Medtech Insight
Issue 15
medtech.pharmamedtechbi.com
Pharma Intelligence Informa
October 24, 2016

# Adverse Events Stack Up At FDA; 2016 Warning Letter Data Show Troubles With MDRs, Complaints

**SHAWN M. SCHMITT** shawn.schmitt@informa.com

Problems with a bevy of specific devices, better adverse event reporting by manufacturers, and enhanced industry and public awareness about what's reportable to FDA when a product fails are three possible reasons why the number of Medical Device Reports (MDRs) swelled to an all-time high of more than 1.4 million last year, the US agency says.

Yet several industry experts – including from Eli Lilly and Implant Direct (Danaher) – say not only is there underreporting going on, but adverse events are overreported in many cases, calling FDA's MDR count into question.

This comes as an analysis of *Medtech Insight*'s FDA Warning Letters Data Tracker discovered that 70% of 43 quality-related letters released by FDA on its website between Jan. 1, 2016, and Oct. 11, 2016, include MDR and/or complaint handling observations.

A record 1,409,841 adverse events were submitted to the agency via its MDR system in calendar year 2015, according to statistics provided by the Office of Surveillance and Biometrics (OSB) within FDA's Center for Devices and Radiological Health.

That's an increase of 8% from 2014, when 1,300,643 adverse events were filed with FDA. MDRs have been increasing year-over-year since 2011, when a mere 827,681 events were reported. (See Figure 1, p. 18.)

"MAUDE is a passive reporting system, so it's difficult to pinpoint exact reasons for any increase … in reporting, whether it's due to more devices on the market, more problems with devices, or better reporting by user facilities, doctors and patients," Isaac Chang, director of OSB's Division of Post-Market Surveillance, told *Medtech Insight*.

MAUDE is FDA's publicly searchable Manufacturer and User Device Experience database, where adverse event information is stored.

"Public awareness of device issues can also increase MDR reporting by voluntary reporters such as patients and physicians, as well as by hospitals and manufacturers that receive reports of problems," Chang said.

Or the number of reports can rise because of problems with particular product types. For example, troubles with uterine power morcellators, duodenoscopes and transvaginal mesh likely played a role

CONTINUED ON PAGE 18

FROM THE EDITORS OF: **THE GRAY SHEET, CLINICA, START-UP** AND **MEDTECH INSIGHT NEWSLETTER**

**POLICY & REGULATION**
**US FDA's next step in global convergence, p. 16**

**COMMERCIAL**
**Up close with the head of J&J Medical India, p. 7**

**R&D**
**Will Myriad's ovarian cancer Dx be Tesaro's companion? p. 11**

Pharma intelligence

informa

# Intelligence with a Global Perspective

## The Premier Resource In The Life Sciences Industry

- Biomedtracker
- Datamonitor Healthcare
- In Vivo
- Meddevicetracker
- Medtrack
- Medtech Insight
- Pink Sheet
- Pharmaprojects
- RxScorecard
- Scrip
- Sitetrove
- Trialtrove

Pharmaintelligence.informa.com


6


9


13

## explore more:

exclusive online content

medtech.pharmamedtechbi.com

**Terumo helps out Abbott/St. Jude merger**
**http://bit.ly/2eF6gxO**
Abbott and St. Jude Medical are to lighten their cardiovascular portfolios – and hopefully facilitate the completion of Abbott's pending $25bn acquisition of St. Jude – by selling three product lines to Terumo.

**Mass spec makes clinical inroads**
**http://bit.ly/2ejVljp**
The use of mass spectrometry in IVD applications looks to be gaining momentum. This article reports on new developments and innovations in mass spec that were showcased at this year's AACC meeting.

**EU reg updates**
**http://bit.ly/2e1b518**
**http://bit.ly/2esfOY5**
Go to our site for a continuous stream of updates and analysis on the path to adoption and implementation of the EU device and IVD regulations, including recent stories on new clinical-evaluation burdens and worries about whether the new Eudamed database will be operating smoothly and on time.

**US labeling rule**
**http://bit.ly/2dnjCxK**
After years of discussions and pilot projects, FDA has issued a proposed regulation that would require companies to electronic submit labeling for many home-use devices to populate an online, public database.

**Device Week**
**http://bit.ly/2ego68J**
Our weekly podcast, where *Medtech Insight* journalists discuss topics they are covering that impact the device and diagnostics sector.

# inside:

**Cover / Adverse Events Stack Up At FDA; 2016 Warning Letter Data Show Troubles With MDRs, Complaints –** The US agency is inundated with adverse events through its Medical Device Reporting system with more than 1.4 million sent to FDA in 2015. Yet several industry experts say the industry overall may be underreporting adverse events, while some firms are overreporting. Preliminary 2016 warning letter data compiled by *Medtech Insight* also pinpoint problems with MDRs and complaint handling.

**EDITORS' PICKS**

5 **Manufacturers' Worries Grow Over Canada's MDSAP Deadline –** As Health Canada presses on with adopting the Medical Device Single Audit Program, concern is growing that companies will struggle to get certified in time.

6 **Brexit Will Drive UK And China Closer Together –** The UK's decision to quit the European Union will further increase the country's need to find support from China, one of the UK's most important non-EU partners for trade and investment. Medtech companies could take advantage of opportunities from the two countries' strengthening ties.

**POLICY & REGULATION**

15 **New Regs Lead EU Notified Body Association To Suspend Code-Of-Conduct Audits –** TEAM-NB needs to redirect resources from notified body oversight toward helping its 22 members fall into line with requirements under the forthcoming Medical Devices Regulation and IVD Regulation. So what does this mean for TEAM-NB non-members and future notified body numbers?

16 **Next Step In Global Convergence: FDA Looks To Make IMDRF Software Guidance Its Own –** The US agency issued a draft guidance on clinical evaluation considerations for "software as a medical device." But FDA did not write the guidance internally. Instead it is an International Medical Device Regulators Forum document that was put together collaboratively by regulatory officials from across the globe. This is the first time FDA is attempting to wholesale adopt an IMDRF guidance document as its own.

# Medtech insight

**DAVID FILMORE** @MEDTECHDAVID
david.filmore@informa.com
**TINA TAN** @MEDTECHTINATAN
tina.tan@informa.com
**SHAWN M. SCHMITT** @MEDTECHSHAWN
shawn.schmitt@informa.com
**REED MILLER** @MEDTECHREED
reed.miller@informa.com
**AMANDA MAXWELL** @MEDTECHAMANDA
amanda.maxwell@informa.com
**SUE DARCEY** @MEDTECH_INSIGHT
sue.darcey@informa.com
**DANNY AL-FARUQUE** @ALFARUQUE
danny.al-faruque@informausa.com
**ELIZABETH ORR** @ELIZABETHJORR
elizabeth.orr@informa.com
**CATHERINE LONGWORTH** @MEDTECHCATE
catherine.longworth@informa.com
**ASHLEY YEO** @ASHLEYPYEO
ashley.yeo@informa.com
**MAUREEN KENNY** @SCRIPREGMAUREEN
maureen.kenny@informa.com
**NEENA BRIZMOHUN** @SCRIPREGNEENA
neena.brizmohun@informa.com
**VIBHA SHARMA** @SCRIPREGVIBHA
vibha.sharma@informa.com
**JANET HANIAK** SENIOR DESIGNER
**GAYLE REMBOLD FURBERT** DESIGN SUPERVISOR
**RICHARD FAINT** HEAD OF MEDTECH
richard.faint@informa.com
**PHIL JARVIS** MANAGING DIRECTOR

Editorial office:
52 Vanderbilt Avenue, 11th Floor, New York, NY 10017
phone 240-221-4500, fax 240-221-2561

**CUSTOMER CARE:**
**1-888-670-8900 OR 1-908-547-2200**
**FAX 646-666-9878**
**clientservices@pharmamedtechbi.com**



## ▶ join the conversation

We are tweeting, chatting, liking and sharing the latest industry news and insights from our global team of editors and analysts — join us!

@Medtech_Insight

### COMMERCIAL

**7 How J&J Hopes To Disrupt India's Diabetes Care Paradigm** – Sushobhan Dasgupta, managing director of Johnson & Johnson Medical India, discusses how J&J's new go-to-market strategies are playing out, the role of e-commerce for medical devices in India, and how the company is leveraging its capabilities to provide solutions for the whole diabetic care pathway.

**9 Siemens Makes PHM Debut With Partner IBM; Verily, 3M Also Link Arms** – Siemens Healthineers will be offering population health management solutions for the first time as it teams up with IBM Watson Health. Verily and 3M are also joining the PHM partnering wave.

**10 Oxford Immunotec Bulks Up Immunology Dx Offering** – Oxford Immunotec, an immunology-focused diagnostics company, has acquired US company Immunetics.

**10 BioVentures Raises $87m For Medtech-Dedicated Fund** – BioVentures Investors is to invest in early stage medical device and diagnostics companies after closing its fourth – and largest – fund.

### R&D

**11 Myriad's Ovarian Cancer Test Proves Its Mettle as Tesaro Companion Dx** – Myriad's *myChoice HRD* test has demonstrated its ability to identify more than twice as many ovarian cancer patients who may benefit from treatment with Tesaro's drug investigational drug niraparib, compared with patient stratification by germline-BRCA testing alone.

### START-UP SPOTLIGHT

**13 Episona, Epigenetics Diagnostics For Male Infertility** – A new epigenetics test is able to provide more insight into male fertility problems, allowing doctors to tailor better the fertility treatment for the couple and potentially increase chances of conception.

