TRENDS-in-MEDICINE

March 25, 2012

by Lynne Peterson

Quick Takes

…Highlights from this week's news relating to drugs and devices in development that are not covered in other *Trends-in-Medicine* reports…

Trends-in-Medicine
Stephen Snyder, *Publisher*
2731 N.E. Pinecrest Lakes Blvd.
Jensen Beach, FL 34957
772-334-7409
Fax 772-334-0856
www.trends-in-medicine.com
TrendsInMedicine@aol.com

NOTE: For full coverage of the Renal Physicians meeting, the American Academy of Allergy, Asthma, and Immunology (AAAAI) meeting, and the Conference on Retroviruses and Opportunistic Infections (CROI), subscribe to ***Trends-in-Medicine***.

SHORT TAKES

- **ABBOTT LABORATORIES** – The new name of the spin-off pharmaceutical business will be **AbbVie**, which will debut by the end of 2012.

- **ACTIVE BIOTECH's tasquinimod** – ***Bloomberg*** reported that the company plans to license the North American and Japanese rights to this prostate cancer therapy before the results are available in 2H13 from an ongoing Phase III trial. **Ipsen** already licensed the "TASQ" rights worldwide except in Japan and North and South America. The company also is in talks to license **Anyara** (naptumomab estafenatox, ABR-217620), a therapy in Phase III trials for kidney cancer.

- **AGILENT TECHNOLOGIES** signed a cooperative agreement with the FDA to develop a genotyping assay panel to enable quick tracking of the source of salmonella outbreak and to enhance Agilent's DNA-based fish species analyzer to detect things like deliberate mislabeling.

- **AMARIN's AMR-101** – The company got a patent for this pure EPA omega-3 fish oil that it is developing to treat elevated triglycerides.

- **BAYER's Cotavance** – This paclitaxel-coated coronary balloon showed sustained results over five years of follow-up in the 54-patient PACCOCATH-ISR trial, published in the ***Journal of the American College of Cardiology: Cardiovascular Interventions***. Overall, the major cardiovascular adverse event (MACE) rate was 27.8% with Cotavance vs. 59.3% with an uncoated balloon (p=0.009). The difference was primarily in a lower target lesion revascularization (TLR) rate with the drug-coated balloon.

- **BIOGEN IDEC's Avonex (interferon beta-1a)** – The FDA cited Biogen for making misleading superiority claims on its website about this multiple sclerosis drug.

- **BOSTON SCIENTIFIC's Wingspan** – The FDA's Neurological Devices Advisory Committee found insufficient evidence to conclude that this intracranial stent has long-term benefits that outweigh the risks. The FDA reviewers argued that Wingspan is no better for stroke prevention than aggressive medial management, and the panel didn't disagree. There was no vote, just discussion. Wingspan has been available since 2005 under a Humanitarian Device Exemption (HDE), and the FDA appears to be considering withdrawing that access.

- **COVIDIEN** is buying both **superDimension**, a pulmonology device company, and **Newport Medical Instruments**, which develops and manufactures ventilators.

- **ENDO PHARMACEUTICALS** bought the "Johnson Matthey" patent (7,851,482 B2) for oxymorphone, the active ingredient in its **Opana**. This should give Endo patent protection through 2029. The patent covers not only the new crush-resistant Opana ER but any product with oxymorphone that is manufactured in accordance with current FDA specifications.

- **GLAXOSMITHKLINE's Votrient (pazopanib)** – The FDA's Oncologic Drugs Advisory Committee (ODAC) voted 11-2 that the benefits outweigh the risks of this tyrosine kinase inhibitor (TKI) to treat patients with soft-tissue or bone sarcomas, and it should be approved because it extends progression-free survival by 3.0 months, even though it doesn't prolong overall survival. The PDUFA date is May 6, 2012.

- **HEARTWARE's HVAD** – The FDA gave the company permission to enroll another 54 patients in the pivotal trial of this left ventricular assist device for end-stage heart failure patients awaiting transplant.

