologic	2-May-13	NDA 201848, a drug/device combination product with the proposed trade name Melblez Kit (Melblez (melphalan) for Injection for use with the Delcath Hepatic Delivery System), submitted by Delcath Systems, Inc	For patients with hepatic-dominant metastatic ocular melanoma, do the benefits of treatment with Melblez Kit (clinical trial-version) outweigh the risks?	Yes: 0 No: 16	The committee agreed that the high risk of side effects raised significant concern when evaluating the benefit to risk profile of the product. Several committee members discussed the toxicity of the product as being severe, to the point that the treatment may be more toxic than the disease itself.	Yes	2013	Drug not approved	NDA	https://www.ptcommunity.com/news/20130913/fda-rejects-cancer-drug-melblez-melphalan
Oncologic	12-Sep-13	(sBLA) 125409/51, with the trade name PERJETA	Has Perjeta® demonstrated a favorable benefit to risk evaluation for the neoadjuvant	Yes: 13 No: 0 Abstain: 1	Many committee members described their consideration of this benefit to risk evaluation as being primarily based on the "totality of evidence," including the significant amount of	Yes	2013	Drug Label	sBLA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		(pertuzumab) injection, application submitted by Genentech, Inc	treatment of early breast cancer?		data from the use of pertuzumab in the metastatic setting.					
Oncologic	4-Nov-13	Not related to any paticular drug	The recent permanent reauthorization of the Pediatric Research Equity Act (PREA) and the Best Pharmaceuticals for Children Act (BPCA) and their associated amendments require earlier consideration of pediatric study plans.	N/A	N/A	N/A	N/A	N/A	N/A	
Oncologic	5-Nov-13	Not related to any paticular drug	Considered and discussed issues relating to the development of each product for potential pediatric use and provided guidance to facilitate the formulation of Written Requests for pediatric studies	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peripheral and Central Nervous System	22-May-13	(NDA) 204569, for suvorexant tablets, submitted by Merck Sharp and Dohme Corp, Worldwide Regulatory Group.	The applicant has recommended starting doses of 15 mg and 20 mg in elderly and non-elderly patients, respectively. Is the safety of these doses acceptable?	Yes: 13 No: 3 Abstain: 1	The majority of the committee agreed that the safety of these doses is acceptable. The committee members who voted "Yes" agreed that the observed adverse events at these doses are similar to those of currently approved drug products for insomnia.	Yes	2013	Drug Label	NDA	
Peripheral and Central Nervous System	13-Nov-13	(sBLA) 103948-5139, for alemtuzumab injection, LEMTRADA, Sanofi	Has the applicant provided substantial evidence of effectiveness of alemtuzumab for the treatment of patients with relapsing forms of multiple sclerosis?	Yes: 12 No: 6	Safety concerns should not preclude approval. Many panel members also suggested that a proper REMS program and a black box warning will reduce the risk of harmful adverse events. Alemtuzumab should not be indicated as a first-line therapy	No	Dec-13	https://mymsaa.org/news/coalition-letter-fda-lemtrada/	sBLA	Drug not approved
Peripheral and Central Nervous System	13-Nov-13	(sBLA) 103948-5139, for alemtuzumab injection, LEMTRADA,	Has the applicant provided substantial evidence that alemtuzumab has a beneficial effect on disability?	Yes: 2 No: 14 Abstain: 2	No specific recommendation	Yes	Dec-13	https://mymsaa.org/news/coalition-letter-fda-lemtrada/	sBLA	Drug not approved

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Sanofi								
Peripheral and Central Nervous System	14-Nov-13	(NDA) 205677, for tasimelteon capsules, proposed trade name Hetlioz, submitted by Vanda Pharmaceuticals, Inc	Has substantial evidence of efficacy been presented for tasimelteon in Non-24?	Yes: 10 No: 0 Abstain: 1	The majority of the committee agreed that substantial evidence of efficacy was presented for tasimelteon in Non-24.	Yes	2014	Drug Label	NDA	
Pharmaceutical Science and Clinical Pharmacology	25-Sep-13	Not related to any paticular drug	The committee discussed optimal strategies for the evaluation, interpretation, and communication of drug-drug interaction (DDI) information.	N/A	N/A	N/A	N/A	N/A	N/A	
Psychopharmacologic	21-Mar-13	(NDA) 204442, PROBUPHINE (buprenorphine hydrochloride and ethylene vinyl acetate) subdermal implant, submitted by Titan Pharmaceuticals, Inc	Based on the data presented and discussed today, do the efficacy, safety, and riskbenefit profile of Probuphine support the approval of this application?	Yes: 10 No: 4 Abstain: 1	The majority of the committee agreed that, based on the data presented and discussed, the efficacy, safety, and risk-benefit profile of Probuphine support the approval of this application. The committee members who voted "Yes" noted that, although they voted "Yes," additional data were needed to fully assess both the safety and efficacy of Probuphine and that the REMS was still an area of concern. Overall, these members indicated that the benefits outweighed the risks.	No	2013	https://www.drugs.com/history/probuphine.html	NDA	
Pulmonary-Allergy	29-Jan-13	(NDA) 203108, for olodaterol (proposed trade name Striverdi Respimat) metered dose inhaler, sponsored by Boehringer Ingelheim	Based on the information included in the briefing materials and presentations, has the applicant provided sufficient efficacy and safety data to support marketing of olodaterol inhalation solution for the long term, once-daily maintenance treatment of airflow obstruction in patients with chronic obstructive pulmonary disease (COPD) including chronic bronchitis and/or emphysema?	Yes: 15 No: 1 Abstain: 1	The members voting "YES" commented that the sponsor demonstrated efficacy and safety. Some members noted that while olodaterol may be effective as a bronchodilator, the data were not supportive of an exercise tolerance claim.	Yes	2014	Drug Label	NDA	https://www.drugs.com/history/striverdi-respimat.html
Pulmonary-	30-Jan-	(NDA)	Do the efficacy and safety	Yes: 0	All members voted "NO"	Yes	2013	Drug not approved	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Allergy	13	202049, for mannitol inhalation powder (proposed trade name BRONCHITOL), for oral inhalation sponsored by Pharmaxis	data provide substantial evidence to support approval of DPM at a dose of 400 mg twice daily for the management of cystic fibrosis in patients aged 6 years and older to improve pulmonary function? If not, what further data should be obtained?	No: 14	commenting that there is no substantial efficacy and expressed concern about the risk-benefit ratio in children. Several members noted more confidence in efficacy and safety in adult population over the pediatric population.			for this indication		
Pulmonary-Allergy	17-Apr-13	(NDA) 204275 for fluticasone furoate and vilanterol dry powder inhaler (proposed tradename BREO Ellipta) sponsored by GlaxoSmithKline	Do the efficacy and safety data provide substantial evidence to support approval of FF/VI 100/25 mcg once daily for the long-term, maintenance treatment of airflow obstruction in COPD and reduction of COPD exacerbations?	Yes: 9 No: 4	Those members voting “Yes” commented the drug is a once a day drug and that adds an alternative to currently available drugs.	Yes	2013	Drug Label	NDA	
Pulmonary-Allergy	10-Sep-13	(NDA) 203975 for umeclidinium and vilanterol powder for inhalation (proposed tradename Anoro Ellipta), sponsored by Glaxo Group	Do the efficacy and safety data provide substantial evidence to support approval of UMEC/VI 62.5/25 mcg once daily for the long-term, maintenance treatment of airflow obstruction in COPD?	Yes: 11 No: 2	Members who voted “yes” stated that there is adequate evidence for efficacy, and that although the safety data was difficult to interpret, remaining concerns could be addressed with a postmarketing study and by labeling (e.g,. a warnings and precautions statement).	Yes	2013	Drug Label	NDA	

2014 Meetings

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Anesthetic and Analgesic	22-Apr-14	New drug application 203077, MOXDUO (morphine sulfate and oxycodone hydrochloride)	Should Moxduo be approved for the management of moderate to severe acute pain where the use of an opioid analgesic is appropriate?	Yes: 0 No: 14	The position of the committee was summarized by the Chair, in reiterating the committee’s lack of confidence with any clinically meaningful safety difference, combined with the consensus from the sponsor and the agency	Yes	2014	https://www.drugs.com/history/moxduo.html	NDA	Drug not approved

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		capsules, QRxPharma Inc.			that there is no notable efficacy difference.					
Anesthetic and Analgesic	11-jun-14 and 12-Jun-14	Not related to any paticular drug	The committee discussed the potential cardiovascular risk associated with products in the class of peripherally-acting opioid receptor antagonists and the necessity, timing, design and size of cardiovascular outcomes trials to support approval of products in the class for the proposed indication of opioid-induced constipation in patients taking opioids for chronic pain.	N/A	N/A	N/A	N/A	N/A	N/A	
Anesthetic and Analgesic	24-Nov-14 and 25-Nov-14	Not related to any paticular drug	The committee discussed the risk of serious neurologic adverse reactions associated with epidural steroid injections (ESI) administered to reduce inflammation for pain management. The committee also considered the efficacy of ESI and the overall risk benefit balance of injecting steroids in the epidural space to treat pain.	N/A	N/A	N/A	N/A	N/A	N/A	
Antimicrobial	31-Mar-14	(NDAs) 205-435 and 205-436, tedizolid phosphate tablets and tedizolid phosphate injection, submitted by Trius Therapeutics, respectively	Has the applicant provided substantial evidence of the safety and effectiveness of tedizolid phosphate for the treatment of acute bacterial skin and skin structure infections caused by susceptible isolates of the designated microorganisms?	Yes: 14 No: 0	The committee unanimously voted “Yes”, indicating that the applicant provided substantial evidence of the safety and effectiveness of tedizolid phosphate for the treatment of acute bacterial skin and skin structure infections caused by susceptible isolates of the designated microorganisms.	Yes	2014	Drug Label	NDA	
Antimicrobial	31-Mar-14	NDA 021-883, dalbavancin hydrochloride for intravenous injection, submitted by Durata Therapeutics International B.V	Has the applicant provided substantial evidence of the safety and effectiveness of tedizolid phosphate for the treatment of acute bacterial skin and skin structure infections caused by susceptible isolates of the designated microorganisms?	Yes: 12 No: 1	The committee unanimously voted “Yes”, indicating that the applicant provided substantial evidence of the safety and effectiveness of dalbavancin hydrochloride for the treatment of acute bacterial skin and skin structure infections caused by susceptible isolates of the designated microorganisms.	Yes	2014	Drug Label	NDA	