# Manufacturers' Worries Grow Over Canada's MDSAP Deadline

**NEENA BRIZMOHUN** neena.brizmohun@informa.com

Medical device manufacturers operating in Canada are starting to worry that they will not have enough time to meet the country's deadline for them to become certified under the Medical Device Single Audit Program (MDSAP).

MDSAP will replace the current Canadian Medical Devices Conformity Assessment System (CMDCAS) program as of Jan. 1, 2019, but there might not be enough MDSAP-recognized registrars available to audit companies in time, warns Canada's medical device industry association, MEDEC.

In addition, "many smaller manufacturers appear to have a lack of awareness of the building pressure to transit from CMDCAS to MDSAP," MEDEC told *Medtech Insight*.

MDSAP will start to be phased in as of January 2017. From 2019, MDSAP certification will become the sole mechanism to demonstrate compliance with Canadian quality management system requirements, and manufacturers who fail to replace their CMDCAS certificates with MDSAP ones will no longer be allowed to market products in Canada.

Registrars have been able to submit applications to become MDSAP auditing organizations (AOs) since 2014, when a pilot of the program was first launched; the pilot is scheduled to conclude at the end of this year.

At this point in time, however, only six of 13 CMDCAS registrars are recognized to perform MDSAP audits, and one of these has chosen to withdraw from the program.

## REGISTRARS TOO BUSY

Registrars are concerned about the "amount of work they are facing to implement a number of transitions at the same time," MEDEC said.

As well as dealing with MDSAP, registrars are having to take on board the new EU regulations on medical devices and IVDs, and the recently revised international standard on quality management systems (ISO 13485:2016). In addition, they need to factor in audits of single-use device (SUD) reprocessors and cybersecurity audits, the association added.

Registrars authorized to audit under MDSAP are also reported to be hesitant to take on new clients, MEDEC commented. Meanwhile, some companies are using registrars that are not yet fully authorized, the association said, adding that "companies are hesitant to switch."

Health Canada has stated that it is up to the manufacturers and the auditing organizations to make sure that they are in compliance by the intended date, MEDEC noted. Also, auditing organizations have been asked to limit the validity of CMDCAS certificates to Dec. 31, 2018, in order to avoid manufacturers having a false sense of security related to the transition, the association added.

MEDEC said it was communicating with its members about the transition plan devised by Health Canada in order to encourage members to join the MDSAP pilot or to develop with their registrar action plans that lead to compliance by Jan. 1, 2019.

The trade group is also continuing dialogue with Health Canada on the issue of registrar capacity.

As for the MDSAP pilot, MEDEC said it was engaging with its members regarding their experience with MDSAP audits so far. Some 85 MDSAP audits are reported to have been conducted during the MDSAP pilot as of August 2016, it noted.

## A BRIEF HISTORY

MDSAP was developed by the International Medical Devices Regulators Forum. The program is designed and developed so that a single audit, performed by an authorized AO, meets the quality management system requirements of multiple regulatory agencies.

Employing a single audit program is expected to allow agencies to efficiently leverage resources, reduce regulatory burden on industry without compromising public health, and promote more aligned and consistent technical requirements, among other benefits.

In addition to Health Canada, the agencies participating in the MDSAP pilot are Australia's Therapeutic Goods Administration; Brazil's ANVISA; Japan's Ministry of Health, Labour and Welfare and the Pharmaceuticals and Medical Devices Agency; and the US Food and Drug Administration.

*Published online 10/12/16*

# Brexit Will Drive UK And China Closer Together

**TINA TAN** tina.tan@informa.com

Shutterstock: Zerbor

Brexit may spell the closing of the doors to an important single market for UK medtech companies, but it also opens up opportunities to capitalize on the growing partnership between the UK and China.

Luke Zhou, founder and director of Beyond Laboratory Ltd., an organization which aims to link UK life sciences companies with Chinese investors, told delegates attending the first edition of the China-UK Life Science and Healthcare Marketplace in London that the three key reasons why UK will find itself increasingly in need of China are all related to the UK's decision to exit the EU.

Firstly, Zhou said at the Oct.12 meeting, China will be an important source of capital for UK life sciences companies seeking investment. "The biggest challenge for companies post-Brexit is funding. As the sterling depreciates and investors become concerned about market stability, the flow of money into the UK is slowing down," he told delegates. Following Brexit, around €1bn of research funding from the EU "will vanish" and this capital will not be available to the small companies that need it most. On the other hand, the levels of outbound investment from China have only been going up. In the third quarter of 2016, around $140m of capital exited the country and invested in foreign property, technology and services, among other things. Medical technology and health care were ranked the second most popular space for Chinese investment, according to Zhou.

Secondly, a post-Brexit UK needs China not just for financial capital but also for human capital. Brexit will likely result in a more restricted supply of labor coming into the UK from EU countries. "There is a lot of life sciences expertise in China and it can help fill the labor-supply gaps for the UK," said Zhou.

Thirdly, while the UK may lose access to the European single market as a result of Brexit, it will continue to have access to China, the world's biggest single market with a population of 1.28 billion. It is also forecast that the Chinese pharma/biotech/medical market will reach a size of around $1 trillion by 2020.

But the relationship between the UK and China is not one-way, Zhou maintained. China is also dependent on the UK for the latter's medical products and services to meet the health-care demands of the Asian giant. These demands are driven by China's rapidly ageing population, the rising incidence of diseases such as cancer and cardiovascular disease that are tied to environmental and lifestyle factors, and the country's rising quality of life.

Jian Sheng Du, a life sciences specialist in the UK's Department for International Trade, commented that the UK's strength in life sciences makes it a particularly attractive investment proposition for China. China has made advances during the past 15 years in the life sciences sector and has now overtaken Japan, Germany and the UK in scientific R&D expenditures, he said. The country is predicted to become the second biggest health-care market after the US in five years. But, Du, noted, China is facing a "crisis" in drug development with not enough new drugs in the pipeline.

The UK can seize this opportunity to attract investment from China to support R&D of innovative medicines and medical devices, advised Du. Beyond Laboratory's Zhou added that UK companies would also be able to leverage China's well-established strength in manufacturing once the new technology emerges from the pipeline. Following that, UK and Chinese companies can work together to commercialize the products in their respective countries and globally.

The presenters at the meeting acknowledged that these types of partnerships are not without hurdles. They pointed out that the most common problems encountered in UK and Chinese organizations working together tend to be related to differences in language, potential scientific barriers, differences in culture and legal systems, and, in some cases, a lack of trust.

The lack of trust is usually based on worries by UK companies that their intellectual property will be infringed by Chinese firms, which, as a category, have gained notoriety for "stealing IP." Du acknowledged that this does happen and UK companies must go into these partnerships with their eyes wide open. "China is not only full of gold, but it is full of mines – you have to be careful," he noted.

That context makes it all the more critical that UK firms find the right partners for collaboration and take the time to build up the trust between the two companies. "If you find the right partner, they would help safeguard your IP for you," he said.

*Published online 10/17/16*

# How J&J Hopes To Disrupt India's Diabetes Care Paradigm

**ANJU GHANGURDE** anju.ghangurde@informa.com

A lot seems to be happening at Johnson & Johnson Medical India as the US multinational experiments with new go-to-market strategies, e-commerce platforms, and hopes to use an integrated approach to improve patient outcomes in diabetes.

In an interview with *Medtech Insight* in Mumbai, Sushobhan Dasgupta, managing director, Johnson & Johnson Medical India and VP, Diabetes Care (Asia Pacific), outlines how the company is shifting gears as it primes for a larger play in the fast-growing Indian medical devices market – Asia's fourth largest after Japan, China and South Korea.

Sushobhan Dasgupta of J&J Medical India

Photo credit: J&J Medical India

**Medtech Insight: The Indian medical devices market is extremely fragmented and import dependent but growing at a fast clip. How are things shaping in the backdrop of evolving regulations?**

**Sushobhan Dasgupta:** We are seeing some incremental changes; transformational changes are not expected because such changes happen in medical devices largely through breakthrough innovation.

The last breakthrough innovation has been drug-eluting stents, and since then incremental innovations have happened and that's the reason why the medical device industry is growing at a steady pace. We believe that the medical device market in India is growing at around 11 percent to 12 percent per annum, which is consistent over several years.

With innovation a lot of new things have come in – liver transplants, cancer surgeries, minimally invasive procedures in the gynecology, cardiovascular segments are growing in India. And all these require medical device technology. There is also a huge proliferation of services in the tier 2, 3, 4 cities, and because that is happening, the medical devices segment is expanding.

So overall, there is a positive trend in industry and we also see local players and multinational companies rising. But we would like to grow faster; with industry associations and the government working toward certain issues we believe the 11 percent to 12 percent growth could convert to 14 percent to 15 percent.

**J&J has initiated new go-to-market strategies in the country including a Middle India sales organization. How have things played out?**

**Dasgupta:** For the Middle India model, we went into a few cities to start with and wanted to see how it pans out. Our parameter of success was not sales because it wasn't a like-to-like comparison – those areas were not really covered, not focused on etc. We looked at customer experience – before and after - and almost 100% of the customers liked it because for the first time someone was reaching out to them not just with the products and services but also with lot of information on things to come, and they were getting relevant attention. They were able to use that information, awareness and technology to help provide better clinical outcomes to patients. That was giving them confidence and that helped Middle India move into the next phase. We are covering many more towns; the team has grown stronger.

**J&J is transforming its e-commerce platform globally and India features among the top priority markets. How have your B2B and B2C initiatives progressed here?**

**Dasgupta:** The success we are seeing in China is more advanced than in India today. Since medical devices fall under the drugs category in India, we can't go full-fledged into e-commerce sites and B2C.