- **INVENTIV HEALTH** is buying **Kforce Clinical Research**, an outsourcing provider for drug and device companies.

- **Left ventricular assist devices (LVADs)** – Former vice president Dick Cheney got a heart transplant on March 24, 2012. He had been on a HeartMate II LVAD for ~20 months and on the transplant list since at least November 2011. *The publicity around this successful bridge-to-transplant use of an LVAD could help boost referrals and patient enthusiasm for bridge-to-transplant LVADs – provided Cheney survives a reasonable time after the transplant.*

- **LEXICON PHARMACEUTICALS' telotristat etiprate (LX-1032)** was granted orphan drug status by the FDA to treat carcinoid syndrome.

- **Opioids** – A study published in ***Nature*** reported on a new pain target – the kappa opioid receptor (KOR). Apparently, medications that work on this receptor control pain – and perhaps addiction and other conditions – without causing addiction. This has the potential to be a big discovery for the pain field. *Watch for some company to commercialize this.*

- **PAXVAX's PXVX-0200** – The FDA has given the company permission to test this single-dose oral live attenuated cholera vaccine.

- **Platinum-based chemotherapy** – Scientists have discovered a marker of DNA damage – telomeric allelic imbalance (AI) – that they said may predict who will respond to platinum-based chemotherapy drugs (e.g., cisplatin and carboplatin). The findings were published in ***Cancer Discovery***, a journal of the American Association for Cancer Research. This might be particularly helpful in predicting sensitivity to therapy in patients with triple-negative breast cancer or ovarian cancer.

- **QLT's Visudyne (verteporfin)** – The FDA granted orphan drug status to treat chronic or recurrent central serous chorioretinopathy. It is already approved to treat wet age-related macular degeneration (AMD).

- **QRXPHARMA's MoxDuo IR (morphine + oxycodone)** – **Actavis** got an exclusive license to market this immediate-release painkiller in the U.S., but QRxPharma can co-promote it. Actavis hopes to launch MoxDuo IR in 3Q12. The FDA PDUFA date is June 25, 2012.

- **REGENERON's Eylea (aflibercept)** – A U.K. judge ruled that this wet age-related macular degeneration therapy infringes on **Roche/Genentech's** patent for **Lucentis** (ranibizumab). The ruling only applies to the U.K., and the Roche patent expires in October 2012. *So, this is a setback in the U.K., but not a catastrophe.*

- **ROCHE** voluntarily lowered the price in India for two of its cancer drugs – **Herceptin** (trastuzumab) and **MabThera** (rituximab, which is sold as **Rituxan** in the U.S.) – in an obvious effort to head off the government issuing a compulsory license for them, as it did recently with **Bayer's Nexavar** (sorafenib). However, Roche hopes to prevent middlemen from buying the drugs in India and reselling them for a profit elsewhere by giving the Indian drugs unique names. The new drugs will be packaged locally by **Emcure Pharmaceuticals**.

- **TALON THERAPEUTICS' Marqibo (vincristine sulfate liposomes injection)** – The FDA's ODAC voted 7-4 (with 2 abstentions) that the benefits of this treatment for adult Philadelphia chromosome-negative acute lymphoblastic leukemia (ALL) outweigh the risks. The FDA PDUFA date is May 13, 2012.

- **TARGACEPT and ASTRAZENECA's TC-5214 (S-mecamylamine)** – Development has been halted for this nicotinic acetylcholine receptor antagonist, which failed as add-on therapy in two short-term, placebo-controlled Phase III trials in major depressive disorder.

- **TEVA's Copaxone (glatiramer acetate)** – The FDA sent Teva a warning letter, complaining that the company's advertising on its website and at the 2011 American

Academy of Neurology meeting overstated the benefits and understated the risks of this multiple sclerosis drug.

- WATSON PHARMACEUTICALS reportedly is buying **Actavis**, another generic drug manufacturer.