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Antimicrobial	4-Dec-14	Not related to any paticular drug	The committee discussed issues related to clinical development programs and clinical trial designs for antibacterial products for the treatment of patients with serious bacterial infections for which there are limited or no therapeutic options.	N/A	N/A	N/A	N/A	N/A	N/A	
Antimicrobial	5-Dec-14	(NDA) 206494 for ceftazidimeavibactam for injection, submitted by Cerexa Inc.	Has the applicant demonstrated substantial evidence of safety and efficacy of ceftazidime-avibactam for the proposed indication of complicated intra-abdominal infections, when limited or no alternative treatments are available?	Yes: 11 No: 1	The majority of the committee agreed that the applicant demonstrated substantial evidence of safety and efficacy of ceftazidime-avibactam for the proposed indication of complicated intra-abdominal infections, when limited or no alternative treatments are available with the data presented.	Yes	2015	Drug Label	NDA	
Antimicrobial	5-Dec-14	(NDA) 206494 for ceftazidimeavibactam for injection, submitted by Cerexa Inc.	Has the applicant demonstrated substantial evidence of safety and efficacy of ceftazidime-avibactam for the proposed indication of complicated urinary tract infections, including pyelonephritis, when limited or no alternative treatments are available?	Yes: 9 No: 3	The majority of the committee agreed that the applicant demonstrated substantial evidence of safety and efficacy of ceftazidime-avibactam for the proposed indication of complicated urinary tract infections, including pyelonephritis, when limited or no alternative treatments are available.	Yes	2015	Drug Label	NDA	
Antimicrobial	5-Dec-14	(NDA) 206494 for ceftazidimeavibactam for injection, submitted by Cerexa Inc.	Has the applicant demonstrated substantial evidence of safety and efficacy of ceftazidime-avibactam for the proposed indication of aerobic gram-negative infections (including hospital-acquired bacterial pneumonia/ventilator-associated bacterial pneumonia and bacteremia) when limited or no alternative treatments are available?	Yes: 0 No: 12	The committee unanimously voted “No” and agreed that the applicant did not demonstrate substantial evidence of safety and efficacy of ceftazidimeavibactam for the proposed indication of aerobic gram-negative infections (including hospital-acquired bacterial pneumonia/ventilator-associated bacterial pneumonia and bacteremia) when limited or no alternative treatments are available.	Yes	2015	Drug Label	NDA	https://www.drugs.com/history/avycaz.html
Antimicrobial	5-Dec-14	(NDA) 206494 for ceftazidimeavibactam for injection, submitted by Cerexa Inc.	Has the applicant demonstrated substantial evidence of safety and efficacy of ceftazidime-avibactam for the proposed	Yes: 1 No: 11	The majority of the committee voted “No” and agreed that the applicant did not demonstrate substantial evidence of safety and efficacy of ceftazidimeavibactam	Yes	2015	Drug Label	NDA	https://www.drugs.com/history/avycaz.html

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			indication of aerobic gram-negative infections (hospital-acquired bacterial pneumonia/ventilator-associated pneumonia and bacteremia) when no adequate treatment options are available?		for the proposed indication of aerobic gram-negative infections (hospitalacquired bacterial pneumonia/ventilator-associated pneumonia and bacteremia) when no adequate treatment options are available					
Arthritis, Drug Safety and Risk Managment	10-Feb-14 and 11-Feb-14	Not related to any paticular drug	The committees discussed data and analyses published in 2006 or later that are relevant to further understanding the relationship between non-steroidal antiinflammatory drugs (NSAIDs) and cardiovascular thrombotic risk that is currently described in NSAID class labeling.	N/A	N/A	N/A	N/A	N/A	N/A	
Bone, Reproductive and Urologic, Drug Safety and Risk Management	17-Sep-14	Not related to any paticular drug	The committees discussed the appropriate indicated population for testosterone replacement therapy and the potential for adverse cardiovascular outcomes associated with this use.	N/A	N/A	N/A	N/A	N/A	N/A	
Bone, Reproductive and Urologic, Drug Safety and Risk Management	18-Sep-14	(NDA) 206089, (oral testosterone undecanoate capsules), submitted by Clarus Therapeutics	Is the overall benefit/risk profile of oral testosterone undecanoate acceptable to support approval of this product for testosterone replacement therapy?	Yes: 4 No: 17	The majority of the committee agreed that the overall benefit/risk profile was not acceptable to support approval of oral testosterone undecanoate. Some members stated that additional information was needed. The panel commented on the potential risks of the product, including the effect of dietary fat on exposure and the high pharmacokinetic variability.	No	2014	Drug Label	NDA	https://www.drugs.com/history/aveed.html
Bone, Reproductive and Urologic, Drug Safety and Risk Management	18-Dec-14	N/A	Closed session	N/A	N/A	N/A	N/A	N/A	N/A	
Cardiovascular & Renal	14-Jan-14	(NDA) 203202, NORTHERA (droxidopa capsules), submitted by	Should droxidopa be approved?	Yes: 16 No: 1	The committee members who voted “Yes” stated that they voted “Yes” because of the robust efficacy data, reasonable study design and endpoints, compelling	Yes	2014	Drug Label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Chelsea Therapeutics, Inc			patient testimonials, use of droxidopa for 15 years in Japan, and convincing long term data.					
Cardiovascular & Renal	15-Jan-14	New Drug Application 204886, vorapaxar tablets, submitted by Merck Sharp & Dohme Corp	Should vorapaxar be approved?	Yes: 10 No: 1	The majority of the committee members agreed that vorapaxar should be approved. The committee members who voted "Yes" stated that TRA2°P was a large and robust study and the benefit/risk ratio was favorable. It was stated that vorapaxar meets an unmet medical need and the effect size of the study makes it clinically meaningful.	Yes	2014	Drug Label	NDA	
Cardiovascular & Renal	16-Jan-14	(sNDA) 202439/S-002 rivaroxaban, tradename XARELTO 2.5 mg tablets, submitted by Janssen Pharmaceuticals, Inc	Should rivaroxaban be approved for use in ACS?	Yes: 1 No: 10 Abstain: 1	The committee members who voted "No" stated that there were concerns regarding the increased risk of bleeding. It was noted that study imperfections such as missing data and a high likelihood of informative censoring in loss to follow-up were also concerns.	Yes	2014	Drug Label	sNDA	Drug not approved for this condition
Cardiovascular & Renal	12-Feb-14	(NDA) 204958, cangrelor injection, submitted by The Medicines Company	Should cangrelor be approved for the reduction of thrombotic cardiovascular events (including stent thrombosis) in patients with coronary artery disease undergoing PCI?	Yes: 2 No: 7	The committee members who voted "No" indicated concern about the design of CHAMPION and about the two earlier negative trials (PLATFORM and PCI), and felt that the increased risk of bleeding was not outweighed by the small clinical benefit.	Yes	2014	https://www.drugs.com/history/kengreal.html	NDA	
Cardiovascular & Renal	12-Feb-14	(NDA) 204958, cangrelor injection, submitted by The Medicines Company	Should cangrelor be approved for patients with stents who are at increased risk for thrombotic events (such as stent thrombosis) when oral P2Y12 therapy is interrupted for surgery?	Yes: 0 No: 9	The committee members unanimously agreed that cangrelor should not be approved for patients with stents who are at increased risk for thrombotic events when oral P2Y12 therapy is interrupted for surgery. The committee commented on the need for clinical data and a better sense of the unmet need. Please see the transcript for details of the committee discussion.	Yes	2014	https://www.drugs.com/history/kengreal.html	NDA	
Cardiovascular & Renal	27-Mar-14	(BLA) 125468, serelaxin injection, submitted by Novartis Pharmaceuticals Corp	Should serelaxin be approved for the treatment of acute heart failure?	Yes: 0 No: 11	Serelaxin does seem to have an effect on worsening heart failurebutthe design of the trial makes it hard to understand the nature and magnitude of that effect. The Committee also stated	Yes	N/A	https://en.wikipedia.org/wiki/Serelaxin	BLA	Drug not approved

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
					that serelaxin may provide important benefits to patients, such as less time in the hospital, but the trial was not well-designed to assess these benefits.					
Cardiovascular & Renal	9-Sep-14	(NDA) 206302, nebivolol/valsartan fixed-dose combination tablets (5/80 milligrams (mg), 5/160 mg, 10/160 mg, 10/320 mg and 20/320 mg), submitted by Forest Laboratories, Inc	Should the combination of valsartan and nebivolol be approved to treat hypertension?	Yes: 4 No: 6	The committee members who voted "No" stated that the effect size observed was not sufficient to justify use of the combination product and that there are other existing combination products whose effect sizes are significantly numerically and clinically higher. It was also stated that guidance from the FDA was that the combination product is to demonstrate an efficacy advantage over both of the individual components; however, for the nebivolol/valsartan combination product the primary endpoint of diastolic blood pressure effect was trivially improved by the combination..	Yes	2014	https://www.drugs.com/history/byvalson.html	NDA	Drug approved in 2016, company recived complete response letter from FDA in 2014.
Cardiovascular & Renal	10-Sep-14	Not related to any paticular drug	The committee discussed the potential clinical utility of fixed-combination prescription drugs composed of an anti-hypertensive drug, aspirin, and a statin administered to reduce the risk of cardiovascular death, nonfatal myocardial infarction, and nonfatal stroke in patients with a history of cardiovascular disease.	N/A	N/A	N/A	N/A	N/A	N/A	
Cardiovascular & Renal	30-Oct-14	(NDA) 206316, edoxaban tablets, submitted by Daiichi Sankyo, Inc	Should edoxaban be approved to reduce the risk of stroke and systemic embolism in patients with nonvalvular atrial fibrillation? patients with nonvalvular atrial fibrillation? If you recommend approval, please discuss the following options: a) Approval of the 60-mg dose for patients with	Yes: 9 No: 1	The majority of the committee members who voted "Yes" recommended either option 4-a or 4-c. The committee members that recommended option 4-a suggested including what was known from the clinical trials about patients with normal renal function into the label. Those that recommended option 4-b recommended a dose of 90 mg for	Yes	2015	Drug Label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			normal or mildly impaired renal function. b) Approval of a dose higher than 60 mg for patients with normal renal function. c) Approval only for patients with mild and moderate renal impairment.		patients with normal renal function, 60 mg for mild renal function, and 30 mg for moderate renal function. The committee members that recommend option 4-c stated that the decreased efficacy in the normal renal function group was more than likely a real finding, and thus could subject patients with normal renal function to an increased risk for stroke.					
Dermatologic and Ophthalmic	20-Oct-14	(BLA) 125504, secukinumab, a human monoclonal antibody, submitted by Novartis	Considering potential risks and benefits, do the available data support approval of secukinumab for the treatment of moderate to severe plaque psoriasis in adult patients who are candidates for systemic therapy or phototherapy?	Yes: 7 No: 0	The committee agreed that the efficacy data was strong and that the benefit is clear. The committee noted that post-marketing studies will be needed to determine the safety of long term use of secukinumab, but with the data that is currently available, there seems to be a positive risk/benefit	Yes	2015	Drug Label	BLA	https://acrabstracts.org/abstract/post-marketing-safety-of-secukinumab-in-adult-patients-with-psoriasis-psoriatic-arthritis-and-ankylosing-spondylitis-cumulative-analysis-across-96000-patient-treatment-years-exposure/
Drug Safety and Risk Management	18-Nov-14	Soliris (eculizumab) injection, Alexion Pharmaceuticals, Inc.	Discuss whether the REMS with ETASU for this drug assures safe use, is not unduly burdensome to patient access to the drug, and to the extent practicable, minimizes the burden to the health care delivery system	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endocrinologic and Metabolic	1-Apr-14	(NDA) 022472, Afrezza, (Technosphere Insulin Inhalation System), 3 unit and 6 unit cartridges for oral inhalation, submitted by MannKind Corporation	Based on data in both the briefing materials and presented at today's meeting, has the applicant demonstrated that Afrezza is safe and effective for the treatment of adult patients with type 1 diabetes mellitus to support approval?	Yes: 13 No: 1 No Voting: 1	The committee members who voted "Yes" noted that Afrezza may be a good option to use between meals to treat hyperglycemia at times when an injectable insulin is not preferred. It was also noted that the data show that Afrezza is not as effective as injected forms of insulin; however, it was better than placebo.	Yes	2014	Drug Label	NDA	
Endocrinologi	1-Apr-14	(NDA) 022472,	Based on data in both the	Yes: 14	The committee noted that there is	Yes	2014	Drug Label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
c and Metabolic		Afrezza, (Technosphere Insulin Inhalation System), 3 unit and 6 unit cartridges for oral inhalation, submitted by MannKind Corporation	briefing materials and presented at today's meeting, has the applicant demonstrated that Afrezza is safe and effective for the treatment of adult patients with type 2 diabetes mellitus to support approval?	No: 0 No Voting: 1	often a tremendous delay in getting type 2 diabetes patients to initiate insulin therapy, and because of its non-injectable route of administration this treatment option may help with the delay. The committee also commented that many patients with type 2 diabetes are older and overweight, so having an agent that does not promote weight gain and possibly even promotes weight loss would be an advantage for these patients.					
Endocrinologic and Metabolic	11-Sep-14	(NDA) 206321, liraglutide for injection, sponsored by Novo Nordisk, Inc	Considering the currently available data and the proposed Risk Evaluation and Mitigation Strategy (REMS), is the overall benefit-risk assessment of liraglutide 3 mg perday favorable to support its approval for chronic weight management in individuals with a BMI 30 kg/m2 or greater, or 27 kg/m2 or greater in the presence of at least one weight-related comorbidity?	Yes: 14 No: 1	Further studies conducted on the incidence of MTC and C-cell hyperplasia. Longer-term safety studies with the inclusion of more diverse patient populations	Yes	2014	Drug Label	NDA	https://clinicaltrials.gov/ct2/show/NCT03560336
Endocrinologic and Metabolic	12-Sep-14	(BLA) 125511, proposed trade name NATPARA (established name: Recombinant Human Parathyroid Hormone (rDNA) or (rhPTH[1-84]), submitted by NPS Pharmaceuticals, Inc	In light of the efficacy and safety findings in the Natpara development program, does the overall risk-benefit of Natpara administered at the doses and regimen proposed support approval of Natpara for the long-term treatment of hypoparathyroidism?	Yes: 8 No: 5	- Follow-up safety studies on osteosarcoma - Studies of a more frequent dosing interval - Require mandatory reporting of osteosarcoma - Education of prescribers and patients	Yes	2015	Drug Label	BLA	
Nonprescription	26-Feb-14	Over-the-counter (OTC) bronchodilators administered by hand-held rubber bulb nebulizers. Specific drugs discussed included epinephrine, epinephrine bitartrate, and	Should epinephrine and racepinephrine delivered via a rubber bulb nebulizer be removed from the OTC Monograph (21 CFR 341: Cold, Cough, Allergy, Bronchodilator, and Antiasthmatic Drug Products for Over-the-Counter Human Use)?	Yes: 15 No: 5 Abstain: 1	The committee members who voted "Yes" were concerned with various safety issues, including delivery of epinephrine and racepinephrine via a bulb nebulizer and patients' inability to assess the severity of their asthma. Many of the committee members who voted "Yes" mentioned the benefits of having OTC products approved under the New Drug	Yes	2014	https://pink.pharmaintelligence.informa.com/PS107410/Panel-Votes-For-Removing-Nebulizer-Asthma-Ingredients-From-Monograph	N/A	Not related to any paticular drug