Several big e-commerce organizations are looking at B2B for medical devices in India. Imagine the spurt in activity that will happen if a large player comes in. If the big player is able to offer both say a glucometer and the strips (which falls under drugs), then it would make a lot of sense. If I'm a patient, why would I buy the glucometer online and the strips elsewhere? E-commerce will play a big role for medical devices in India going forward.

[**Editor's note:** *J&J Medical had, as part of its e-commerce effort, partnered with Collateral Medical (B2B model) for cer-*

*tain products. Collateral Medical, which claims to be India's largest online medical device store, was founded by Nikhilesh Tiwari, who was previously business head of the women's health division at Johnson & Johnson Medical India.*]

**So you believe the government will understand these nuances and perhaps permit industry to go the whole hog in the e-commerce space for devices?**

**Dasgupta:** We have been speaking [with the government] through industry bodies. A big theme of the government is access and affordability, and e-commerce could be a means to this. Access – because several more people can get delivery online provided all the right checks are in place because there are pitfalls, and this is not a shoe or perfume that you are buying. The second thing is affordability, and I'm sure prices will come down further with e-commerce.

> "A big theme of the government is access and affordability, and e-commerce could be a means to this."

We have a team in place and we are working with our counterparts in the consumer business because consumer is very advanced in e-commerce. Johnson's Baby, Neutrogena etc. are sold through e-commerce, and we are working closely with our consumer counterparts to be able to leverage the ecosystem around e-commerce. So the transition, when required, will be much easier for us because we have the expertise in-house.

**Globally J&J expects to leverage the enterprise for complete diabetes care. How is J&J Medical India approaching this right from pre-diabetes behavior modification all the way to bariatric surgery?**

**Dasgupta:** Globally, J&J purchased the Human Performance Institute in 2008 initially for the welfare of J&J employees and their families and later on to use it to leverage the other parts of our business from a health and wellness factor. They have developed a seven-minute workout – exercises and a person demonstrating that basically keep people motivated. That's the first step of the diabetes program because if you are a diabetic or pre-diabetic, you constantly need to be moving out of your sedentary lifestyle and keeping yourself active. That's the behavior modification part.

Secondly, we are going a lot into digital. We already have most of our new meters that are Bluetooth activated and get connected through apps in your *iPhone* or *Android* phone. We have already partnered with WellDoc [a digital health technology company that develops mobile solutions to drive behavioral and clinical change in chronic disease], which has apps to help the patient maintain a regime to remain healthy throughout.

For example, our *OneTouch Verio Flex Meter* [blood glucose monitoring system] gets connected to the WellDoc application which is housed in the phone and that constantly sends messages. We will bring this to India. We just launched Verio Flex in India last month. We are going to get an in-house app *Reveal3.0*, which actually can be downloaded free of cost into your phone and this will be conjunct with WellDoc.

We also hope to bring in the *OneTouch Via* [J&J's wearable, on-demand, mealtime insulin delivery system; expected to be commercially available in limited markets outside the US in late 2016, with US availability thereafter, as per a company statement in June]. We expect to launch in 2018 in India. We have spoken to lot of key opinion leaders and they believe that product will be very useful in certain settings. We are looking at price points.

Then there are several diabetes patients who are obese and would need bariatric surgery. We have been able to form lot of associations, and one such engagement is with bariatric surgeon and one of the principal investigators for the COSMID study, Dr. Shashank Shah. The COSMID [Comparison of Surgery versus Medicine for Indian Diabetes] study demonstrates bariatric surgery may be a better treatment option than medical therapy and lifestyle management alone for obese Asian Indian patients with inadequately controlled type 2 diabetes. It has been found that in a large percentage of such patients, their diabetes is now under control.

[**Editor's note:** *The COSMID study was funded by Ethicon, part of the Johnson & Johnson family of companies.*]

**But bariatric surgery may not be affordable to all?**

**Dasgupta:** For bariatric surgery we have partnered with insurance companies to make them understand the process where they can cover more patients. Bariatric surgery is not very cheap and neither very expensive, but provides a mechanism to control diabetes and lead a normal healthy life. Several people in India may not be able to pay up at one time.
We are have partnered with Bajaj Finserv [the holding company for the various financial services businesses under India's Bajaj group] and have developed an equated monthly instalment scheme at zero percent interest that is working pretty well. We connect Bajaj Finserv to the patient because we know the hospital and the doctor.

Then we did a workshop partnering with several insurance companies and the IRDA [Insurance Regulatory and Development Authority] and did a seminar where we had health economists coming in. We are trying to make the insurance companies understand the patient perspective so that more insurance companies, without losing money, create a proposal and a plan for diabetic bariatric patients to be able to get into the system. Today an estimated 12,000 bariatric sur-

geries happen but the potential numbers could be around 2.5 million in India.

So that's the entire journey [for complete diabetes care].

**What's your take on India's draft medical devices rules announced in July – among other clauses it mentions inspection of the overseas manufacturing site either by the Central Licensing Authority or by any other person to whom the power has been delegated for the purpose?**

**Dasgupta:** Industry has had meetings with government officials and the regulator, and discussed a lot about the draft. We have suggested that as an industry we would like to see it as a separate act or a bill. But that may take a lot of time to come. But within the current amendment, we need to have a separate chapter for medical devices, so when the act comes later on, it should be a drugs, cosmetics and devices act.

There are certain areas where we have been asked to provide our points of view. Today, for example, several products in the world have a 10-year shelf life expiry. Many of the products also have five years. In India, where we are looking at affordability and access, why do we want to do this? It is waste of resources. The Drugs Controller General of India (DCGI) has the power to provide a resolution, case by case, saying that this product is universally accepted at 10 years [expiry]; so we are saying, please do that.

[**Editor's note:** *The draft rules currently suggest that the shelf life of the medical devices shall not exceed 60 months from the date of manufacture. However, it adds, among other norms, that this period may be extended by the Central Licensing Authority, in respect of any specified medical device, if satisfactory evidence is produced by the manufacturer to justify such extension.*]

*Published online 10/13/16*

# Siemens Makes PHM Debut With Partner IBM; Verily, 3M Also Link Arms

**CATHERINE LONGWORTH** catherine.longworth@informa.com


Shutterstock: ESB Professional

**Siemens Healthineers** has partnered with **IBM Watson Health** on a five-year global strategic alliance to enter the increasingly competitive population health management (PHM) market. The deal marks Siemens Healthineers first foray in this space.

The partnership aims to support healthcare systems in delivering care to patients with complex, chronic and costly conditions with PHM technology. The PHM market has been estimated to be worth $8.5bn in the US in 2015, according to research firm *Markets and Markets*. As part of the alliance, Siemens Healthineers will offer products from IBM Watson Health's existing PHM portfolio, including *IBM Watson Care Manager,* a cognitive solution designed to help providers and patients work together to support individual health. IBM Watson Care Manager integrates disparate types of clinical and individual data and applies cognitive analysis to draw out insights for healthcare professionals so they can manage patients with chronic, costly conditions such as heart disease and cancer. In turn, IBM gains a partner with an extensive network of hospitals and clinical impact.

Marc Lauterbach, VP of marketing for digital health services at Siemens Healthineers, told *Medtech Insight:* "We see a high demand with our customers for a partner who understands health-care workflows, as well as health-care data, and can accompany providers on their transition to value based health care. Following our strategic goal, which is to be the preferred partner for health-care providers worldwide, we are about to move into a position where we can support the health-care systems and its providers holistically." He said Siemens intend to work together with IBM to play an "immediate role" in the market.

He added: "It is a fact that roughly 20 percent of a population drives up to 80 percent of the health-care costs. Within the 20 percent are patients affected by chronic diseases and patients which are already admitted to a hospital and receiving care for acute symptoms. Proactively managing chronic patients and engaging them in their care plan and applying automated care management would unleash great savings."

Since launching in April 2015, IBM Watson has carried out four major health data-related acquisitions – Explorys, a health-care intelligence cloud; Phytel, a provider of integrated population health management software; Merge Healthcare, a medical imaging company; and Truven, a cloud-based health analytics company.

Separately, **Verily Life Sciences** and **3M Health Information Systems Inc.** have also entered a five-year partnership agreement to develop new population health management technology designed to help meet hospital and health-care systems' demands for analytics. The joint technology platform will combine 3M's experience in health data coding and classification, as well as its risk stratification methodologies used by federal agencies and health-care organization, with Verily's expertise in data analytics and development of software tools.

*Published online 10/14/16*

# Oxford Immunotec Bulks Up Immunology Dx Offering

**CATHERINE LONGWORTH** catherine.longworth@informa.com

UK tuberculosis-testing specialist **Oxford Immunotec Global PLC** has acquired US company **Immunetics Inc.** in a deal worth up to $12m. Oxford Immunotec said the acquisition was a strategic fit due to Immunetics' business being consistent with the company's focus on tests for immune-regulated conditions.

Immunetics' flagship product is the *C6 ELISA* test for the detection of Lyme disease which is CE marked and US FDA cleared. The diagnosis of Lyme disease can be made based on the presence of antibodies to *B. burgdorferi*. The C6 ELISA test uses a synthetic version of the C6 peptide antigen, a 26-amino acid sequence within the Borrelia membrane protein VlsE which is highly antigenic and specific to Borrelia strains causing Lyme disease. The company also has a pipeline of other tests for infectious diseases.