NEWS IN BRIEF

CARDINAL HEALTH – DEA wins a round

The U.S. Court of Appeals for the District of Columbia Circuit decided that Cardinal Health did not meet "the stringent requirements" for a continued stay of a lower court order that allowed the Drug Enforcement Administration (DEA) to suspend Cardinal's Lakeland FL distribution center from shipping opioids and other controlled drugs. This means that the Cardinal facility is out of the opioid business at least for the next six months and probably longer, but Cardinal can continue to ship controlled substances from other facilities.

The DEA will hold an administrative hearing on Cardinal's license for the Lakeland facility on April 3, 2012, but a quick decision is not expected. Then, the appeals court will hear oral arguments in September (Case No. 12-5061) and requested more information from both Cardinal and the DEA.

Glioblastoma – exciting new therapeutic approach

Researchers at the University of Texas Health Science Center at San Antonio have developed a way to deliver fat-enclosed nanoparticle radiation directly to glioblastomas – and to keep it there. With this technology, which encapsulates rhenium-186 in tiny liposomes, they are able to deliver 20-30 times the current dose of radiation while still sparing more healthy brain tissue. A preclinical study published in the journal ***Neuro-Oncology*** was successful enough that a Phase I clinical trial is being planned and may start by summer. The university has not licensed the technology yet but has been "in contact with some companies on it."

HOSPIRA's Precedex (dexmedetomidine) – shortens ventilator time

Two European studies with a total of >1,000 patients, published in the ***Journal of the American Medical Association***, found that ventilator patients given this sedative are able to get off the ventilator 1-2 days faster than with older sedatives such as midazolam or propofol. The Precedex patients also were better able to communicate their pain. However, Precedex did not reduce time in the ICU, length of hospitalization, or overall survival; and there were more decreases in blood pressure and heart rate with Precedex.

JOHNSON & JOHNSON/VERIDEX's CellSearch – predictive in early and metastatic breast cancer

In the 2,026-patient SUCCESS trial, conducted in Germany, researchers found that this test for circulating tumor cells (CTCs) in peripheral blood is useful in predicting disease progression and survival in early breast cancer. CTCs were detected in 21.5% of patients, and auxilliary lymph node involvement was more prevalent in patients with CTCs ($p<0.001$), but no association was found with tumor size, histopathological grading, or hormone receptor status.

There were 114 recurrences and 66 breast cancer deaths in the study. The presence of CTCs before systemic treatment was an independent predictor of poor disease-free survival ($p<0.0001$), distant disease-free survival ($p<0.001$), and overall survival ($p=0.0002$). Patients with ≥5 CTCs had the worst prognosis, with a 4-fold increased risk of recurrence and a 3-fold increased risk of death.

JOHNSON & JOHNSON's Gynecare Prolift – pre-approval sales criticized

The history of this vaginal mesh's FDA approval may make settling the lawsuits over it more expensive for J&J. The company first introduced Gynecare Prolift in 2005, thinking it didn't need FDA approval because it was simply a change in an existing product, **Gynecare Gynemesh**. Two years later, the FDA said it would require 510(k) clearance, and the company submitted the required data, gaining clearance in 2008. Critics – and lawyers – are likely to make hay with the three years of distribution "without appropriate" clearance.

Kidney dialysis – more frequency mostly a feel-good effect

A study published in the ***Clinical Journal of the American Society of Nephrology*** found that patients may ***feel*** better with more frequent dialysis, but there is no improvement in

Studies of More Frequent Dialysis

Measurement	Dialysis center dialysis		Nocturnal home dialysis	
	3x/week n=125	6x/week n=120	3x/week n=42	6x/week n=45
Deaths	5 patients	9 patients	1 patient	2 patients
Physician help composite	---	Significantly better (p=0.009)	Nss difference	
Self-reported physical functioning change	---	Better but Nss difference	Nss difference	

objective physical performance. The conclusions are based on two trials conducted by the Frequent Hemodialysis Network.