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		racepinephrine hydrochloride (21 CFR 341.16).			Application (NDA) process, but also expressed their concern regarding the potential for limited availability to the public for off label indications such as croup if these products are removed from the monograph.					
Nonprescription	2-May-14	The committee discussed data submitted by MSD Consumer Care, Inc., to support a new drug application (NDA) 204804 for over-the-counter (OTC) marketing of montelukast 10 milligram (mg) tablets (proposed trade name SINGULAIR Allergy).	Is the risk/benefit profile of montelukast sodium supportive of OTC use in adults for the nasal indication "temporarily relieves symptoms due to hay fever or other upper respiratory allergies"?	Yes: 4 No: 11	The panel members noted that the risk did not seem to be too large and there is a benefit for the patients with the stated indication of "allergic rhinitis."	Yes	2014	https://www.goodrx.com/blog/is-singulair-available-without-a-prescription/	N/A	Not related to any paticular drug
Nonprescription	3-Sep-14	Not related to any paticular drug	The committee discussed the standards used to demonstrate that over-thecounter (OTC) topical antiseptics used in healthcare settings are generally recognized as safe and effective.	N/A	N/A	N/A	N/A	N/A	N/A	
Nonprescription	4-Sep-2014 and 5-Sep-14	Not related to any paticular drug	The committee discussed the scope of safety testing that should be required for sunscreen active ingredients to be marketed in U.S. over the-counter (OTC) sunscreen products.	N/A	N/A	N/A	N/A	N/A	N/A	
Oncologic	25-Jun-14	(NDA) 206162, olaparib capsules, application submitted by AstraZeneca Pharmaceuticals LP	Do the safety and efficacy results from Study 19 in the gBRCAm population support an accelerated approval, or should consideration for marketing approval be delayed until the results of SOLO-2 are available?	Yes: 2 No: 11	The majority of the committee voted that the available safety and efficacy results from study 19 do not support accelerated approval, and that consideration for marketing approval should be delayed until the results of the SOLO-2 trial are available.	No	2014	Drug Label	NDA	https://www.drugs.com/history/lynparza.html
Oncologic	6-Nov-14	(NDA) 205353, panobinostat capsules,	Given this benefit:risk profile of the addition of panobinostat to bortezomib and	Yes: 2 No: 5	Those committee members who voted in the negative described unease regarding the lack of	No	2015	Drug Label	NDA	https://www.drugs.com/history/farydak.html

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		application submitted by Novartis Pharmaceuticals Corporation.	dexamethasone, does the benefit outweigh the risks for patients with relapsed multiple myeloma?		additional data, such as improvement in overall survival or quality of life endpoints, to support the observed improvement in progression-free survival (PFS).					
Oncologic	6-Nov-14	NDA 206317, ferric pyrophosphate solution, for administration via hemodialysis dialysate, application submitted by Rockwell Medical, Inc	Do the efficacy and safety results in Studies SFP-4 and SFP-5 support a positive benefit/risk for use of ferric pyrophosphate to treat iron loss?	Yes: 3 No: 8	Those committee members who voted positively described confidence that the trial supported that ferric pyrophosphate was superior to placebo in the context of the trials and that it was effective in delivering iron to those patients.	Yes	2015	Drug Label	NDA	
Oncologic	11-Dec-14	Not related to any paticular drug	Discussed general issues concerning diseases to be studied, patient populations to be included, and possible study designs in the development of three products for pediatric use	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Psychopharmacologic, Drug Safety and Risk Management	16-Oct-14	Not related to any paticular drug	The committees discussed safety data from observational studies and a meta-analysis of randomized controlled clinical trials that were conducted since the original signal of serious neuropsychiatric adverse events with CHANTIX (varenicline tartrate tablets, NDA 21928, Pfizer, Inc.) emerged. The committees also discussed whether any action needed to be taken with regard to how this risk is described in product labeling.	N/A	N/A	N/A	N/A	N/A	N/A	
Pulmonary-Allergy, Nonprescription	25-Feb-14	(NDA) 205920, for over-the-counter (OTC) marketing of epinephrine inhalation aerosol 125 microgram (mcg)/actuation (proposed trade	Is the risk/benefit profile of epinephrine inhalation aerosol 125 mcg per inhalation supportive of OTC use for the temporary relief of mild symptoms of intermittent asthma, including wheezing, tightness of chest, and	Yes: 6 No: 18 No Voting: 1	The majority of the committee did not agree that the risk/benefit profile of epinephrine inhalation aerosol 125 mcg per inhalation supported OTC use for the temporary relief of mild symptoms of intermittent asthma, including wheezing, tightness of	Yes	2014	https://www.verywellhealth.com/safe-inhalers-201161	NDA	Inhalers are currently only available with a prescription from your doctor.

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		name Primatene HFA) submitted by Armstrong Pharmaceuticals, In	shortness of breath in adults and children 12 years of age and older?		chest, and shortness of breath in adults and children 12 years of age and older. Several committee members voted "No" due to safety concerns previously discussed.					
Pulmonary-Allergy	14-Aug-14	(NDA) 21936, for tiotropium bromide inhalation spray, submitted by Boehringer Ingelheim Pharmaceuticals,	Do the data support approval of tiotropium bromide inhalation spray 5 mcg for the long-term, once-daily, maintenance treatment of bronchospasm associated with COPD, and for reducing COPD exacerbations?	Yes: 10 No: 3	The members who voted "Yes" commented that there was clear demonstration of efficacy in treating patients with COPD, as well as cardiovascular safety.	Yes	2015	Drug Label	NDA	
Pulmonary-Allergy	21-Oct-14	(sNDA) 203188, for ivacaftor oral tablets, submitted by Vertex Pharmaceuticals	Do the data support approval of ivacaftor oral tablets 150 mg twice daily for the treatment of cystic fibrosis in patients age 6 years and older who have a R117H mutation in the CFTR gene?	Yes: 13 No: 2	The majority of the members agreed that the data support approval of ivacaftor oral tablets 150 mg twice daily for the treatment of cystic fibrosis in patients age 6 years and older who have a R117H mutation in the CFTR gene.	Yes	2014	Drug Label	sNDA	