Speaking in an Oct. 13 investor call to discuss the acquisition, Oxford Immunotec CEO Peter Wrighton-Smith said the addition of Immunetics was "highly complementary" to the company's $22.2m acquisition of tick-borne testing business Imugen in July. Wrighton-Smith said: "We believe the combined reputation and expertise of these two companies strengthens our ability to build a market leadership position [in immune-regulated conditions] and extend our offering over time."

Wrighton-Smith said Oxford Immunotec intends to leverage its commercial infrastructure to accelerate sales of Immunetics' products outside the US. "Like Imugen, Immunetics has only to date limited commercial resources and, in the same way as Imugen, Immunetics allows us to exploit our US sales force to accelerate its growth," he said.

The Immunetics deal marks Oxford Immunotec's third acquisition. In addition to Imugen, it acquired Lyme-disease testing business, **Boulder Diagnostics Inc** for $1.8m cash up front, as well as paying up to $6.1m for clinical, intellectual property and products under development. Lyme disease testing is prevalent in Japan and China, as well as being an extremely big market in Northern European countries such as Germany, Austria and Switzerland.

However, Wrighton-Smith said the acquisition did not inherently change the focus of the company as it continued to be focused on its TB products. Oxford ImmunotAec's first product – the *T-SPOT TB* test - is used to test for tuberculosis infection and has been approved for sale in over 50 countries, including the US, where it has pre-market approval from the FDA. In addition to the T-SPOT TB test, the company has a series of products for the transplantation market.

The CEO said in the conference call that the acquisition is expected "to bring forward [the firm's] timing of profitability". The transaction will also have a positive – albeit modest – impact on Oxford Immunotec's top-line, contributing approximately $0.5m in revenues in Q4 of 2016. The company's revenue guidance for the full year remains in the range of $82.5m-$84.5m.

Under the terms of the agreement, Oxford Immunotec paid $6m in cash up front and will pay up to an additional $6m for various revenue- and approval-related milestones.

*Published online 10/17/16*

# BioVentures Raises $87m For Medtech-Dedicated Fund

**TINA TAN** tina.tan@informa.com

**BioVentures Investors LLC** has closed an $87m fund, which will be dedicated to investments in early stage medical device and diagnostics companies.

This is the fourth – and largest – fund for BioVentures, and it brings the total raised by the East Coast venture capital firm to over $220m.

On its website, BioVentures said it would typically invest $3m-$10m in each portfolio company, with the expectation that it would reach "a monetizing opportunity" – possibly completion of the R&D phase – within five years.

BioVentures said it has already made four investments with capital from Fund IV. These include: **Locemia Solutions**, a Canadian developer of an intranasal glucogan solution to treat severe hypoglycaemia in diabetics; **Deep Vein Medical Inc.**, a Massachusetts firm that is planning to enter clinical trials with its prosthetic venous valve next year; **CoNextions Medical**, a Utah company that is expecting US FDA approval for its tendon repair device, an alternative to traditional sutures for tendon-to-tendon repair; and **Endotronix Inc.**, an Illinois firm that has developed a wireless health monitoring solution to manage patients with congestive heart failure.

*Published online 10/12/16*

# Myriad's Ovarian Cancer Test Proves Its Mettle as Tesaro Companion Dx

**REED MILLER** reed.miller@informa.com
**LUCIE ELLIS** lucie.ellis@informa.com

Results of the NOVA study show that **Myriad Genetics Inc.'s** *myChoice HRD* can identify the ovarian cancer who are most likely to benefit from **Tesaro Inc.'s** investigational drug niraparib, an inhibitor of poly(adenosine diphosphate [ADP]–ribose) polymerase (PARP-inhibitor). But it remains to be seen if testing with the companion diagnostic will be included in niraparib's approved indication or not.

Myriad is pursuing US FDA approval for myChoice HRD as a companion diagnostic designation with niraparib in this patient population of highly platinum-sensitive patients undergoing maintenance therapy.

Results from NOVA, a Phase III trial of niraparib led by Mansoor Mirza of Copenhagen University Hospital, showed that, among patients with platinum-sensitive, recurrent ovarian cancer, niraparib significantly extended patients' median duration of progression-free survival compared to placebo, regardless of the presence or absence of germline BRCA mutations – inherited mutations to tumor suppressor genes – or homologous recombination deficiency (HRD) status, but the drug was shown to be moderately toxic in bone marrow.

The study results were published online ahead of print by *The New England Journal of Medicine* on Oct. 8 and presented on the same date by Mirza at the congress of the European Society for Medical Oncology (ESMO) in Copenhagen.

Among the patients in the study who were germline BRCA mutation carriers, the median progression-free survival for patients treated with niraparib was 21.0 months compared to 5.5 months for the placebo group. The median progression-free survival benefit for patients shown to have HRD-positive tumors using myChoice HRD and who were treated with niraparib was 12.9 months compared to 3.8 months for the placebo group.

> "The entire argument essentially comes down to regulatory bodies and whether they consider a three-month benefit in HRD-negative patients clinically relevant," Datamonitor Health analyst Zachary McLellan said. "If they do in this case, it means that Myriad's diagnostic isn't needed and niraparib will receive a wider label."

Also, exploratory analysis showed that for patients who were determined to be HRD-negative by myChoice HRD, the median progression free survival was 6.9 months if they were randomized to receive niraparib, versus 3.8 months if they got the placebo.

"These were somewhat unusual patients - highly sensitive to platinum-based therapy," Johnathan Lancaster, the chief medical officer of Myriad Genetic Laboratories, told *Medtech Insight*. "The power of the [HRD] biomarker is that, despite the highly clinically selected platinum-sensitive population, the biomarkers were still able to discriminate between those that benefit the most and the least."

"As a clinician who has taken care of hundreds of patients with ovarian cancer, this is massively exciting because it shows that Tesaro's PARP-inhibitor niraparib has really significant activity in patients with highly platinum-sensitive ovarian cancer and it results in significant progression-free survival benefits for patients who have inherited germline alterations in the BRCA1 or BRCA2," Lancaster said. "The biomarker element of the study demonstrates both germline BCRA1 and myChoice HRD can significantly delineate and differentiate between patients who are going to have the maximum benefit compared to those who are going to have minimal benefit [with niraparib]."

## WILL THE TEST DEFINE NIRAPARIB'S INDICATION?

Lancaster said that it remains to be seen if FDA will approve niraparib for a broad indication that includes the HRD-negative patients. Niraparib was associated with a statistically significant improvement in progression-free survival in those patients, but the absolute improvement was only 3.1 extra months, which may not be clinically meaningful enough to justify the toxicity of the drug. He pointed out that FDA did not approve AstraZeneca's Lynparza (olaparib) PARP inhibitor for a broad indication based on data that it improved progression-free survival by 3.6 months, but did approve it as a fourth-line therapy for certain subgroups shown to benefit more.

In the *NEJM* paper, Mirza and colleagues explain that although the difference in progression-free survival among the patients with HRD-negative tumors was only 3.1 months, "for all of these biomarker populations, the Kaplan–Meier curves show a consistent and sustained effect of niraparib treatment versus placebo over time." And even for patients in the HRD-negative subgroup, in which the treatment effects were of a smaller magnitude, about 20% of the patients had more than 18 months of additional progression-free survival because of niraparib treatment. "Although BRCA mutation status and

HRD status may provide important information regarding the magnitude of the potential treatment benefit in a given patient population, these biomarkers do not appear to be sufficiently precise to predict which individual patients who meet our definition of platinum sensitivity will and will not derive benefit from niraparib treatment," Mirza et al argue.

Also, during an Oct. 8 conference call sponsored by Tesaro, Mirza said that because the survival curves for the treatment and placebo groups continue to diverge over time, "It's not the median [progression-free survival] which matters, it's the hazard ratio which matters. So, that's why 0.58 hazard ratio is clinically meaningful, and we cannot – we are in agreement in our community of gynecologists – we cannot just close our eyes on this. And I cannot say to these patients that we're not going to give you the treatment."

Mary Lynne Hedley, Tesaro's COO, said that the company agrees with Mirza that their application to the FDA for niraparib be for a broad patient population, not limited to HRD-positive patients. "We've had our pre-[new drug application] meeting with FDA which gives us some confidence about submitting broadly, and our [Marketing Authorization Application] submission is also going to go in this quarter."

However, Datamonitor Healthcare analyst Zachary McLellan does not share the company's optimism. "Approval in the overall patient population regardless of BRCA and HRD status is unlikely," he told *Medtech Insight*. "This would mean approval of niraparib will likely be in conjunction with Myriad's companion diagnostic. The entire argument essentially comes down to regulatory bodies and whether they consider a three-month benefit in HRD-negative patients clinically relevant. If they do in this case, it means that Myriad's diagnostic isn't needed and niraparib will receive a wider label. If they feel the benefit is not clinically relevant, then these results are very positive for Myriad in that patients who scored high on their companion diagnostic were the only patients considered to respond and Myriad's diagnostic will be required for niraparib use.

"A three-month progression-free survival result in HRD-negative patients isn't nothing, but the FDA and others will have to decide if that benefit is enough to offset cost concerns and potential toxicity," he said. "Lynparza failed to gain approval in all patients with a similar progression-free survival outcome. The progression-free survival in patients with HRD and/or BRCA mutations is much more significant and is a much easier target. I believe regulatory bodies would feel more comfortable approving niraparib where the benefit is greatest and waiting for more mature survival data in the overall population."

## FINDING THE RIGHT PATIENTS

Myriad's Lancaster said that regardless of FDA's opinion of the NOVA data, "we're not in this just for the highly selective patients" and that Myriad is sponsoring ongoing trials of myChoice HRD with niraparib and other PRAP-inhibitors. The ultimate goal is to identify the patients for whom PARP-inhibitors are the best frontline therapy. "We've got integrated-biomarker studies in the vast majority of PARP-inhibitor studies going on with pharma, so we wait with eager anticipation to see how they can benefit precision medicine approaches to PARP-inhibition in the future.