- A 1-year, 245-patient trial of 3 vs. 6 dialysis treatments per week at a dialysis center.
- An 87-patient trial of 3 vs. 6 dialysis treatments at night at home.

MERCK

- **Kynapid (vernakalant).** The company has abandoned development with **Cardiome** of the oral formulation of this arrhythmia drug.
- **Taltorvic (ridaforolimus).** The FDA's ODAC voted 13-1 that this mTOR inhibitor, being developed with **Ariad Pharmaceuticals**, should ***not*** be approved to treat patients with soft-tissue or bone sarcomas because progression-free survival was extended by only 2.1 weeks, there was no significant improvement in overall survival, and it has significant side effects (liver and cardiac), impacting 60% of patients. The PDUFA date is June 5, 2012.

NOVARTIS' Afinitor (everolimus) – more positive data in breast cancer

New data from the 724-patient Phase III BOLERO-2 trial were presented at the European Breast Cancer Conference (EBCC-8) showing that combination Afinitor with **Pfizer's Aromasin** (exemestane) improved bone health and reduced the risk of bone metastases in postmenopausal women with advanced breast cancer. Michael Gnant, MD, of Austria said the results will change clinical practice, "These results indicate a new standard of care for women with advanced estrogen receptor-positive breast cancer that is resistant to hormonal therapy."

BOLERO-2 had shown previously that the two-drug combination significantly improved progression-free survival (by ~11 months), but the concern was the effect on bone mineral density (BMD) and fractures. Three bone markers were measured – bone-specific alkaline phosphatase (BSAP), amino-terminal propeptide of type 1 collagen (P1NP), and C-terminal cross-linking telopeptide of type I collagen (CTX) – and by 12 weeks they all had decreased (by 3.6%, 26.8%, and 0.5%, respectively) vs. an increase with placebo.

Bone metastases occurred in 6% of placebo patients and 3% of Afinitor/Aromasin patients. In patients who had bone metastases at baseline, the combination cut the rate of additional bone metastases in half (4% vs. 8%).

POZEN's PA-32540 (immediate-release omeprazole 40 mg + delayed-release aspirin 325 mg) – positive Phase III results

The company released top-line data indicating this combination tablet met the primary endpoint in two pivotal, double-blind, multicenter Phase III trials (with 1,049 patients) for the secondary prevention of cardiovascular disease in patients at risk for aspirin-induced gastric ulcers. At six months, PA-32540 significantly reduced the incidence of gastric ulcers vs. 325 mg enteric-coated aspirin. No unexpected adverse events were noted. Pozen plans to submit the drug to the FDA in 3Q12 and is seeking strategic partners.

ROCHE/GENENTECH's Herceptin (trastuzumab) – subcutaneous comparable to IV

Data from the Phase III HannaH study, presented at the European Breast Cancer Conference (EBCC-8), showed that a subcutaneous formulation is as efficacious as the IV formulation in early HER2-positive breast cancer. The PK data also showed comparable serum concentrations, and adverse events were comparable. There were more serious adverse events with the subcutaneous formulation, but the company said there was no specific clinical explanation for this. The administration time was cut to 5 minutes from 30-90 minutes with the IV formulation. Roche has submitted a Line Extension Application for Herceptin SC to the European Medicines Agency (EMA).

THORATEC's HeartMate II – device problem

The company initiated a voluntary worldwide "device correction" notice on these left ventricular assist devices (LVADs) due to reports that the sealed outflow graft bend relief (a kink prevention) is not properly connected to the device. The problem reportedly has occurred in 0.91% of the devices (29 incidents), and most were observed during x-ray or surgical procedures, not due to patient symptoms. However, at least one patient's reoperation may have been due to this, and one of the five patients in whom the defect was discovered during surgery died of multi-organ failure, though it is not clear whether that was due to the defect.