2015 Meetings

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Anesthetic and Analgesic, Drug Safety and Risk Management	10-Sep-15	(NDA) 206830, oxycodone immediate-release tablets, submitted by Purdue Pharma	Should AVRIDI be approved for marketing in the US?	Yes: 1 No: 23	At minimum, an enhanced warning or labeling system should be put into place for effective risk communication - reduced efficacy when taken with food, should be taken on empty stomach	Yes	2015	Drug not approved	NDA	Drug not approved
Anesthetic and Analgesic, Drug Safety and Risk Management	11-Sep-15	(NDA) 208090, oxycodone extended-release capsules for oral use, Collegium Pharmaceuticals	Should XTAMPZA ER be approved for marketing in the US?	Yes: 0 No: 23	No specific recommendation	Yes	Nov-15	https://www.drugs.com/nda/xtampza_er_151109.html	NDA	
Anesthetic and Analgesic	6-Nov-15	(NDA) 022225, sugammadex sodium injection, submitted by Organon USA Inc., a subsidiary of	Does the efficacy, safety and overall risk-benefit profile of sugammadex support the approval of this application?	Yes: 14 No: 0	The committee commented that, the applicant has clearly demonstrated efficacy and though there are safety concerns, the overall benefit to risk profile is supported and does favor approval. The	Yes	2015	Drug label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Merck & Co., Inc			committee stated that the data suggest that the drug is safe in the populations in which it has been studied and that post-marketing data is imperfect but may provide further information.					
Antimicrobial	22-Jan-15	(NDAs) 207-500 and 207-501, isavuconazonium sulfate capsules and isavuconazonium sulfate for injection, sponsored by Astellas Pharma Global Development, Inc	Has the applicant demonstrated substantial evidence of the safety and efficacy of isavuconazole for the proposed indication of treatment of invasive aspergillosis?	Yes: 11 No: 0	Labeling should include warnings and information for use in pregnant and/or breastfeeding women, children under 18 years old, patients with short QT syndrome, patients of non-white descent (specifically of Asian descent) and any need for drug monitoring. Label should include information that addresses the possibility for particulate matter to develop, and that the vial should not be shaken during reconstitution and the bag should not be shaken after reconstitution.	Yes	2015	Drug label	NDA	
Antimicrobial	22-Jan-15	(NDAs) 207-500 and 207-501, isavuconazonium sulfate capsules and isavuconazonium sulfate for injection, sponsored by Astellas Pharma Global Development, Inc	Has the applicant demonstrated substantial evidence of the safety and efficacy of isavuconazole for the proposed indication of treatment of mucormycosis?	Yes: 8 No: 2 Abstain: 1	It was noted that, given the difficulty in gathering data for such a rare condition, the data do seem to suggest effectiveness. The majority of the committee stated that the unmet need for this rare disease influenced their decision to vote in favor of approval.	Yes	2015	Drug label	NDA	
Antimicrobial, Drug Safety and Risk Managment	5-Nov-15	Not related to any paticular drug	The committees will discuss the risks and benefits of the systemic fluoroquinolone antibacterial drugs for the treatment of acute bacterial sinusitis, acute bacterial exacerbation of chronic bronchitis in patients who have chronic obstructive pulmonary disease, and uncomplicated urinary tract infections in the context of available safety	N/A	N/A	N/A	N/A	N/A	N/A	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			information and the treatment effect of antibacterial drugs in these clinical conditions.							
Arthritis	23-Oct-15	(NDA) 207988, lesinurad oral tablets, submitted by Ardea Biosciences, Inc	Do you recommend approval of lesinurad 200 mg once daily for the proposed indication of treatment of hyperuricemia associated with gout in combination with a xanthine oxidase inhibitor?	Yes: 10 No: 4	These members reiterated that there is a significant need for effective medications for gout patients and that this drug has proven to be effective in clinical trials.	Yes	2015	Drug label	NDA	
Bone, Reproductive and Urologic, Drug Safety and Risk Management	4-Jun-15	(NDA) 022526, flibanserin 100 milligram (mg) tablets, submitted by Sprout Pharmaceuticals Inc	Is the overall benefit/risk profile of flibanserin acceptable to support approval for hypoactive sexual desire disorder (HSDD) in premenopausal women? A. Yes, with labeling alone to manage the risks B. Yes, but only if certain risk management options beyond labeling are implemented C. No	A: 0 B: 18 C: 6	These members also noted the marginal efficacy and significant safety concerns but took into account the unmet medical need.	Yes	2015	Drug label	NDA	
Cardiovascular & Renal	15-Apr-15	(NDA) 204958, cangrelor injection, submitted by The Medicines Company	Should cangrelor be approved as an adjunct to PCI for reducing the risk of periprocedural thrombotic events such as MI, stent thrombosis, and ischemia driven revascularization?	Yes: 9 No: 2 Abstain: 1	Committee members stated that the trial was conducted in context of real-world treatment strategies and that cangrelor would be a new tool in the armamentarium in the reduction of thrombotic events. Committee members also recommended that cangrelor should only be used in patients who will not be treated with GP2b/3a inhibitors.	Yes	2015	Drug label	NDA	
Dermatologic and Ophthalmic, Medical Devices Advisory Committee	24-Feb-15	(NDA) 203324, for riboflavin ophthalmic solutions with UV-A irradiation, Avedro, Inc	Has substantial evidence of efficacy and safety been demonstrated for drugdevice combination of Photrexa Viscous and Photrexa (riboflavin ophthalmic solution) and the KXL System (UVA light) to support approval for progressive	Yes: 10 No: 4 Abstain: 1	Labeling to include that longterm effects of the treatment beyond 12 months is unknown	No	Mar-15	https://www.businesswire.com/news/home/20150331006340/en/Avedro-Announces-Receipt-Complete-Response-Letter-FDA	NDA	Drug not approved

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			keratoconus?							
Dermatologic and Ophthalmic, Medical Devices Advisory Committee	24-Feb-15	(NDA) 203324, for riboflavin ophthalmic solutions with UV-A irradiation, Avedro, Inc	Has substantial evidence of efficacy and safety been demonstrated for the drugdevice combination of Photrexa Viscous and Photrexa (riboflavin ophthalmic solution) and the KXL System (UVA light) to support approval for corneal ectasia following refractive surgery?	Yes: 6 No: 4 Abstain: 4	Labeling to include that longterm effects of the treatment beyond 12 months is unknown. Explanation as to why use is not recommended beyond cornea thickness beyond 400 microns. Labeling should indicate the type of refractive surgery, which was all laser-based vs. the allinclusive term of "refractive surgery".	No	Mar-15	https://www.businesswire.com/news/home/20150331006340/en/Avedro-Announces-Receipt-Complete-Response-Letter-FDA	NDA	Drug not approved
Dermatologic and Ophthalmic	9-Mar-15	(NDA) 206333, deoxycholic acid injection, a cytolytic drug, submitted by Kythera Biopharmaceuticals	Do the efficacy and safety data provided to you today support the approval of deoxycholic acid injection for the improvement in the appearance of moderate to severe convexity or fullness associated with submental fat?	Yes: 17 No: 0	Several committee members expressed concern over the effects of the injection on the marginal mandibular nerve, but noted that the risks were similar to that of surgical treatments.	Yes	2015	Drug label	NDA	
Endocrinologic and Metabolic	12-Jan-15	(NDA) 022517, proposed trade name NOCDURNA (established name: desmopressin), orally disintegrating sublingual tablets submitted by Ferring Pharmaceuticals, Inc	Does the demonstrated benefit of NOCDURNA outweigh the risks and support approval for nocturia due to nocturnal polyuria?	Yes: 5 No: 10 Abstain: 2	The majority of the committee voted "No" and most committee members who voted "No" along with the two members that abstained from the vote, stated that while both co-primary endpoints achieved statistically significant differences from placebo in the two Phase III trials, the clinical benefit of the observed treatment effect remained unclear, particularly given the large placebo effect seen in the trials.	Yes	2015	Drug label	NDA	Drug approved in 2018 and not in 2015
Endocrinologic and Metabolic	14-Apr-15	(NDA) 22350, Onglyza (saxagliptin); NDA 200678, Kombiglyze XR (saxagliptin and metformin HCl extended-release) tablets, AstraZeneca AB	Do the results of SAVOR demonstrate that the use of saxagliptin in patients with type 2 diabetes has an acceptable cardiovascular risk profile?	Yes: 13 No: 1 Abstain: 1	Additional observational studies to further explore this safety signal, especially in patients with higher cardiovascular risk. Labeling to add new safety information, including potential increased risk of heart failure, all-cause mortality, decreased renal function, and acute pancreatitis based on the safety findings from the SAVOR trial. Labeling should communicate the	Yes	2015	https://www.fda.gov/drugs/drugsafety/ucm486096.htm	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
					potential increased risk for heart failure in patients with a previous history of heart failure and decreased renal function					
Endocrinologic and Metabolic	14-Apr-15	NDA 22271, Nesina (ALOGLIPTIN); NDA 022426, Oseni (ALOGLIPTIN and PIOGLITAZONE); and NDA 203414, Kazano (ALOGLIPTIN and METFORMIN) tablets, Takeda Pharmaceutical U.S.A., Inc.	Based on information presented today and in the background materials, do the results of EXAMINE demonstrate that the use of alogliptin in patients with type 2 diabetes has an acceptable cardiovascular risk profile?	Yes: 16 No: 0	Include new safety information regarding the risk for heart failure, and renal impairment	Yes	2015	https://www.fda.gov/drugs/drugsafety/ucm486096.htm	NDA	
Endocrinologic and Metabolic	9-Jun-15	Biologics license application 125559, proposed trade name PRALUENT (established name: Alirocumab) for injection, submitted by Sanofi Aventis, U.S	Has the applicant sufficiently established that the LDL-C-lowering benefit of alirocumab exceeds its risks to support approval in one or more patient populations? We remind you that under the current regulatory pathway, it would not be required to successfully demonstrate an effect of alirocumab on CV outcomes after an approval based on changes in LDL-C.	Yes: 13 No: 3	Members who voted “yes” varied with respect to the specific patient populations for which the drug should be indicated with the exception of unanimous support for heterozygous familial hypercholesterolemia (HeFH).	Yes	2015	Drug label	BLA	
Endocrinologic and Metabolic	10-Jun-15	(BLA) 125522, proposed trade name REPATHA (established name: Evolocumab) for injection, submitted by Amgen Inc	Has the applicant sufficiently established that the LDL-C-lowering benefit of evolocumab exceeds its risks to support approval for homozygous familial hypercholesterolemia?	Yes: 15 No: 0	Several members believed that there is not enough evidence to suggest that the 420 mg Q2W dosing is more effective than 420 mg QM dosing, but others stated that the potential benefit of the more frequent dosing in this patient population outweighs any risk, especially given the lack of major safety concerns with evolocumab and the fact that experts ought to be treating these patients.	Yes	2015	Drug label	BLA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Endocrinologic and Metabolic	10-Jun-15	(BLA) 125522, proposed trade name REPATHA (established name: Evolocumab) for injection, submitted by Amgen Inc	Has the applicant sufficiently established that the LDL-C-lowering benefit of evolocumab exceeds its risks to support approval in one or more patient populations (excluding HoFH)? We remind you that under the current regulatory pathway, it would not be required to successfully demonstrate an effect of evolocumab on CV outcomes after an approval based on changes in LDL-C.	Yes: 11 No: 4	Several members, but not all, also supported approval for patients with high or very high cardiovascular (CV) risk who have residually high levels of LDL-C despite maximally tolerated statin therapy and/or have verified statin-intolerance.	Yes	2015	Drug label	BLA	
Endocrinologic and Metabolic	14-Dec-15	sNDAs - 21445/S-038 and 21687/S-054, ZETIA (ezetimibe) and VYTORIN (ezetimibe/simvastatin) tablets, respectively, by MSD International GmbH	Do the efficacy and safety data from the IMPROVE-IT trial provide substantial evidence to support approval of a claim that adding ezetimibe to statin therapy reduces the risk of cardiovascular events?	Yes: 5 No: 10	Those who voted “NO” stated that the the results did not provide statistically persuasive evidence of benefit, especially from the standpoint of using a single trial to support approval, and were not convinced that the magnitude of the benefit seen was clinically meaningful.	Yes	2015	Drug label	sNDA	Drug not approved for this indication
Oncologic	7-Jan-15	(BLA) 125553 for EP2006, a proposed biosimilar to Amgen Inc.'s NEUPOGEN (filgrastim), submitted by Sandoz, Inc	Does the committee agree that based on the totality of the evidence, EP2006 should receive licensure as a biosimilar product for each of the 5 indications for which US-licensed Neupogen is currently licensed?	Yes: 14 No: 0	One member particularly noted the strong evidence shown by the sponsor for biosimilarity that included numerous studies, the structure/function and clinical performance of EP2006. This member stated that the data demonstrated equivalence in duration of severe neutropenia with a small difference in pharmacokinetic parameters.	Yes	2015	Drug label	BLA	
Oncologic	9-Jul-15	Biologics license application 125547, necitumumab injection, application submitted by Eli Lilly and Company.	Please discuss whether the efficacy and safety results of SQUIRE in squamous cell NSCLC support a positive benefit: risk assessment of necitumumab in combination with gemcitabine/cisplatin in the proposed population.	N/A	The majority of the committee agreed that the efficacy and safety results of SQUIRE in squamous cell NSCLC support a positive benefit: risk assessment of necitumumab in combination with gemcitabine/cisplatin in the proposed population. Most of the committee members noted that the 16% reduced risk of death and	Yes	2015	Drug label	BLA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
					median 1.6-month survival benefit with necitumumab in the pivotal SQUIRE study is modest yet significant and noteworthy.					
Oncologic	19-Nov-15	Not related to any paticular drug	Considered and discussed issues concerning diseases to be studied, patient populations to be included, and possible study designs in the development of products for pediatric use for formulation of written requests. The products under consideration were: (1) ABT- 414, application sponsored by AbbVie, Inc. and, (2) lenvatinib, application sponsored by Eisai, Inc.	N/A	N/A	N/A	N/A	N/A	N/A	
Peripheral and Central Nervous System	24-Nov-15	(NDA) 206031, drisapersen solution for injection, sponsored by BioMarin Pharmaceutical Inc	What is the impact of the dystrophin results on the interpretation of the clinical results?	Strengthen = 0 Weaken = 6 No Effect = 10 No Vote = 1	The committee agreed that the sponsor should explore the use of drisapersen in a narrower patient population, including younger patients and those who are not under rapid decline in order to determine whether there is a subset of patients in whom the drug might be effective	Yes	2015	https://www.drugs.com/history/kyndrisa.html	NDA	Drug not approved
Pharmacy Compounding	23-Feb-15 and 24-Feb-15	Not related to any paticular drug	The committee discussed proposed revisions to the list of drug products that may not be compounded because the drug products have been withdrawn or removed from the market because such drug products or components of such drug products have been found to be unsafe or not effective.	N/A	N/A	N/A	N/A	N/A	N/A	
Pharmacy Compounding	17-Jun-15 and 18-Jun-15	Not related to any paticular drug	The committee will receive updates on certain issues to follow up on discussions from the last meeting including the options for obtaining access to investigational	N/A	N/A	N/A	N/A	N/A	N/A	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			new drugs and the processes FDA plans to use to add or remove drugs from the section 503A bulk drug substances list.							
Pharmacy Compounding	27-Oct-15 and 28-Oct-15	Not related to any paticular drug	The committee discussed five bulk drug substances nominated for inclusion on the section 503A bulk drug substances list.	N/A	N/A	N/A	N/A	N/A	N/A	
Psychopharmacologic	1-Dec-15	(NDA) 21164, gepirone hydrochloride extended-release tablets, submitted by Fabre-Kramer Pharmaceuticals, Inc	Do the available data support a favorable benefit risk profile of gepirone ER to support approval?	Yes: 4 No: 9	The majority of the committee agreed that the benefits outweighed the risk of the medication to be a new option for patients but needed further studies.	Yes	2015	https://www.drugs.com/history/travivo.html	NDA	
Pulmonary-Allergy, Drug Safety and Risk Management	19-Mar-15	(sNDA) 204275-S001, for fluticasone furoate and vilanterol inhalation powder (tradename Breo Ellipta) submitted by GlaxoSmithKline	Do the efficacy and safety data support approval of FF/VI 100/25 and 200/25 for the once daily maintenance treatment of asthma a. in adults 18 years and older?	Yes: 16 No: 4	Members who voted "YES", noted the advantage of once daily dosing offered by FF/VI and its positive risk-benefit profile	Yes	2015	Drug label	sNDA	
Pulmonary-Allergy, Drug Safety and Risk Management	19-Mar-15	(sNDA) 204275-S001, for fluticasone furoate and vilanterol inhalation powder (tradename Breo Ellipta) submitted by GlaxoSmithKline	Do the efficacy and safety data support approval of FF/VI 100/25 and 200/25 for the once daily maintenance treatment of asthma b. in children 12-17 years of age?	Yes: 2 No: 18	Members who voted "NO", commented on the need for additional data for efficacy and safety	Yes	2015	Drug label	sNDA	
Pulmonary-Allergy	12-May-15	(NDA) 206038, lumacaftor/ivacaftor combination tablets for oral use, submitted by Vertex Pharmaceuticals	Do the available efficacy and safety data support approval of the LUM 400mg/IVA 250 mg FDC product administered twice daily in patients with CF who are homozygous for the F508del mutation in the CFTR gene?	Yes: 12 No: 1	The committee members voting "Yes" commented that the studies met the primary endpoints	Yes	2015	Drug label	NDA	
Pulmonary-	11-Jun-	(BLA) 125526, for	Do the available efficacy	Yes: 14	The members stated safety and	Yes	2015	Drug label	BLA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Allergy	15	mepolizumab for injection, submitted by GlaxoSmithKline	and safety data support approval of mepolizumab 100 mg SC administered once every 4 weeks for the treatment of patients with severe asthma? a. in adults 18 years of age and older?	No: 0	efficacy have been established in adults as the risk/benefit ratio is excellent.					
Pulmonary-Allergy	11-Jun-15	(BLA) 125526, for mepolizumab for injection, submitted by GlaxoSmithKline	Do the available efficacy and safety data support approval of mepolizumab 100 mg SC administered once every 4 weeks for the treatment of patients with severe asthma? b. in children 12 – 17 years of age?	Yes: 4 No: 10	Members who voted, "No", stated there is not enough data in the use of mepolizumab in children to support approval. The sponsor was urged to recruit adolescents for further study.	Yes	2015	Drug label	BLA	
Pulmonary-Allergy	9-Dec-15	Biologics license application 761033, reslizumab for injection, submitted by Teva Pharmaceutical Industries, Ltd	Do the available efficacy and safety data support approval of reslizumab 3 mg/kg IV every 4 weeks for the treatment of patients with asthma? a) in adults 18 years of age and older?	Yes: 11 No: 3	The committee members voting, "Yes," commented that unmet need would be addressed for patients with the approval of the drug.	Yes	2015	Drug label	BLA	
Pulmonary-Allergy	9-Dec-15	Biologics license application 761033, reslizumab for injection, submitted by Teva Pharmaceutical Industries, Ltd	Do the available efficacy and safety data support approval of reslizumab 3 mg/kg IV every 4 weeks for the treatment of patients with asthma? b) in children 12 – 17 years of age?	Yes: 0 No: 14	Members commented on the lack of efficacy in this age group and the safety issues. Please see the transcript for details of the committee discussion.	Yes	2015	Drug label	BLA	
Pulmonary-Allergy, Drug Safety and Risk Management	10-Dec-15	Not related to any paticular drug	The committee discussed the safety of codeine in children 18 years of age and younger. Codeine (most often in combination with acetaminophen) is used for the treatment of pain in children; however, it is contraindicated for the management of pain after tonsillectomy and/or adenoidectomy.	N/A	N/A	N/A	N/A	N/A	N/A	