*Published online 10/14/16*

## START-UP SPOTLIGHT:

# Episona, Epigenetics Diagnostics For Male Infertility

BOB KRONEMYER

For couples having difficulty conceiving due to abnormal sperm, a new epigenetic fertility test for men can help. The molecular diagnostic product *Seed* from **Episona Inc.** goes beyond a standard semen analysis by identifying male fertility problems at the level of the DNA. A semen sample is collected at home or at a clinic and mailed to a lab that is then able to analyze a 485,000 regions of that person's epigenome: molecular modifications on top of DNA that regulate which genes are active or inactive. Results from the test help physicians to predict fertility potential and the sperm's contribution to embryo quality, thus targeting better treatment approaches.

"Seed provides significantly higher resolution on male factors that contribute to the couple's infertility, which allows the physician to develop a targeted treatment protocol that is cost-effective for the patient and decreases the time to pregnancy," says Episona president and CEO Alan Horsager.

In the US alone, there are 1.2 million couples seeking fertility care, of which about one-fourth are not adequately diagnosed with existing technologies, according to Horsager. "We provide additional information that will improve treatment protocols," he says. At a price of $895 per test for 300,000 couples a year, the market size is $268m annually. The lab-developed test (LDT) is regulated by The California Department of Public Health.

Horsager, one of the cofounders of Episona, earned a PhD in neuroscience from the University of Southern California in Los Angeles, where he has been a research assistant professor of ophthalmology since 2004. He also cofounded Eos Neuroscience Inc. (optogenetic gene therapies for blindness and chronic pain) in 2007, remaining as chief science officer until 2013.

"I am fascinated by the concept of epigenetics, which suggests that environmental factors and behaviors, such as smoking, can impact the way our DNA works," Horsager says. "Furthermore, it is possible that these epigenetic changes could be heritable across generations." The two greatest technical hurdles in creating Seed were to understand the best data analysis methods to use and how to interpret the signals (differences in fertile versus infertile population). "DNA methylation is neither good nor bad," Horsager states. "It is the specific pattern of methylation on the DNA, or profile, that matters. We have been able to develop novel analytic tools to truly understand this profile."


Shutterstock: Sebastian Kaulitzki

**EPISONA INC.**
69 North Catalina Avenue
Pasadena, CA, 91106 US

**Phone:** +1 844 374-7662

**Website:** https://www.episona.com

**Contact:** Alan Horsager, PhD, President & CEO

**Industry segment:** Men's health

**Business:** At-home fertility test for men analyzes 480,000 sites across the sperm genome

**Founded:** August 2013

**Founders:** Alan Horsager, PhD; Andrew Smith, PhD (University of Southern California, Los Angeles); Douglas Carrell, PhD (University of Utah, Salt Lake City)

**Employees:** 6

**Financing to date:** $2m

**Investors:** Pasadena Angels; high-net-worth individuals

**Board of directors:** Alan Horsager; Andrew Smith; Douglas Carrell; Paul Billings, MD, PhD (formerly of Life Technologies Corp.); Simon Harrison, PhD; David Oksenberg (BioCern Inc.)

**Scientific advisory board:** Douglas Carrell; Andrew Smith; Paul Turek, M. (The Turek Clinic, San Francisco); Richard Scott, MD (Reproductive Medicine Associates of New Jersey, Basking Ridge)

The inventors were also committed to making a product that patients could easily take home from a clinic. "It certainly is a benefit that Seed can be used in the privacy of one's home," Horsager says. "This is not the rule in the fertility field."

Episona has six pending patents (none issued) and will pay a standard royalty to both the University of Southern California and the University of Utah, which jointly developed the technology.

The two clinical uses for Seed are measuring fertility potential, which identifies male factors that may make natural conception or intrauterine insemination (IUI) less likely to be successful; and embryo quality, which identifies male factors that may contribute to poor development of the embryos.

Seed is a physician-ordered test. A fertility clinic provides the collection kit to a patient it feels could benefit from testing. The data is then analyzed at a central company partner lab in Culver City, Calif., and a clinical report is generated that is available to a physician through the company's clinical portal, within a projected 15 business days.

The patient's sample is processed in the lab by purifying and isolating the DNA from the sperm cells. The DNA is then run on microarrays from Illumina Inc. that tell where the DNA methylation is on the DNA and the genome. "The methylation

profile is a layer of molecular information that sits on top of the DNA," Horsager explains. "Seed tells you whether the methylation profile is normal or abnormal and, specifically, the genes where the abnormalities are located." The output of the test is a methylation profile for 485,000 individual sites across the whole sperm genome, which is then compared to a fertile standard. A relative risk is also assigned to each abnormal location for either poor fertility potential or poor embryo development.

Horsager related a specific study case in which Seed detected 25 epigenetic abnormalities in a patient's sperm. "This many abnormalities puts the patient squarely in the abnormal category for fertility potential, hence IUI could be less effective," he says. There was also a set of abnormalities in one gene that was thought to be very important for chemotaxis, a process which may impact the sperm's ability to find the egg. The patient had previously undergone three cycles of IUI, but then found success with one round of intracytoplasmic sperm injection (ICSI), an advanced fertility treatment where the sperm is injected directly into the egg.

"If Seed had been available prior to the patient's treatment, the physician might have suggested IVF-ICSI, which overcomes the problem of the sperm needing to find the egg," Horsager says. "Many clinics start with rounds of IUI by default. Seed can help patients save time and money by indicating if they are a more severe case that is unlikely to benefit from IUI."

Episona has performed two clinical studies of Seed: a 127-patient trial, plus 36 controls, completed the end of 2014; and a 200-patient study, with 96 controls, that concluded this past summer. The two endpoints for both studies were fertility potential and embryo quality, for which results were similar. "Essentially, we were able to recognize epigenetic patterns that are associated with poor fertility potential and poor embryo development," Horsager reports. "If patients have epigenetic abnormalities for the first endpoint, they should move more quickly to IVF, whereas the second endpoint informs whether the patient is going to have trouble producing good quality embryos, which is also important for IVF."

For the earlier study, the sensitivity and specificity for fertility potential with Seed was 82% and 97%, respectively, whereas for predicting embryo quality it was around 50% sensitivity and 98% specificity. Results for the second study have yet to be released.

For couples who undergo a round of IVF that does not produce the desired effect, "you want to know not only the female, but also the male factors, causing that problem," Horsager relates. And for those couples who are contemplating a donor, Seed can help determine if the donor should be male or female.

Horsager says there is no other product on the market that analyzes the epigenetics of sperm to predict infertility. However, **Sandstone Diagnostics Inc.** (*Trak* Male Fertility Testing System) announced in June US FDA clearance of its home test that allows the patient to evaluate data from their own semen. "Trak is a version of standard semen analysis," Horsager says. "However, this assay is limited in the types of information it can provide. For instance, the assay is unable to detect problems with chemotaxis or factors that impact embryo development."

A more direct potential competitor is **Ivigen SA**, which broadly conducts genetic testing in infertility, but currently not specifically of sperm.

Seed, which is scheduled to have an international launch in October at the annual meeting of the American Society for Reproductive Medicine, will likely be sold through a direct sales force in the US and distributors abroad. The product is not currently reimbursable.

Episona has raised $2m to date, consisting of a single seed round that closed in September, funded by Pasadena Angels and other high-net-worth individuals. A Series A in the amount of $5m is scheduled to conclude early 2017, funded by strategics, foreign investors and traditional VC firms.

The company is receptive to partnerships or licensing its technology, under the right terms, to other genetic testing businesses. Meanwhile, Horsager is focused on building a sustainable and standalone epigenetics data firm, including using Seed's platform to detect certain forms of cancer and neurodevelopmental disorders.

*Published online 10/14/16*

# New Regs Lead EU Notified Body Association To Suspend Code-Of-Conduct Audits

**AMANDA MAXWELL** amanda.maxwell@informa.com

The EU notified body association, TEAM-NB, has decided to suspend the code-of-conduct audits on its members to focus on helping them prepare to meet the requirements of the forthcoming Medical Devices and IVD Regulations.

The group says that when it restarts the code-of-conduct audits of notified bodies, the audits will be performed against the new MDR/IVDR requirements.

The likely timing of this restart has yet to be confirmed, but the new regulation requirements for notified bodies and their redesignation are likely to start to apply in the second half of 2017. Notified bodies can be designated and notified against the new regulations before the date of full application of the new rules (likely spring 2020 for the MDR, and spring 2022 for the IVDR). They can also issue certificates against the new regulations before their date of application.

The association has decided this is the best way to spread its resources and ensure its members meet the increasing and "more stringent requirements for notified bodies and their work practices" under the new regulations.

As part of its initiative, TEAM-NB intends to draft a handbook to help its "members … pass the redesignation and associated audits," which will offer high-level process flowcharts and checklists.