For all new HeartMate II procedures, doctors were given revised instructions for use that clarify the recommended procedure for securing the bend relief to the outflow graft. Doctors also have been advised to consider the possibility of a disconnected outflow graft bend relief if a HeartMate II LVAS patient exhibits symptoms such as low pump flow, hemolysis, bleeding, fluctuations in pump flow, speed and/or power, or worsening symptoms of heart failure.

All 226 hospitals in the U.S. and elsewhere using the devices have been contacted and have acknowledged the change in procedure. The labeling for the HeartMate II has been revised with the updated risk information. *The question is whether this will cause HeartMate II to lose share to HeartWare's HVADs, but Vice President Cheney's positive experience may counteract that somewhat.*

REGULATORY NEWS

Device identifier legislation introduced

Sen. Jeff Merkley (D-OR), Sen. Charles Grassley (R-IA), Sen. Michael Bennet (D-CO), and Sen. Herb Kohl (D-WI) introduced the Ensuring Safe Medical Devices for Patients Act. This would require the FDA to issue a rule on unique device identifiers (UDI) by the end of 2012 and to incorporate medical devices into the FDA's Sentinel postmarketing surveillance program for prescription drugs. Sen. Grassley said the legislation would provide "some of the necessary tools to the FDA to make it more effective in looking out for patients." The Office of Management and Budget (OMB) was supposed to issue a rule on the UDI program by October 2011 but still hasn't done so.

FTC asked to investigate vaccine "bundling"

A coalition of four consumer groups – Citizens for Responsibility and Ethics in Washington (CREW), the National Legislative Association on Prescription Drug Prices (NLARx), the Campaign for America's Future (CAF), and the U.S. Public Interest Research Group (U.S. PIRG) – asked the Federal Trade Commission (FTC) to investigate **Merck** and **Sanofi Pasteur** for offering healthcare providers discounts in exchange for exclusive agreements to purchase a package or "bundle" of vaccines. The companies defended the discounts and the purchasing contracts.

House limits medical malpractice and abolishes Medicare payment board

The U.S. House of Representatives passed (223-181) a bill – the PATH Act (HR 5), which now goes to the Senate – that restricts a patient's ability to sue nursing homes, insurance companies, hospitals, doctors, and device manufacturers for medical negligence. The bill caps non-economic damages at $250,000 and shortens the timeframe for filing a claim. The legislation also abolishes the 15-member Independent Payment Advisory Board (IPAB) for Medicare, which was charged with making binding recommendations on ways to cut Medicare spending, starting in 2015. Critics accused the IPAB of leading to rationing of healthcare. The bill is unlikely to pass the Senate, and if it did, President Obama would be expected to veto it.

MEDCAC wants more data on VEGF inhibitors in DME

The Medicare Evidence Development and Coverage Advisory Committee (MEDCAC), which advises the Centers for Medicare and Medicaid Services (CMS) on the value of various therapies, found that VEGF inhibitors – **Roche/Genentech's Lucentis** and **Avastin** (bevacizumab) and **Regeneron's Eylea** – may improve vision in patients with diabetic macular edema (DME), but the panel said more research on specific risks and benefits is needed.

MEDCAC also decided there isn't enough evidence to support use of a VEGF inhibitor over other therapies. Basically, the panel said there aren't enough data for CMS to undertake a formal National Coverage Determination (NCD) for anti-VEGF therapies in DME.

Researchers at the University of Alberta and at Massachusetts General Hospital prepared a technology assessment for MEDCAC, relying heavily on the results of the National Eye Institute-sponsored CATT trial, which found little difference between Avastin and Lucentis in AMD, saying there appears to be a class effect with VEGF inhibitors.

The panel called for head-to-head trials of VEGF inhibitors in DME, additional measures of patient outcomes (not just visual acuity), more safety data, data on duration of therapy, etc.