2016 Meetings

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Anesthetic and Analgesic, Drug Safety and Risk Management	3-May-16 and 4-May-16	Not related to any paticular drug	The committees discussed results from assessments of theextended-release and long-acting (ER/LA) Opioid Analgesics REMS. The Agency sought the committees' comments as to whether this REMS with ETASU assures safe use, is not unduly burdensome to patient access to the drugs, and to the extent practicable, minimizes the burden to the healthcare delivery system.	N/A	N/A	N/A	N/A	N/A	N/A	
Anesthetic and Analgesic, Drug Safety and Risk Management	5-May-16	(NDA) 208653, benzhydrocodone /acetaminophen oral tablets, submitted by KemPharm, Inc	Should KP201/APAP be approved for the proposed indication?	Yes: 16 No: 4	No specific recommendation	No	Jun-16	https://www.managedcaremag.com/news/fda-rejects-abuse-deterrent-benzhydrocodone-acetaminophen-combo	NDA	Drug not approved
Anesthetic and Analgesic, Drug Safety and Risk Management	5-May-16	(NDA) 208653, benzhydrocodone /acetaminophen oral tablets, submitted by KemPharm, Inc	If approved, should KP201/APAP be labeled as an abuse-deterrent product?	Yes: 2 No: 18	Should not be labeled as having abuse-deterrent properties	N/A	N/A	N/A	N/A	Drug not approved
Anesthetic and Analgesic, Drug Safety and Risk Management	7-Jun-16	(NDA) 207975, hydrocodone bitartrate extended-release tablets, submitted by Teva Branded Pharmaceutical Products R&D, Inc	Should Vantrela ER be approved for the proposed indication, management of pain severe enough to require daily, around-the-clock, long-term opioid treatment and for which alternative treatment options are inadequate?	Yes: 14 No: 3	Those members who voted "Yes" stated that the clinical development program met the standard for demonstrating efficacy.	Yes	2017	Drug label	NDA	
Anesthetic and Analgesic, Drug Safety and Risk Management	8-Jun-16	(NDA) 207621, Oxycodone Hydrochloride and Naltrexone Hydrochloride Extended-Release Capsules, submitted by Pfizer, Inc	Should Troxyca ER be approved for the proposed indication, management of pain severe enough to require daily, around-the-clock, long-term opioid treatment and for which alternative treatment options are inadequate?	Yes: 9 No: 6	Those members who voted "Yes" stated that they support approval because the drug met the current standards for approval of an extended-release product while showing clinical efficacy and safety data.	Yes	2016	Drug label	NDA	

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Anesthetic and Analgesic, Drug Safety and Risk Management	4-Aug-16	(NDA) 208603, morphine sulfate extended-release tablets, submitted by Egalet US Inc.	If approved, should Arymo ER be labeled as an abuse-deterrent product by the oral route of abuse?	Yes: 16 No: 3	No specific recommendation	Yes	2017	Drug label	NDA	https://www.drugs.com/history/arymo-er.html
Anesthetic and Analgesic, Drug Safety and Risk Management	4-Aug-16	(NDA) 208603, morphine sulfate extended-release tablets, submitted by Egalet US Inc.	If approved, should Arymo ER be labeled as an abuse-deterrent product by the nasal route of abuse?	Yes: 18 No: 1	No specific recommendation	Yes	2017	Drug label	NDA	https://www.drugs.com/history/arymo-er.html
Anesthetic and Analgesic, Drug Safety and Risk Management	4-Aug-16	(NDA) 208603, morphine sulfate extended-release tablets, submitted by Egalet US Inc.	If approved, should Arymo ER be labeled as an abuse-deterrent product by the intravenous route of abuse?	Yes: 18 No: 1	No specific recommendation	Yes	2017	Drug label	NDA	https://www.drugs.com/history/arymo-er.html
Anesthetic and Analgesic, Drug Safety and Risk Management	4-Aug-16	(NDA) 208603, morphine sulfate extended-release tablets, submitted by Egalet US Inc.	Should Arymo ER be approved for the proposed indication, management of pain severe enough to require daily, around-the-clock, long-term opioid treatment and for which alternative treatment options are inadequate?	Yes: 18 No: 1	No specific recommendation	Yes	Jan-17	https://www.practicalpainmanagement.com/resources/news-and-research/fda-approves-arymo-er-morphine-sulfate-new-abuse-deterrent-opioid	NDA	
Anesthetic and Analgesic, Drug Safety and Risk Management	15-Sep-16 and 16-Sep-16	Not related to any paticular drug	Discuss the appropriate development plans for establishing the safety and efficacy of prescription opioid analgesics for pediatric patients, including obtaining pharmacokinetic data and the use of extrapolation.	N/A	N/A	N/A	N/A	N/A	N/A	
Anesthetic and Analgesic, Drug Safety and Risk Management	5-Oct-16	Not related to any paticular drug	Discuss naloxone products intended for use in the community, specifically the most appropriate dose or doses of naloxone to reverse the effects of life-threatening opioid overdose in all ages, and the role of having multiple doses available in this setting. Discuss the criteria prescribers will use to select the most appropriate dose in advance of an opioid overdose event and the labeling to inform this decision, if multiple doses are available.	N/A	N/A	N/A	N/A	N/A	N/A	