## What is happening and when for notified bodies?

The following table provides timelines for many of the requirements in the new regulations for notified bodies based on the assumption that the MDR and IVDR will be adopted in early 2017.

| QUESTION | ANSWER | ADDITIONAL INFORMATION |
|---|---|---|
| When will the requirements regarding notified bodies and the redesignation of notified bodies begin to apply? | In the early part of the second half of 2017. | This covers a wide range of activities related to the auditing, designation and supervision of notified bodies under the MDR. |
| How soon will the EU Commission draw up a list of codes and corresponding types of devices to describe the scope of the designation of notified bodies? | This will need to be done by early in the second half of 2017. | Member states will indicate scope of designations in their notifications. |
| How long will conformity-assessment certificates remain valid if they have been issued by notified bodies that decide to cease conformity-assessment activities? | The certificates may remain valid for a temporary period of nine months after cessation of activities as long as another notified body has confirmed in writing that it will assume responsibilities for the products. The new notified body shall complete a full assessment of the devices affected by the end of that time period, before issuing new certificates for those devices. | Where a notified body decides to cease its conformity-assessment activities, it must inform the national authority responsible for notified bodies and the manufacturers concerned as soon as possible, and, in cases of a planned cessation, one year before ceasing its activities. |
| What happens when the national authority determines the notified body does not have the capability to support existing certificates? | When the designation has been suspended or restricted, the certificate may remain valid if:<br>a) The national authority responsible for notified bodies has confirmed, within one month of the suspension or restriction, that there is no safety issue for certificates affected by the suspension or restriction; and the national authority responsible for notified bodies has outlined a timeline and actions anticipated to remedy the suspension or restriction;<br>**or**<br>b) The manufacturer gives the competent authority – within three months of the suspension or restriction – written confirmation that another qualified notified body is temporarily assuming the functions of the notified body to monitor and remain responsible for the certificates during the period of suspension or restriction. | There is also the possibility for the competent authority in these circumstances to extend the provisional validity of the certificates for further periods, which may not exceed 12 months. |

> TEAM-NB intends to draft a handbook to help its "members ... pass the redesignation and associated audits," which will offer high-level process flowcharts and checklists.

### CRUNCH POINT

This significant level of joint investment will likely benefit the 22 members of the association considerably in preparations for the regulations.

But given that there are some 60 EU notified bodies in the medical device area in total (although just 22 in the IVD area), the crunch point is now coming: How many of those 60 that are not members of TEAM-NB will manage to, or even try to, meet the requirements for designation under the new regulations? And will the resulting number have sufficient capacity to audit all manufacturers before the new regulations take full effect and compliance becomes mandatory?

Previously, 21 notified bodies from different regions of the EU have expressly said they plan to upgrade their activities to meet the demands of the new regulation. It appears that TEAM-NB wants to help support all notified bodies meet the new requirements; it says that it will make "some of the documents on the proposed harmonized interpretation publicly available" on the TEAM-NB website.

The European Commission, "which is very short on time to prepare such an interpretation," TEAM-NB says, has agreed on a process for a possible review of the proposed harmonized notified bodies' interpretation documents. When it receives comments, TEAM-NB says, it will inform the association about potential problems within a relatively short period.

These documents may also become available via the European Commission's Communication and Information Resource Centre for Administrations, Businesses and Citizens and be issued as NB-Med guidance documents – documents which are sometimes elevated to the status of European Commission guidance documents after further consultation.

TEAM-NB started its project to review the content of the future regulations less than six months ago. The associated meetings and teleconferences are taking up much of its resources, it says. Achievements to date include a common understanding of Chapter IV of the regulations, the chapter dedicated to notified bodies, and of Annex VI, which details requirements to be met by notified bodies.

The group is also already working toward its next target, to prepare documents that need to be submitted to support notified body redesignation.

The European Commission's Notified Bodies Oversight Group has already issued a best-practice guide for authorities involved in designating and redesignating notified bodies, as well as the joint assessment teams that are involved in auditing notified bodies.

*Published online 10/13/16*

# Next Step In Global Convergence: FDA Looks To Make IMDRF Software Guidance Its Own

**DAVID FILMORE** david.filmore@informa.com

A new draft guidance issued by US FDA seeks to define principles for when clinical evaluation is necessary and what types of studies are needed for software that qualifies as a medical device. But in an unusual circumstance, the guidance was not written by FDA alone; it was produced by a team of regulators from across the globe, under the auspices of the International Medical Device Regulators Forum.

The US agency posted the IMDRF draft document, "Software as a Medical Device: Clinical Evaluation," on Oct. 13 as if it were a standard FDA guidance document. "This draft guidance, when finalized, will represent the current thinking of FDA," the agency stated in an Oct. 14 notice in the Federal Register.

> The US agency already has adopted guidance from the International Council for Harmonization of Technical Requirements for Pharmaceuticals for Human Use" (ICH) as FDA guidance.

This approach is a first in the medical device space for FDA and represents a new step toward "global convergence" of regulations, the agency suggests in a statement to *Medtech Insight*.

"FDA has not done this before for an IMDRF document," an FDA spokesperson said. "The announcement of the SaMD [software as a medical device] document is the first document that we have procedurally announced the availability in coordination with the IMDRF's announcement." And the agency issued the Federal Register notice seeking public comment, which is a part of its "Good Guidance Practices" process, "so that when the IMDRF document is finalized, if we are supportive, we can implement the IMDRF docu-

ment as FDA guidance," FDA noted.

This is not completely uncharted territory for the agency. FDA already applies this approach in the drug space, where it has adopted guidance from the International Council for Harmonization of Technical Requirements for Pharmaceuticals for Human Use (ICH) as FDA guidance.

## FOUR-FOR-ONE DEAL?

The SaMD guidance was developed by an IMDRF working group, led by Bakul Patel, associate director for digital health at FDA's device center. The group, which also includes representatives from Australia, Asia, Europe and South America, completed the draft document over the summer and signed off on it in September. It's intended to address what officials around the world see as significant confusion on the question of when clinical data needs to be collected for SaMD, which is defined as software for medical purposes that can be standalone or work in conjunction with another device, but is a not an integral part of the functioning of a hardware medical device.

The prevalence of SaMD technology is steadily growing with the rise of mobile health-care apps and increasingly sophisticated software tools intended to inform treatment decisions, or even, in some cases, to more directly diagnose or treat patients. The draft guidance maps out a framework for what product sponsors may need to collect and submit to support analytical validity, scientific validity and clinical performance of software, based on risk classification.

The draft guidance draws heavily on three prior guidance documents that have been finalized by IMDRF, laying out key definitions for SaMD, detailing a framework for risk categorization for the technology, and establishing how a quality management system can be applied to SaMD.

FDA has not formally adopted any of those three guidance documents via its Good Guidance Practices process. And that is one thing, among several, that should make industry wary about the agency's approach here, says attorney Bradley Thompson, who serves a general counsel to the Clinical Decision Support Coalition, an industry group heavily engaged in medical software regulation issues.

"In practical terms, this represents the adoption of not just one guidance, but four guidances. So, really, this initiative by FDA is extremely broad and covers nearly all aspects of standalone software regulation," Thompson told *Medtech Insight*.

"FDA is proposing to adopt a document which the US FDA will not finalize. The IMDRF will finalize this document," he noted. "The International Medical Device Regulators Forum frankly has no authority under US law. So I think there's a problem with saying that this document – when finalized by an international body – will become US law."

Thompson suggested it might be more appropriate if FDA solicited comments on the final version of the IMDRF guidance before adopting it as a final FDA guidance document. "Perhaps this will require two different comment periods," he said.

## FDA MAY DEVELOP COMPANION GUIDANCE

For its part, the agency stressed that it would only finalize the IMDRF SaMD clinical evaluation document as FDA guidance if the agency independently supported it. "Additionally, to adopt and operationalize the concepts within the IMDRF document, we may issue a companion guidance specific to FDA policies and procedures, or update other guidances related to this topic," the agency spokesperson said.

Meanwhile, the draft IMDRF guidance makes clear it is not intended to overwrite specific clinical evidence requirements enacted by regulators in individual regions.

"The level of documented clinical evidence expected by a regulator will depend on regulatory laws in their individual jurisdictions where the SaMD is intended to be made available," the document notes. "This document does not opine on the individual jurisdiction's requirement; instead this document provides guidance on the relative importance and expectations, based on the impact to health, for conducting clinical evaluation and documented evidence for the different categories of SaMD."

FDA has previously issued policy documents addressing specific areas of oversight of medical software. In particular, the agency issued its guidance on mobile medical apps in 2013, and, last year, FDA finalized a policy to refrain from overseeing low-risk "medical device data systems."

> "The International Medical Device Regulators Forum frankly has no authority under US law," attorney Bradley Thompson, with the Clinical Decision Support Coalition, points out.

Also, earlier this year, FDA issued a draft guidance on when new submissions are needed for software modifications.

But the IMDRF guidance delves deeper into when clinical data may need to be collected for different types of SaMD across the spectrum. The "clinical evaluation" guidance depends significantly on the previous IMDRF "risk classification" guidance, which seeks to designate the product risk level based, first, on the significance of the information provided by the software to a health-care decision and, second, on how critical the health-care situation or condition is that is being addressed by the software.

Thompson, from the CDS Coalition, says there are a lot of details to consider with the new IMDRF draft guidance. He suspects that his group and other industry stakeholder will be submitting formal comments on the document. Written comments are due to FDA by Dec. 13 under docket No. FDA-2016-D-2483.