Supreme Court rules medical tests not patentable

The U.S. Supreme Court ruled unanimously that medical tests that rely on correlations between drug dosages and treatment are not eligible for patent protection. Justice Stephen Breyer wrote that tests based on "natural laws" may not be patented, whether standing alone or in connection with processes that involve "well-understood, routine, conventional activity." The case involved **Prometheus Laboratories**' patented method of helping physicians find a balanced dose of a class of drugs (thiopurines) used to treat gastrointestinal disorders. The Mayo Clinic developed its own test, and Prometheus sued for infringement of its patents. Mayo won.

FDA approvals/clearances

- **CAREFUSION's Viking on Nicolet EDX electrodiagnostic device**, a multi-modality system used to track and assess patients' electrophysiological functions, was granted 510(k) clearance.

- **COVIDIEN's Nellcor respiration system** received 510(k) clearance. The company plans a limited U.S. launch in April 2012.
- **CYTORI THERAPEUTICS' Puregraft 850** received 510(k) clearance for use in fat-graft procedures. The device processes a greater volume of fat tissue than the Puregraft 250, which was cleared for use by the FDA in 2010.
- **QUIDEL's Molecular Influenza A+B assay** – The FDA cleared use of this flu assay in conjunction with **Cepheid's SmartCycler** PCR system.
- **SOMA ACCESS SYSTEM's AxoTrack needle visualization tool** – **Terason** was granted 510(k) clearance to market this tool with its ultrasound devices. The approval allows Terason to begin retrofitting its ultrasound systems with AxoTrack in 3Q12.
- **TORAX MEDICAL's LINX Reflux Management System**, a surgically placed device to treat chronic gastroesophageal reflux disease (GERD) despite maximum medical therapy, was approved. The FDA is requiring the company to institute a physician training program on patient selection, device implantation, and post-procedural care.

FDA recalls/warnings

- **ANULEX TECHNOLOGIES' Xclose** – The company resolved the issues that resulted in an FDA warning letter last year, which said Anulex failed to file an investigational device exemption (IDE) application before conducting a postmarket trial of this device for soft-tissue repair.
- **THE MEDICINES COMPANY's Argatroban** – **Eagle Pharmaceuticals**, which supplies this synthetic direct thrombin inhibitor to The Medicines Company, recalled four lots of the drug after visible particulate was found in a stability sample. The particles pose a risk of embolization/infarction to organs and potential organ complications. Argatroban is used for the prevention and treatment of thrombosis in patients with heparin-induced thrombocytopenia (HIT) or at risk of it when undergoing percutaneous coronary intervention (PCI).

European regulatory actions

THRESHOLD PHARMACEUTICALS' TH-302 received orphan drug designation to treat soft-tissue sarcoma. It is currently in Phase III in combination with doxorubicin.

U.K.'s National Institute for Health and Clinical Excellence (NICE) News

JOHNSON & JOHNSON's Incivo (telaprevir, VERTEX's Incivek in the U.S.) – NICE issued final guidance recommending the National Health Service (NHS) cover this drug for hepatitis C genotype 1 (HCV-1). A couple of weeks ago, NICE also recommended coverage of **Merck's Victrelis** (boceprevir).

Regulatory news from other countries

- ***Australia:*** **MERIDIAN BIOSCIENCE/BIOLINE's illumigene group B *Streptococcus* test**, a DNA amplification-based test to detect *Streptococcus agalactiae* in vaginal swabs, was approved by the Therapeutic Goods Administration.
- ***Canada:*** **BOSTON SCIENTIFIC's Blazer Open-Irrigated Catheter**, a radiofrequency catheter ablation system for treating atrial fibrillation, received approval from Health Canada. It already has a CE Mark but has not yet been cleared by the FDA.
- ***Canada:*** **STELLAR PHARMACEUTICALS/TRIBUTE PHARMACEUTICALS' Cambia (diclofenac potassium oral solution)**, which was licensed from **Nautilus Neurosciences**, was approved to treat acute migraines. The drug was developed using **APR Applied Pharma Research** technology.