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Antimicrobial	9-Jun-16	(BLA) 761046, bezlotoxumab (MK-6072) injection, submitted by Merck Sharpe & Dohme Corp	Has the applicant provided substantial evidence of the safety and effectiveness of bezlotoxumab for the prevention of C. difficile infection recurrence in patients aged 18 years and older?	Yes: 9 No: 2 Abstain: 1	If approved, the committee members recommended the drug should be used with caution in patients who have underlying heart disease and that should be noted in the drug label. A few experts recommended studies to be conducted in pediatric patients.	Yes	2016	Drug label	BLA	
Antimicrobial	4-Nov-16	(NDA) 209006 and 209007, solithromycin capsules and solithromycin for injection, sponsored by Cempra Pharmaceuticals, Inc	Do the efficacy results of solithromycin for the treatment of CABP, outweigh the risks including hepatotoxicity?	Yes: 7 No: 6	Labeling should warn providers not to exceed the duration of therapy intended for CABP. Due to risk of hepatoxicity, the committee recommended that FDA carefully consider the type of clinical studies required for approval or condition(s) for approval	No	Dec-16	https://www.drugs.com/nda/solithera_161229.html	NDA	Drug not approved
Arthritis	9-Feb-16	(BLA) 125544, for CT-P13, a proposed biosimilar to Janssen Biotech Inc.	Does the Committee agree that based on the totality of the evidence, CT-P13 should receive licensure as a biosimilar product to US-licensed Remicade for each of the indications for which US-licensed Remicade is currently licensed and CT-P13 is eligible for licensure (RA, AS, PsA, PsO, adult CD, pediatric CD, adult UC)?	Yes: 21 No: 3	The committee as a whole stated that the total package showed a large number of analytical techniques proving that the threshold for overall biosimilarity had been met.	Yes	2016	Drug label	BLA	
Arthritis	12-Jul-16	Biologics license application 761024, for ABP 501, a proposed biosimilar to AbbVie Inc.'s HUMIRA (adalimumab), submitted by Amgen, Inc	Does the totality of the evidence support licensure of ABP 501 as a biosimilar product to US-licensed Humira for the following indications for which US-licensed Humira is currently licensed and for which Amgen is seeking licensure (RA, JIA in patients 4 years of age and older, PsA, AS, adult CD, adult UC, and PsO)?	Yes: 26 No: 0	Some committee members expressed concerns with the potential for market-place non-medical switching of biosimilars. Some committee members recommended mandatory postmarketing surveillance to assess long-term safety, in addition to the data presented. Some committee members also stressed the importance of patient education on biosimilars and interchangeability	Yes	2017	Drug label	BLA	
Arthritis	13-Jul-16	Biologics license	Does the totality of the	Yes: 20	Some committee members	Yes	2017	Drug label	BLA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		application 761042, for GP2015, a proposed biosimilar to Amgen Inc.'s ENBREL (etanercept) submitted by Sandoz, Inc	evidence support licensure of GP2015 as a biosimilar to USlicensed Enbrel for the following indications for which US-licensed Enbrel is currently licensed and for which Sandoz is seeking licensure (RA, JIA, AS, PsA, PsO)?	No: 0	recommended mandatory postmarketing surveillance to assess long-term safety. One committee member noted that nonmedical switching is a major concern that needs greater clarification from the Agency. One committee member noted that the labeling should clearly indicate that GP2015 is a biosimilar and is not an interchangeable product.					
Bone, Reproductive and Urologic	19-Oct-16	(NDA) 201656 (desmopressin) 0.75 mcg/0.1 mL and 1.5 mcg/0.1 mL nasal spray, submitted by Serenity Pharmaceuticals, LLC	Do the benefits of desmopressin outweigh the risks and support approval?	Yes: 14 No: 4 Abstain: 0 No Vote: 1	Thirteen of the 14 members who voted "Yes" opposed a general indication of nocturia and recommended instead an indication for nocturnal polyuria. Other comments included that the label should reflect the trials' exclusion criteria, that the product should not be recommended in institutionalized patients and that use should be carefully monitored in patients older than 65 years of age.	Yes	2017	Drug label	NDA	
Bone, Reproductive and Urologic	6-Dec-16	Not related to any paticular drug	The committee discussed appropriate clinical trial design features, including acceptable endpoints for demonstrating clinical benefit, for drugs intended to treat secondary hypogonadism while preserving or improving testicular function, including spermatogenesis.	N/A	N/A	N/A	N/A	N/A	N/A	
Dermatologic and Ophthalmic	19-Jul-16	(BLA) 761032, brodalumab injection, a human monoclonal antibody, submitted by Valeant Pharmaceuticals Luxembourg	Is the overall benefit/risk profile of brodalumab acceptable to support approval for the treatment of moderate to severe plaque psoriasis in adult patients who are candidates for systemic therapy or phototherapy. A. Yes, with labeling alone to manage the risks B. Yes, but only if certain risk management	A: 4 B: 14 C: 0	The majority of the panel voted that the overall benefit/risk profile of brodalumab is acceptable to support approval for the treatment of moderate to severe plaque psoriasis in adult patients who are candidates for systemic therapy or phototherapy, but only if certain risk	Yes	2017	Drug label	BLA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		S.a.r.l	options for SIB beyond labeling are implemented C. No		management options for SIB beyond labeling are implemented					
Endocrinologic and Metabolic	24-May-16	(NDA) 208583 for insulin degludec and liraglutide injection, submitted by Novo Nordisk Inc	Based on data in the briefing materials and presentations at today's meeting, do you recommend approval of the liraglutide/degludec fixed-combination drug, delivered using the proposed device, for the treatment of adult patients with type-2 diabetes mellitus?	Yes: 16 No: 0	The committee unanimously voted "Yes", recommending the approval of the liraglutide/degludec fixed-combination drug, delivered using the proposed device, for the treatment of adult patients with type-2 diabetes mellitus. The committee members stated that IDegLira had met the pre-specified objectives for efficacy.	Yes	2016	Drug label	NDA	
Endocrinologic and Metabolic	25-May-16	(NDAs) 208673 for insulin glargine and lixisenatide injection, a fixed ratio drug product consisting of insulin and a GLP-1 receptor agonist, and 208471 for lixisenatide injection, a GLP-1 receptor agonist, submitted by Sanofi Aventis c/o Sanofi U.S. Services Inc	Based on data in the briefing materials and presentations at today's meeting do you recommend approval of the lixisenatide/glargine fixed-combination drug delivered using the proposed pen devices for the treatment of adult patients with type-2 diabetes mellitus?	Yes: 12 No: 2 Abstain: 0 No Vote: 1	These members voting "Yes" commented that their vote is contingent on the applicant working with the FDA to adequately address the labeling concerns mentioned during the discussion. The committee urged color differentiation between the two pens and objective mechanisms engineered into the pen devices to help prevent dosing errors.	Yes	2016	Drug label	NDA	
Endocrinologic and Metabolic	28-Jun-16	(sNDA) 204629 for empagliflozin (JARDIANCE) tablets and sNDA 206111 for empagliflozin and metformin hydrochloride (SYNJARDY) tablets. Boehringer Ingelheim Pharmaceuticals, Inc	Based on data in the briefing materials and presentations at today's meeting, do you believe the EMPA-REG OUTCOME study results have fulfilled the recommendations laid out in the 2008 Guidance for Industry by demonstrating that use of empagliflozin to improve glycemic control would not result in an unacceptable increase in cardiovascular risk?	Yes: 23 No: 0	The committee unanimously voted "Yes", agreeing that the EMPAREG OUTCOME study fulfilled the recommendations laid out in the 2008 Guidance for Industry by meeting the criteria proposed and demonstrating cardiovascular safety. Please see the transcript for details of the committee discussion	Yes	2016	https://www.fda.gov/newsevents/newsroom/pressannouncements/ucm531517.htm	sNDA	
Endocrinologic	28-Jun-	(sNDA) 204629	Based on data in the briefing	Yes: 12	A slight majority of the	Yes	2016	https://www.fda.go	sNDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
and Metabolic	16	for empagliflozin (JARDIANCE) tablets and sNDA 206111 for empagliflozin and metformin hydrochloride (SYNJARDY) tablets. Boehringer Ingelheim Pharmaceuticals, Inc	materials and presentations at today's meeting, do you believe the EMPA-REG OUTCOME study results provide substantial evidence to establish that empagliflozin reduces cardiovascular mortality in the population studied?	No: 11	committee voted "Yes", agreeing that the EMPA-REG OUTCOME study results provided substantial evidence to establish that empagliflozin reduces cardiovascular mortality in the population studied. The majority of the committee was convinced of the CV mortality endpoint findings due to its ability to withstand all sensitivity analysis, even missing data.			v/newsevents/newsroom/pressannouncements/ucm531517.htm		
Gastrointestinal	7-Apr-16	(NDA) 207999, obeticholic acid oral tablets, submitted by Intercept Pharmaceuticals, Inc	Taking into account the risks and benefit of OCA in the population studied, is there substantial evidence to support accelerated approval of OCA for the proposed indication, based on its effect on alkaline phosphatase?	Yes: 17 No: 0	Members commented on the efficacy of the drug when compared to placebo, favorable benefit to risk ratio, and the ability of the drug to address an unmet need.	Yes	2016	Drug label	NDA	
Nonprescription	15-Apr-16	Galderma Laboratories, L.P. (sNDA) 20-380, for over-the-counter (OTC) marketing of adapalene gel 0.1%.	The sponsor proposes OTC use of adapalene gel 0.1% for the treatment of acne in consumers ages 12 years and older. Does the totality of the data support the use of this product OTC?	Yes: 16 No: 0	Regarding the labeling statement about breastfeeding, opinions varied: keep the statement, remove the statement, leave a statement about breastfeeding and remove the pregnancy warning, change the breastfeeding warning and add not to apply product to the breast, or remove the breastfeeding warning and keep the pregnancy warning.	Yes	2016	https://www.fda.gov/downloads/ScienceResearch/SpecialTopics/PediatricTherapeuticsResearch/UCM535567.pdf	sNDA	
Oncologic	12-Apr-16	(NDA) 208542, rociletinib tablets, application submitted by Clovis Oncology, Inc	Should the results of the randomized clinical trial (TIGER-3) be submitted before FDA makes a regulatory decision on this application?	Yes: 12 No: 1	Several concerns were stated including the lack of power in the TIGER-3 study design to compare the two doses of rociletinib with regard to efficacy or safety concerns of QT prolongation and hyperglycemia, and that the current application failed to meet the requirement for accelerated approval by showing superiority to other currently available treatments for metastatic non-small cell	Yes	2016	https://www.drugs.com/history/rociletinib.html	NDA	Drug not approved