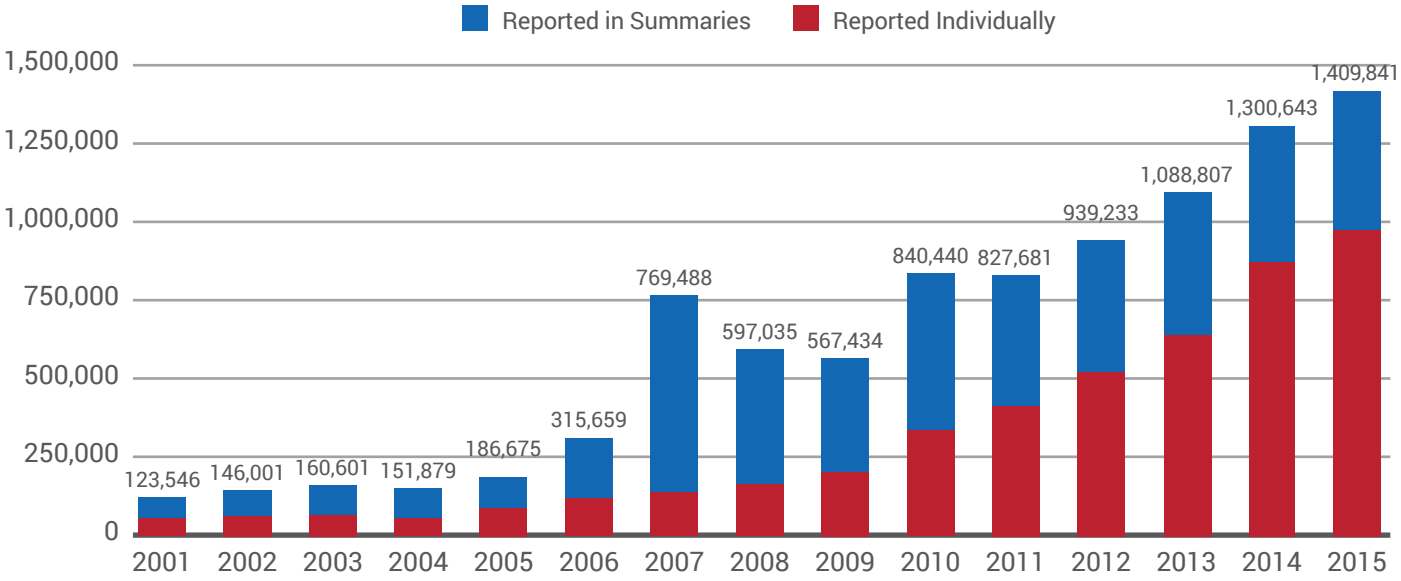
"Typically, clinical evaluation is one of the most expensive aspects of product development in this space," Thompson said. "So the requirements of this guidance have a major impact on both the cost and the timeframes for bringing products in these categories to market."

*Published online 10/14/16*

CONTINUED FROM PAGE 1

FIGURE 1

## Adverse events, 2001-2015




*Source: FDA*

in the large number of MDRs last year, Chang pointed out. And difficulties with specific products – such as **Bayer HealthCare LLC**'s *Essure* permanent birth control device – added even more adverse events to the tally, he noted.

Also a probable factor in the increased reporting is that device firms better understand what types of events should be reported. Further, "we have received reports from patient groups that have not previously reported to FDA. That underscores the importance of FDA continuing to receive MDR reports," Chang said.

In addition, "FDA has made several efforts to encourage better reporting by making adverse event reporting easier for both mandatory and voluntary reporters," Chang said.

FDA launched its MedWatcher app in May 2013 that allows for more convenient voluntary reporting through tablets, smartphones and other mobile devices. And the agency issued its eMDR final rule and guidance in February 2014 that requires mandatory electronic reporting for manufacturers and importers.

"While the [eMDR] rule did not change what must be included in an MDR submission to FDA, it facilitated more expedient and timely reporting by industry," Chang said.

> US FDA's Isaac Chang says "it is indeed difficult to interpret" whether the number of MDRs will continue its upswing this year – but chances are it will.

Nearly 1 million of last year's MDRs – 967,839 – were sent to the agency individually on full MedWatch reporting forms. That's an 11% boost over 2014, when 867,754 individual reports were filed.

The remaining 442,002 reports were sent to FDA in 2015 as part of its Alternative Summary Reporting Program, which allows firms to submit abbreviated reports in a summarized, line-item format. That's up 2% from 2014.

Chang said he can't predict whether adverse events will increase in 2016, and there is no preliminary data available from FDA to suggest that there will be a rise in reports. But if recent history is any indication, FDA's pile of MDRs will undoubtedly grow this year.

"As the increase in the number of adverse event reports may be attributable to several sources – including heightened awareness of how to report MDRs and more streamlined methods for reporting – it is indeed difficult to interpret" whether the number of MDRs will continue its upswing in 2016, Chang said.

### ADVERSE EVENTS: UNDERREPORTED?

Despite the continued mushrooming of recorded adverse events, Francis Blacha, global quality leader for devices for **Eli Lilly & Co.**, believes MDRs are actually underreported.

"In general, a lot of complaint information and complaint reporting is totally unreported. A lot of people – device users – oftentimes don't know they have an issue. Or, if they do understand they have an issue, they just don't know whom to tell," Blacha said in a Sept. 23 interview with *Medtech Insight*.

Although it is primarily a pharmaceutical company, Eli Lilly manufactures drug-delivery devices for some of its medicines, including the *Forteo* pre-filled syringe system for osteoporosis.

So how does Blacha's assertion that adverse events are underreported square with the all-time high number of MDRs reported to FDA in 2015? That is, how can it be said there aren't enough adverse events reported when they've peaked at 1.4 million?

That's because there has been an increased vigilance in reporting by manufacturers – but only by manufacturers – Blacha said. Other reporters, such as hospitals, user facilities and end users, aren't faring as well, leading to a depression in the overall MDR count, he posits.

"Device firms are doing a much better job of proactively going out and trying to collect [adverse event] information – contacting patients, contacting health-care professionals, contacting hospitals," Blacha said. "They're doing more than just one attempt to contact those entities. They're doing two or three attempts to be able to get the information back that they need to understand the device failure."

Therefore, "any increase you see in Medical Device Reports is probably based on industry's effort to collect that adverse event information," he said. "But the firms can't collect every piece of data. MDRs are very much underreported because, again, many device-users don't know how or whom to complain when a failure happens."

Hospitals are indeed dropping the ball when it comes to reporting adverse events, leading to underreporting, consultant and former FDA investigator Denise Dion claimed in a Sept. 23 interview. She is VP of regulatory and quality services for consulting firm EduQuest in Hyattstown, Md.

"The people that are working with the medical devices in hospitals never read the instructions for use. That is where they're getting hung up – not understanding how the device is supposed to work, so they don't really understand when the device is failing," Dion said.

"If hospital workers actually read the instructions for use to know how to properly use the medical device, that would be perfect, but I don't think you're going to get them to do that," she said.

"In reality, the medical device companies should be supplying quick-reference guides for a lot of these medical devices to help the hospital understand that there has been an adverse event," Dion said. "It goes back to the medical device manufacturer. Some of their labeling is very long, and nobody is going to read a 142-page manual."

Dion suggested that firms would be wise to include in the back of instruction manuals a checklist of all information the manufacturer will need to conduct a thorough failure investigation into an adverse event.

"That would be a helpful thing to have from a medical device perspective so users know what information they need to fork over, and what physical items the firm needs to retrieve from the complainant," she said.

Kwame Ulmer, VP of regulatory affairs and quality assurance at Thousand Oaks, Calif.-based Implant Direct, agreed that underreporting occurs and said a lack of public awareness plays a key role – despite FDA's assertion that general awareness surrounding Medical Device Reporting has been heightened.

"Underreporting is happening. Now, I haven't heard of a specific number of adverse events when we can say, 'Yes, everyone is reporting properly,' but there's just a general sense in industry that there is indeed underreporting," Ulmer, an ex FDA official, told *Medtech Insight* on Oct. 3.

Implant Direct, which makes dental implant products such as the *Legacy* system, is a joint venture partially owned by diversified scientific and industrial instrument conglomerate **Danaher Corp.** Before taking his position at Implant Direct in 2015, Ulmer was director of strategic regulatory affairs for Danaher from 2014-2015.

Ulmer began his 12-year FDA career in 2002 as a biomedical engineer and reviewer in the agency's Office of Device Evaluation (ODE). He moved up the ladder to chief of ODE's pacemaker and defibrillator branch, and eventually was named an ODE division director, overseeing anesthesia, general hospital respiratory, infection control and dental devices.

Although FDA's Chang said increased public awareness is helping to drive the high number of Medical Device Reports, Ulmer questions whether it's sufficient.

"Is there *enough* awareness – not just with the device companies, but with patients, clinicians, *et cetera*? And are they educated and fully aware, and do they have a regulations translator so they can say, 'Ah, yes. This is reportable'? So that's why you'll see in the public health community this consistent meme of, 'there's underreporting,'" he said.

> "All I've heard are some really smart people say that there is underreporting. But I haven't seen a thoughtful approach as to, 'These are the reasons why we're underreporting, this is how we could get to proper reporting, and these are the steps it would take,'" Implant Direct's Kwame Ulmer says.

But there are other reasons why events might be underreported.

For example, Ulmer says problems with diagnostic products are not reported nearly enough because "there's not always a crystal-clear connection between a device failure and its reportability just as a diagnostic," unlike a therapeutic device where the linkage between a nonconforming product and an adverse event is likely easier and quicker to spot.

Nevertheless, he concedes that he hasn't "seen any peer-reviewed literature that says there is underreporting – that 'These are the explicit reasons why,' or 'This is the number of adverse events we

## Manufacturers Struggling With MDR Procedures

Despite the extraordinary rise in MDR reports, some companies continue to have trouble developing, maintaining and implementing MDR procedures, which is mandated by 21 CFR, Part 803.17.

"Firms still continue to fail to have MDR procedures, and when they do have procedures many of them don't follow them," consultant Steve Niedelman said.