Upcoming FDA Advisory Committees and Other Regulatory Meetings of Interest (*items in RED are new since last week*)		
Date	**Topic**	**Committee/Event**
	March 2012	
March 26	**MAP Pharmaceuticals' Levadex** (dihydroergotamine inhalation) for migraine	PDUFA date
March 26-27-28	Oral arguments on the **legality of Obamacare**	U.S. Supreme Court
March 27	**Affymax and Takeda's peginesatide** for anemia	PDUFA date
March 28	**Chelsea Therapeutics' Northera** (droxidopa) for symptomatic neurogenic orthostatic hypotension with primary autonomic failure	PDUFA date
March 28	**Edwards Lifesciences' Sapien** transcatheter aortic valve	CMS expected to publish National Coverage Decision (NCD) memo
March 28-29	Two-day discussion of pre-and post-approval assessment of **cardiovascular safety for diet drugs and biologics**	FDA's Endocrinologic and Metabolic Drugs Advisory Committee
March 29	**Merck's Vytorin** (ezetimibe + simvastatin) for hypercholesterolemia	Interim data from IMPROVE-IT trial may be announced
	April 2012	
April 2	Types of consumer studies needed to assess proper use of a **MedKit containing doxycycline** in the event of **anthrax exposure**	FDA's Anti-Infective Drugs Advisory Committee meeting jointly with the Non-Prescription Drugs Advisory Committee
April 3-4	**Pneumonic plague** discussion: animal models, ciprofloxacin efficacy and safety, **Johnson & Johnson's Leaquin** (levofloxacin) safety and efficacy	FDA's Anti-Infective Drugs Advisory Committee
April 5	**Astellas' Betanis** (mirabegron), a beta-3-adrenoceptor agonist to treat overactive bladder (OAB)	FDA's Reproductive Health Drugs Advisory Committee
April 11	**U-Systems' Automated Breast Ultrasound (ABUS) scanning device** for breast cancer detection in asymptomatic dense-breasted women	FDA's Radiological Devices Advisory Committee
April 12	Possible reclassification of **breast transilluminators**, which are currently pre-amendment Class III devices, and **blood irradiators**	FDA's Radiological Devices Advisory Committee
April 17	**Vivus' Qnexa** (phentermine + topiramate) for weight loss	PDUFA date for resubmission
April 18	Use of minimal residual disease as a biomarker for evaluating new drugs to treat **acute lymphoblastic leukemia (ALL)**	FDA public workshop in conjunction with the American Society of Clinical Oncology (ASCO)
April 25	**Takeda's alogliptin**, a DPP-4 for Type 2 diabetes	PDUFA date
April 25	**HeartWare's HVAD** left ventricular assist device	FDA's Circulatory System Devices Advisory Committee
April 26	**Amgen's Xgeva** (denosumab) for prevention/delay of bone metastases in castration-resistant prostate cancer	PDUFA date
April 26	**Boston Scientific/Cameron Health's S-ICD**, a lead-less implantable cardioverter defibrillator	FDA's Circulatory System Devices Advisory Committee
April 27	**Salix Pharmaceuticals and Progenics Pharmaceuticals' Relistor** (methylnaltrexone injection) for opioid-induced constipation	PDUFA date
April 29	**Vivus' avanafil** for erectile dysfunction	PDUFA date
April 30	**Baxter and Halozyme's HyQ** for immunodeficiency	PDUFA date
	May 2012	
May 1	**Protalix Biotherapeutics' Uplyso** (taliglucerase alfa), an investigational Gaucher disease drug	PDUFA date
May 4	**Alexza Pharmaceuticals' Adasuve** (loxapine inhalation powder) for the acute treatment of agitation associated with schizophrenia/bipolar I disorder	PDUFA date
May 6	**GlaxoSmithKline's Votrient** (pazopanib) to treat sarcoma	PDUFA date
May 8	**Regeneron Pharmaceuticals' Arcalyst** (rilonacept), an interleukin-1 inhibitor to prevent gout flares during initiaton of uric acid-lowering therapy	FDA's Arthritis Advisory Committee
May 9	**Pfizer's tofacitinib**, an oral JAK inhibitor, to treat rheumatoid arthritis	FDA's Arthritis Advisory Committee
May 10	**Gilead Sciences' Truvada** (emtricitabine + tenofovir) for HIV prevention	FDA's Antiviral Drugs Advisory Committee
May 10	**Arena Pharmaceuticals and Eisai's Lorqess** (lorcaserin) for obesity	FDA's Endocrinologic and Metabolic Drugs Advisory Committee
May 11	**Gilead Sciences' Quad** (emtricitabine + tenofovir + elvitegravir + cobicistat) for HIV	FDA's Antiviral Drugs Advisory Committee
May 13	**Talon Therapeutics' Marqibo** (vincristine sulfate liposomes injection) for Philadelphia chromosome-negative acute lymphoblastic leukemia (ALL)	PDUFA date
May 16-17	**Natural history studies of rare diseases:** meeting the needs of drug development and research	FDA workshop