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
					lung cancer.					
Oncologic	28-Jun-16 and 29-Jun-16	Not related to any paticular drug	The subcommittee will consider and discuss issues concerning diseases to be studied, patient populations to be included, and possible study designs in the development of these products for pediatric use.	N/A	N/A	N/A	N/A	N/A	N/A	
Oncologic	14-Sep-16	New drug application 208714, apaziquone for intravesical instillation, application submitted by Spectrum Pharmaceuticals, Inc	Has substantial evidence of a treatment effect for apaziquone over placebo been demonstrated?	Yes: 0 No: 14	The committee noted that this drug may have activity in patients with NMIBC but based on the data that was presented, it was unanimously agreed that substantial evidence of efficacy had not been shown. One statistician on the panel stated that the sponsor did not meet their primary endpoints in both studies, 611 and 612, and that the subgroup analyses were ad-hoc and could lead to potentially biased estimates of the treatment effect in the subgroups of interest.	Yes	2016	https://www.drugs.com/history/qapzola.html	NDA	Drug not approved
Peripheral and Central Nervous System	25-Apr-16	(NDA) 206488, eteplirsen injection for intravenous infusion, sponsored by Sarepta Therapeutics, Inc	Has the Applicant provided substantial evidence from adequate and well controlled studies that eteplirsen induces production of dystrophin to a level that is reasonably likely to predict clinical benefit?	Yes: 5 No: 8	No specific recommendation	No	2016	Drug label	NDA	Drug approved
Peripheral and Central Nervous System	25-Apr-16	(NDA) 206488, eteplirsen injection for intravenous infusion, sponsored by Sarepta Therapeutics, Inc	Do the clinical results of the single historically-controlled study (Study 201/202) provide substantial evidence that eteplirsen is effective for the treatment of DMD?	Yes: 3 No: 7 Abstain: 3	No specific recommendation	No	2016	Drug label	NDA	Drug approved
Pharmacy Compounding	8-Mar-16 and 9-Mar-16	Not related to any paticular drug	Discussed six bulk drug substances nominated for inclusion on the section 503A bulk drug substances list. FDA discussed the following nominated bulk drug substances: quinacrine	N/A	N/A	N/A	N/A	N/A	N/A	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			hydrochloride, boswellia, aloe vera 200:1 freeze dried, D-ribose, chondroitin sulfate, and acetyl-L-carnitine.							
Pharmacy Compounding	8-Mar-16 and 9-Mar-16	Not related to any paticular drug	Discussed two categories of drug products nominated for the list of drug products that present demonstrable difficulties for compounding. These categories of drug products were metered dose inhalers and dry powder inhalers.	N/A	N/A	N/A	N/A	N/A	N/A	
Pharmacy Compounding	23-Jun-16	Not related to any paticular drug	Discussed six bulk drug substances nominated for inclusion on the section 503A bulk drug substances list. FDA intends to discuss the following nominated bulk drug substances: Chrysin, cesium chloride, sodium dichloroacetate, pyruvic acid, tea tree oil, and 2,3-Dimercapto-1-propanesulfonic acid (DMPS).	N/A	N/A	N/A	N/A	N/A	N/A	
Pharmacy Compounding	3-Nov-16	Not related to any paticular drug	Discussed five bulk drug substances nominated for inclusion on the section 503A bulk drug substances list. FDA discussed the following nominated bulk drug substances: glycolic acid, trichloroacetic acid, kojic acid, diindolylmethane, and vasoactive intestinal peptide.	N/A	N/A	N/A	N/A	N/A	N/A	
Psychopharmacologic	12-Jan-16	(NDA) 204442, PROBUPHINE (buprenorphine hydrochloride and ethylene vinyl acetate) subdermal implant, Braeburn Pharmaceuticals, Inc.	Based on the data presented and discussed today, do the efficacy, safety, and risk-benefit profile of Probuphine support the approval of this application for a population of patients previously stable on a regimen of sublingual buprenorphine (as defined during prior discussion)?	Yes: 12 No: 5	Those voting “Yes”, stated that the conservative and thorough analysis of the clinical trial data was appropriate, and they were satisfied that Probuphine was proven to be non-inferior. The committee recommended that the labeling be very clear in defining the appropriate treatment population and provide detailed information on the guidelines that should	Yes	2016	Drug label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
					be followed for providing supplemental buprenorphine to patients on Probuphine.					
Psychopharmacologic	3-Feb-16	New drug application 204447/supplemental new drug application 006, for the effectiveness of vortioxetine	Has substantial evidence been presented by the applicant to support a claim of effectiveness for vortioxetine for treating cognitive dysfunction in MDD?	Yes: 8 No: 2	No specific recommendation	No	2016	Drug label	sNDA	https://www.psychcongress.com/article/vortioxetine-label-updated-include-gain-processing-speed
Psychopharmacologic	29-Mar-16	(NDA) 207318, NUPLAZID (pimavanserin) 17 milligram (mg) immediate-release, film-coated oral tablets, submitted by Acadia Pharmaceuticals Inc	Do the benefits of pimavanserin for the treatment of psychosis associated with Parkinson's disease outweigh the risk of treatment?	Yes: 12 No: 2	The panel members who voted "Yes" noted that the benefits of the agent outweighed the risks due to the possible improvement of quality of life associated with Parkinson's related psychosis. The committee noted that as long as the risks were made clear that individual patients and physicians could make their own determination, but that given that this is the only effective agent for a very serious condition that did not worsen motor symptoms, the benefits outweighed the risks.	Yes	2016	Drug label	NDA	
Psychopharmacologic, Drug Safety and Risk Management	14-Sep-16	CHANTIX (varenicline), ZYBAN (bupropion), and nicotine replacement therapy	For the risk of serious neuropsychiatric adverse events with smoking cessation products, would you recommend removing the boxed warning statements?	Yes: 10 No: 9	No specific recommendation	Yes	2016	2016 Drug Labels	N/A	https://www.fda.gov/Drugs/DrugSafety/ucm532221.htm

2017 Meetings

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Anesthetic and Analgesic, Drug Safety and Risk Management	13-Mar-17 and 14-Mar-17	(NDA) 201655, OPANA ER (oxymorphone hydrochloride) Extended-release Tablets, by Endo Pharmaceuticals Inc	Do the benefits of reformulated Opana ER continue to outweigh its risks?	Yes: 8 No: 18 Abstain: 1	The committee members who voted "No" were split with regard to whether the unintended consequences associated with Opana ER were sufficient to warrant removal from the market. Some members stated that, at the very least, a restrictive REMS should be put into place to limit prescribing.	Yes	2017	https://weinberggroup.com/fda-news/fda-requests-removal-opana-er-opioid-from-market/	NDA	
Anesthetic and Analgesic, Drug Safety and Risk Management	5-Apr-17	(NDA) 209777, for oxycodone hydrochloride immediate-release oral tablets, submitted by Inspirion Delivery Sciences, LLC	Should RoxyBond be approved for the management of pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate?	Yes: 19 No: 0 Abstain: 1	These committee members stated that this product shows an incremental advantage in abuse-deterrence and meets an important public health need.	Yes	2017	Drug label	NDA	
Anesthetic and Analgesic, Drug Safety and Risk Management	26-Jul-17	(NDA) 209653, for oxycodone hydrochloride extended-release oral tablets, submitted by Intellipharmaceutics Corp	Should this drug product, Oxycodone HCl ER tablets, be approved?	Yes: 1 No: 22	No specific recommendation	Yes	2017	https://www.pharmacytimes.com/product-news/fda-rejects-abusedeterrent-oxycontin	NDA	Drug not approved
Anesthetic and Analgesic, Drug Safety and Risk Management	14-Sep-17	(sNDA) 021306, Butrans (buprenorphine) transdermal system, submitted by Purdue Pharma LP	General discussion on findings of the clinical study of Butrans conducted in pediatric patients, and whether additional labeling is required	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimicrobial	13-Apr-17	Not related to any paticular drug	The committee discussed the development of antibacterial drugs that treat a single species of bacteria when the target species infrequently causes infections; examples of such drugs include those that are only active against Pseudomonas aeruginosa or Acinetobacter baumannii.	N/A	N/A	N/A	N/A	N/A	N/A	

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Antimicrobial	16-Nov-17	(NDA) 209367, ciprofloxacin inhalation powder, sponsored by Bayer HealthCare Pharmaceuticals, Inc	Has the applicant provided substantial evidence of the safety and efficacy for the ciprofloxacin dry powder (DPI) 14-day regimen in delaying the time to first exacerbation after starting treatment?	Yes: 6 No: 9	These committee members noted that there were concerns with the inconsistency in the data between the two Phase III clinical trials RESPIRE-1 and RESPIRE-2 regarding efficacy. It was further noted that the durability of the treatment effect over time remained unclear since the durations of the two trials were only one year each.	Yes	2017	https://bronchiectasisnewstoday.com/2017/11/17/fda-panel-opposed-ciprofloxacin-dry-powder-for-inhalation-cipro-dpi-to-treat-non-cf-bronchiectasis/	NDA	Drug not approved for this condition
Antimicrobial	16-Nov-17	(NDA) 209367, ciprofloxacin inhalation powder, sponsored by Bayer HealthCare Pharmaceuticals, Inc	Has the applicant provided substantial evidence of the safety and efficacy for the ciprofloxacin DPI 28-day regimen in delaying the time to first exacerbation after starting treatment?	Yes: 1 No: 14	The committee members raised similar issues related to the inconsistent trial results for the ciprofloxacin DPI 28-day regimen as with the 14-day regimen and made comparable recommendations regarding future study designs as in question #1.	Yes	2017	https://bronchiectasisnewstoday.com/2017/11/17/fda-panel-opposed-ciprofloxacin-dry-powder-for-inhalation-cipro-dpi-to-treat-non-cf-bronchiectasis/	NDA	Drug not approved for this condition
Arthritis	2-Aug-17	(BLA) 761057, for sirukumab injection (proposed trade name PLIVENSIA), submitted by Janssen Biotech, Inc	Do you recommend approval of sirukumab at the proposed dose of 50 mg subcutaneously every 4 weeks for the proposed indication of the treatment of adult patients with moderately to severely active rheumatoid arthritis who have had an inadequate response or are intolerant to one or more DMARDs?	Yes: 1 No: 12	The majority agreed that efficacy was clear but the safety data was lacking, and a few members emphasized that sirukumab would be more suitable for patients who have had an inadequate response or are intolerant to one or more biologic DMARDs. These members added that the benefit of this drug for this narrower indication might outweigh the unknown safety risks, especially for patients who have limited treatment options left. Please see the transcript for details of the committee discussion.	Yes	2017	https://www.drugs.com/history/pliviensia.html	BLA	Drug not approved
Arthritis	3-Aug-17	(sNDAs) 203214 supplement 17, for XELJANZ (tofacitinib) tablets and 208246 supplement 3, for XELJANZ XR (tofacitinib) extended release tablets submitted by Pfizer Inc	Do you recommend approval of the proposed dose of tofacitinib for the treatment of adult patients with active psoriatic arthritis?	Yes: 10 No: 1	Committee members reiterated that if approved, the label should not include any claim or implied claim regarding a positive effect on radiological progression.	Yes	2017	Drug label	sNDA	
Bone, Reproductive and Urologic	7-Dec-17	Not related to any paticular drug	The committee discussed appropriate patient selection criteria and clinical trial design	N/A	N/A	N/A	N/A	N/A	N/A	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			features, including acceptable endpoints, for demonstrating clinical benefit for drugs intended to treat interstitial cystitis and bladder pain syndrome. The committee also discussed whether bladder pain syndrome and interstitial cystitis reflect overlapping or different populations, and whether it is appropriate to assess efficacy in the same way for both conditions.							
Dermatologic and Ophthalmic	13-Oct-17	(NDA) 208254, for netarsudil ophthalmic solution 0.02%, submitted by Aerie Pharmaceuticals Inc	Does the efficacy of netarsudil ophthalmic solution, demonstrated in the clinical trials, outweigh the safety risks identified for the drug product?	Yes: 9 No: 1	The committee suggested that the following side effects and warnings be listed in the package insert: pain/stinging at instillation site, corneal verticillate and conjunctival hyperemia.	Yes	2017	Drug label	NDA	
Endocrinologic and Metabolic	20-Jun-17	New drug application for VICTOZA (liraglutide) injection (NDA 022341), sponsored by Novo Nordisk	Does the LEADER trial provide the substantial evidence needed to establish that liraglutide 1.8 mg daily reduces cardiovascular risk in patients with T2DM?	Yes: 17 No: 2	The committee members voiced their confidence in their decision based on the primary MACE results, as well as the consistent trends in the individual components of MACE. Members noted that although the subgroup findings described above were notable, they did not refute the overall LEADER results.	Yes	2017	Drug label	NDA	https://www.drugs.com/history/victoza.html
Endocrinologic and Metabolic	18-Oct-17	(NDA) 209637 for semaglutide injection, submitted by Novo Nordisk	Do the available efficacy and safety data support approval of semaglutide 0.5 mg and 1 mg, administered subcutaneously once weekly, as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus?	Yes: 16 No: 0 Abstain: 1	The one member who abstained noted that an extended and larger trial would have been helpful due to the retinopathy data presented and the limited data on subgroups. The majority of committee members suggested that additional study of diabetic retinopathy would be useful but did not feel that this should be required of the sponsor.	Yes	2017	Drug label	NDA	
Medical Imaging	10-May-17	(NDA) 208-630 for 5 Aminolevulinic Acid Hydrochloride [5-	Do you recommend the approval of 5-ALA for the proposed indication as an imaging agent to facilitate the real time detection and	Yes: 11 No: 0	Many committee members stated that the data presented was enough to provide a favorable benefit/risk ratio that would support an approval. Several committee members also stated that 5-	Yes	2017	Drug label	NDA	http://www.ascopost.com/News/57759