Upcoming FDA Advisory Committees and Other Regulatory Meetings of Interest (*items in RED are new since last week*)		
Date	**Topic**	**Committee/Event**
May 22-23 **(?)**	**Bristol-Myers Squibb's Eliquis** (apixaban), an anticoagulant for prevention of stroke in AFib, and **Johnson & Johnson's Xarelto** (rivaroxaban), an anticoagulant for a supplemental indication in acute coronary syndrome (ACS)	FDA's Cardiovascular and Renal Drugs Advisory Committee (*Neither of these is official yet. It may be that Eliquis is May 22 and Xarelto May 23, but this is not certain.)*
May 30-31	Discussion of **analgesic treatment of chronic pain** – mechanisms, epidemiology, new data on opioid efficacy, etc.	FDA public workshop
June 2012		
June 5	**Salix Pharmaceuticals' crofelemer** for HIV-related diarrhea	PDUFA date
June 5	**Merck/Ariad Pharmaceuticals' Taltorvic** (ridaforolimus) for sarcoma	PDUFA date
June 8	**Forest Laboratories and Ironwood Pharmaceuticals' linaclotide** for IBS-C	PDUFA date
June 8	**Roche/Genentech's pertuzumab** in HER2+ advanced breast cancer	PDUFA date
June 15	**Gilead Sciences' Truvada** (emtricitabine + tenofovir) for HIV prevention	PDUFA date
June 25	**QRxPharma's MoxDuo** (morphine + oxycodone) for pain	PDUFA date
June 26	**Edwards Lifesciences' Sapien** transcatheter aortic valve	CMS final NCD expected
June 27	**Arena Pharmaceuticals and Eisai's Lorqess** (lorcaserin) for obesity	PDUFA date
June 28	**Bristol-Myers Squibb's Eliquis** (apixaban), an anticoagulant for the prevention of stroke in Afib	PDUFA date
June 29	**Astellas Pharma's mirabegron** for treatment of overactive bladder	PDUFA date
Other 2012		
July 26	**Amarin's AMR-101** (omega-3 fish oil EPA) to treat hypertriglyceridemia	PDUFA date
July 26	**Horizon Pharma's Lodotra** (low-dose prednisone) for rheumatoid arthritis	PDUFA date
July 27	**Onyx Pharmaceuticals' carfilzomib** for multiple myeloma	PDUFA date
July 30	**Regeneron's Arcalyst** (rilonacept) for gout	PDUFA date
August 21	**Pfizer's tofacitinib**, an oral JAK2 inhibitor for rheumatoid arthritis	PDUFA date
August 27	**Gilead Sciences' Quad** (emtricitabine + tenofovir + elvitegravir + cobicistat) for HIV	PDUFA date
October 21	**Impax Laboratories' IPX-066** for Parkinson's disease	PDUFA date
October 29	**Cornerstone Therapeutics' CRTX-800** to treat hyponatremia	PDUFA date