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		ALA HCl], Powder, for oral solution, submitted by NX Development Corp	visualization of malignant tissue during glioma surgery?		ALA would be a valuable additional tool in the surgeon's armamentarium.					
Medical Imaging	8-Sep-17	Not related to any paticular drug	The committee discussed the potential risk of gadolinium retention in the brain and other body organs in patients receiving gadolinium-based contrast agents for magnetic resonance clinical imaging procedures.	N/A	N/A	N/A	N/A	N/A	N/A	
Nonprescription, Drug Safety and Risk Managment	4-Apr-17	Not related to any paticular drug	The committees will discuss safety issues associated with over-the-counter analgesic combination products used for upset stomach (i.e., heartburn, nausea, fullness, belching, gas, acid indigestion, and/or sour stomach) and hangover indications under the Internal Analgesic and Antacid monographs in 21 CFR part 343 and 21 CFR part 331, respectively.	N/A	N/A	N/A	N/A	N/A	N/A	
Oncologic	29-Mar-17	(BLA) 761064, rituximab/hyaluronidase injection for subcutaneous use, submitted by Genentech, Inc	Is the benefit-risk favorable for the above drug product for the proposed indications in follicular lymphoma (FL), diffuse large B-cell lymphoma (DLBCL), and chronic lymphocytic leukemia (CLL)?	Yes: 11 No: 0	One committee member noted concern about a fixed dose being used for those patients who have a small body surface area relative to the difference in area under the curve and suggested the product be dose adjusted for those with a smaller body surface area. Committee members commented that the data presented by the sponsor was compelling, and availability of the subcutaneous formulation will allow patients to receive rituximab treatment in approximately five minutes versus 1-2 hours for the intravenous product.	Yes	2017	Drug label	BLA	
Oncologic	24-May-17	(NDA) 208051 for neratinib	Given the totality of evidence, is the risk-	Yes: 14 No: 4	No specific recommendation	Yes	2017	Drug label	NDA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		maleate, an application submitted by Puma Biotechnology, Inc.	benefit profile of neratinib sufficient to support treatment in the proposed population?							
Oncologic	24-May-17	(NDA) 208587 for L-glutamine powder (oral solution), submitted by Emmaus Medical, Inc	Based on the available data presented and discussed, is the overall benefit-risk profile of L-glutamine for the treatment of sickle cell disease favorable?	Yes: 10 No: 3	No specific recommendation	Yes	2017	Drug label	NDA	
Oncologic	25-May-17	(BLA) 125545 for proposed biosimilar to Amgen Inc.'s Epogen/Procrit (epoetin alfa), Hospira Inc., a Pfizer company	Does the totality of the evidence support licensure of "Epoetin Hospira" as a biosimilar product to US-licensed Epogen/Procrit for all indications?	Yes: 14 No: 1	No specific recommendation	No	Jun-17	https://www.centerforbiosimilars.com/news/fda-rejects-approval-of-pfizers-epoetin-alfa-biosimilar-again	BLA	Drug not approved due to FDA concerns related to manufacturing plant
Oncologic	21-Jun-17 and 22-Jun-17	Not related to any paticular drug	On June 21, 2017, information was presented to gauge investigator interest in exploring potential pediatric development plans for three products in various stages of development for adult cancer indications.	N/A	N/A	N/A	N/A	N/A	N/A	
Oncologic	11-Jul-17	(BLA) 761060, MYLOTARG (gemtuzumab ozogamicin) for intravenous use, submitted by Wyeth Pharmaceuticals Inc	Do the results of ALFA-0701 demonstrate a favorable risk:benefit for gemtuzumab ozogamicin 3 mg/m2 days 1, 4 and 7 added to DA for patients with newly-diagnosed CD33- positive AML? Please explain the reasons for your vote.	Yes: 6 No: 1	The majority of the panel voted yes, that the results of ALFA-0701 demonstrate a favorable risk:benefit for gemtuzumab ozogamicin (GO) 3 mg/m2 days 1, 4 and 7 added to DA for patients with newly-diagnosed CD33- positive AML.	Yes	2017	Drug label	BLA	
Oncologic	12-Jul-17	(BLA) 125646 for tisagenlecleucel-T suspension for intravenous use. The application was submitted by Novartis Pharmaceuticals	Considering the efficacy and safety results of Study B2202, is the benefit-risk profile of tisagenlecleucel favorable for treatment of pediatric and young adult patients (age 3-25 years) with relapsed (second or	Yes: 10 No: 0	A committee member stated concern over unknown late toxicities, but that long term survival outweighs that potential risk. Another committee member stated that the trial was well run resulting in high quality data showing the results were favorable in light of the risks. Please see the transcript for details	Yes	2017	Drug label	BLA	

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
		Corp	later relapse) or refractory (failed to achieve remission to initial induction or reinduction chemotherapy) B-cell precursor acute lymphoblastic leukemia (ALL)?		of the committee discussion.					
Oncologic	13-Jul-17	(BLA) 761028 for ABP 215, a proposed biosimilar to Genentech/Roche 's US-licensed AVASTIN (bevacizumab), submitted by Amgen Inc	Does the totality of the evidence support licensure of ABP215 as a biosimilar product to USlicensed Avastin for each of the indications for which US-licensed Avastin is currently licensed and for which the Applicant is seeking licensure.	Yes: 17 No: 0	The members stated that the analytical package was strong, well laid out, and that the manufacturing process was well controlled and consistent. Comments were made on the uniformity of the pharmacokinetic and clinical results observed in the clinical studies conducted for ABP215.	Yes	2017	Drug label	BLA	
Oncologic	13-Jul-17	(BLA) 761074 for MYL-1401O, a proposed biosimilar to Genentech Inc.'s HERCEPTIN (trastuzumab), submitted by Mylan GmbH	Does the totality of the evidence support licensure of "MYL-1401O" as a biosimilar product to US-Herceptin for the following indications for which US-Herceptin is licensed and for which the Applicant is eligible for licensure (HER2 positive breast cancer in the metastatic and adjuvant settings)?	Yes: 16 No: 0	There was a recommendation that for assessing the justification for extrapolation, particularly for use of MYL-1401O in the adjuvant setting, careful consideration should be placed on trial design and endpoint selection.	Yes	2017	Drug label	BLA	https://www.fda.gov/drugs/informationondrugs/approveddrugs/ucm587404.htm
Oncologic	19-Sep-17	(sNDA) 021938/033 SUTENT (sunitinib malate) oral capsules, C.P. Pharmaceuticals International C.V., represented by Pfizer, Inc.	Is the benefit-risk profile of Sutent acceptable for the adjuvant treatment of patients at high risk of recurrent renal cell carcinoma following nephrectomy?	Yes: 6 No: 6	No specific recommendation	N/A	2017	Drug label	sNDA	Voting split
Peripheral and Central Nervous System	28-Sep-17	(NDA) 200896, ataluren for oral suspension, sponsored by PTC Therapeutics, Inc	The best interpretation of the information presented today regarding the use of ataluren for the treatment of dystrophinopathies resulting from nonsense mutations in the	A: 0 B: 10 C: 1	The majority of the committee voted that the best interpretation of the information presented regarding the use of ataluren for the treatment of dystrophinopathies resulting from nonsense mutations in the dystrophin gene is that although it is possible that	Yes	2017	https://www.drugs.com/history/translarna.html	N/A	Drug not approved

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
			dystrophin gene is that: A. The data suggest that ataluren is not effective B. Although it is possible that ataluren may be effective, the data are inconclusive, and more work would be needed to establish whether ataluren is effective C. The data are sufficient to conclude that ataluren is effective		ataluren may be effective, the data are inconclusive, and more work would be needed to establish whether ataluren is effective. These members also generally agreed that the testimonies from the public appeared compelling and should encourage the applicant to continue working on the trials.					
Pharmaceutical Science and Clinical Pharmacology	15-Mar-17	Not related to any paticular drug	The committee discussed strategies, approaches, and challenges in MIDD with specific focus on two areas. Discussed approaches and evidentiary information needed for applying physiologically-based pharmacokinetic (PBPK) modeling and simulation throughout a drug's lifecycle. Discussed mechanistic model-informed safety evaluation with a focus on drug potential for causing arrhythmias.	N/A	N/A	N/A	N/A	N/A	N/A	
Pharmacy Compounding	8-May-17 and 9-May-17	Not related to any paticular drug	The committee received updates on certain issues to follow up on discussions from previous meetings, including quality standards and conditions at certain compounding facilities.	N/A	N/A	N/A	N/A	N/A	N/A	
Pharmacy Compounding	20-Nov-17 and 21-Nov-17	Not related to any paticular drug	The committee discussed six bulk drug substances nominated for inclusion on the section 503A Bulks List.	N/A	N/A	N/A	N/A	N/A	N/A	
Psychopharmacologic, Drug Safety and Risk	31-Oct-17	(NDA) 210136, RBP-6000, buprenorphine	Do you recommend approval of this application?	Yes: 18 No: 1	No specific recommendation	Yes	2017	Drug label	NDA	https://www.drugs.com/history/sublocade.h

ADVISORY COMMITTEE ACCEPTANCE RATES BY FDA

Advisory Committee	Meeting Date	Drug name	Question/Topic	Votes	Recommendation	FDA Implement	Date of Implement	Source	Type	Comments
Management		subcutaneous injection, submitted by Braeburn Pharmaceuticals, Inc								tml
Psychopharmacologic, Drug Safety and Risk Management	1-Nov-17	(NDA) 210136, CAM2038, buprenorphine subcutaneous injection, submitted by Braeburn Pharmaceuticals, Inc	Do you recommend approval of any dose indicated?	Yes: 17 No: 3	Highest doses were not safe	No	Jan-18	https://www.mdmag.com/medical-news/fda-sends-crl-for-braeburn-pharmaceuticals-cam2038-for-opioid-use-disorder	NDA	Drug not approved