"One of the worst things you could do is present to an FDA investigator a beautiful MDR procedure, and then go out on the manufacturing floor and determine that nobody even knows that it exists," he said. "You have to be able to demonstrate that you're following your own SOPs."

Companies are required to have MDR procedures that address timely and effective identification, communication and evaluation of events that may be subject to MDR requirements; a standardized review process or procedure for determining when an event meets the criteria for reporting; and timely transmission of MDRs.

should be at,' *et cetera*." Instead, "all I've heard are some really smart people say that there is underreporting. But I haven't seen a thoughtful approach as to, 'These are the reasons why we're underreporting, this is how we could get to proper reporting, and these are the steps it would take.'"

Larry Kopyta, head of consulting firm KRC Group LLC, suspects that practices of some smaller firms contribute to the problem of underreporting.

"Some companies are perhaps start-ups or less-mature companies, or are companies that are willing to take the risk not to report," he said. "They'll tend to say, 'We don't think this is a potential safety hazard that could harm someone or kill someone, therefore we're not going to report it. We'll justify it, but there's a risk that the agency will disagree.' So I think that's part of the issue."

Until recently, Kopyta was VP of QA/RA for Omnyx LLC, a Pittsburgh-based manufacturer that this year was purchased by – and absorbed into – **GE Healthcare**.

### ADVERSE EVENTS: OVERREPORTED?

There are manufacturers, however, that choose to be extra cautious and submit adverse events to the agency even if they aren't technically reportable, Kopyta said in an Oct. 3 interview.

"There may be some degree of overreporting for companies that don't want to take a chance. They don't want to take the risk that they might not report something that they should have," he said.

But that doesn't mean overreporting is necessarily a bad thing.

"FDA would want to know about any potential issue. So I think in the agency's mind, overreporting is preferable to a firm not alerting them to potential safety or health issues," Kopyta said.

Further, "companies that are more aware and want to do the right thing are probably going to overreport," he said. "They're going to report something that maybe they hadn't in the past because FDA has become stricter on requiring firms to report incidents that perhaps they may not have reported previously. Also, firms are more averse to their risk of getting a warning letter from FDA."

Yet overreporting is a double-edged sword because firms that overreport might catch the attention of FDA, which might then choose to inspect if agency officials believe there could be significant troubles with particular products.

And a manufacturer's competitors "might be underreporting, which could be a competitive disadvantage," Kopyta said. "If a manufacturer is reporting pretty much everything or anything they think is even a potential adverse event and their competitor is not, their competitor might say, 'Look, that other firm has a ton of issues with their product. We don't have issues with our version of the same product.'"

### WHEN REPORTING AN MDR, '30 DAYS IS 30 DAYS'

Under the MDR regulation, manufacturers must submit reports to FDA within 30 days when they receive information suggesting that a device may have contributed to a death or serious injury, or that it malfunctioned in a manner likely to cause death or serious injury if the malfunction were to recur.

For events that require "remedial action to prevent an unreasonable risk of substantial harm to the public health," companies are required to file a report to FDA within five business days.

But even though an adverse event might not be life-threatening or cause a permanent injury, FDA still wants to know about it, including device failures, malfunctions, improper or inadequate device designs, manufacturing troubles, labeling problems and use errors.

"The timeliness of MDR reporting is simple. Thirty days is 30 days. Not 31, not 32. Thirty," industry insider Steve Niedelman said. "I can't tell you how many firms out there think that this doesn't apply to them. They'll report at 35 days or 36 days, or even after a year. No. It's 30 days from the date that you became aware that an event is reportable."

Niedelman is a familiar face in the medical device arena, working at FDA for 34 years in both its Office of Regulatory Affairs and Center for Devices and Radiological Health. He is currently lead quality systems and compliance consultant at the law firm King & Spalding.

Problems can arise when company employees do not know that there is only a 30-day window to report MDRs.

"It's important that everybody at the firm is aware of the FDA timeframe – not just the MDR group, not just the complaint handling group, but every employee," Niedelman said.

"If one of your sales reps is at a party and learns that one of your devices might have been implicated in an ad-

verse event, that rep needs to know that he or she has a responsibility to report that," he said.

"And if you're a multinational company, that responsibility extends to your multinational sites. So if somebody in Belgium becomes aware of a problem but your device is made in the U.S., then they have a responsibility to make you aware of that."

## WARNING LETTER DATA: MDRS, COMPLAINT HANDLING DOG MANUFACTURERS

Meanwhile, an analysis of preliminary 2016 quality-related warning letter data appears to bear out that device firms are indeed plagued by problems with Medical Device Reporting and complaint handling.

*Medtech Insight* counts as a quality citation any alleged violation of FDA's Quality System Regulation (QSR), MDR regulation (21 CFR, Part 803) or Corrections and Removals regulation (21 CFR, Part 806).

Forty-three quality-related warning letters have been released by FDA on its website between Jan. 1, 2016, and Oct. 12, 2016. Thirty of those letters – or 70% – included violations of MDR and/or complaint handling requirements. The information was pulled from *Medtech Insight*'s new FDA Warning Letters Data Tracker. (Overall, 48 device-related letters have been released this year, including five with pre-market cites only.)

Taken separately, complaint handling is the third most-oft violated QSR subsection so far in 2016, with 45% of quality-related letters including that observation. MDR comes in fifth place, violations of which are found in 42% of warning letters. (See Figure 2.)

*Medtech Insight*'s tabulation isn't intended to replace official FDA calendar year numbers; rather, the publication aims to provide a general looksee at warning letter trends throughout in the year. It can take the agency significantly more time – roughly three to six months after a given calendar year – to crunch its own data.

*Medtech Insight*'s data will never wholly mirror FDA's count. That's because there can be a delay of weeks or months (and, in rare cases, years) between when the agency writes a letter and when it's finally posted online.

Therefore, some warning letters written before the end of last year weren't cleared and posted online by FDA by Dec. 31, 2015, and were instead released in 2016. Seven warning letters fit that bill this year, and were therefore included in *Medtech Insight*'s count of 2016 missives.

## COMPLAINT HANDLING: WHAT FDA WANTS TO SEE

When it comes to complaint handling activities, FDA foremost wants to see an expeditious approach to handling complaints based on risk, former FDAer Ulmer says.

"The agency would be interested in how you tier complaints and categorize them based on risk and making sure you have robust internal policies and procedures to handle them correctly," the Implant Direct RA/QA VP said.

To help manufacturers avoid running afoul of FDA requirements, the agency wants to make sure firms have well-thought-out complaint handling procedures with corresponding work instructions, Ulmer said.

"Start with a procedure that maps to the relevant regulations, and to the best of your ability make sure you clearly understand at a fairly high level, but operationally, how complaints are handled and screened for things like potential CAPAs [corrective and preventive actions] or MDR adverse event reporting, or trending of data for discussion during management review," he said. "Firms should understand at a conceptual and at an operational level how that data is collected and used, and how it touches other parts of the quality system.

"At the end of the day, you should have your managers understanding – particularly your quality leaders and your regulatory leaders – how the pieces work together, and also the actual people who are executing complaint handling activities. I know that at a start-up that might be the same person, but try to have a fairly good grasp on how the pieces fit together."

Having a team that specifically works on handling complaints is of the utmost importance, Ulmer said.

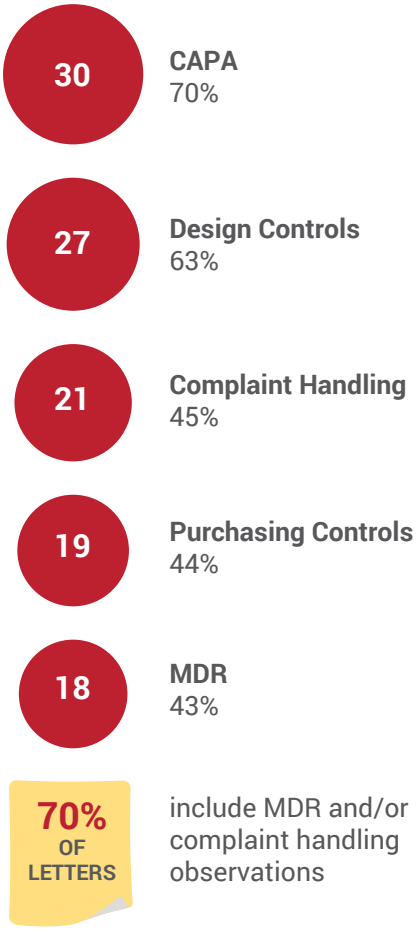
"In my experience, most medium-to-large companies have people dedicated to complaint handling," he said. "That's what those people should do on a regular basis. They must be familiar with FDA regulations, know how to screen for MDRs, and know how complaint handling data should be trended."

Ulmer suggests that a quality expert is typically best-suited to lead the complaint handling team, but ultimately it depends on the size of the manufacturer.

FIGURE 2

### Top 5 Quality System Citations, 2016

The numbers and percentages of 43 quality-related warning letters that included the five most common citations between Jan. 1, 2016, and Oct. 11, 2016.




*Source: FDA*

## New! Warning Letters Tracker

Want to monitor how your peers are faring when it comes to FDA warning letter observations? Then explore *Medtech Insight*'s new US FDA Warning Letters Data Tracker, updated weekly to include missives posted online by the agency.

The tracker not only includes information about device manufacturers that were recently sent warning letters, but also the particular violations that each company must address, from corrective and preventive action (CAPA), to complaint handling, to design control – and beyond.

Users can sort and search for specific information, such as company names, dates warning letters were written, devices manufactured by the offending firms and observations noted in each letter, and more.

And, as always, you can check out our weekly Warning Letter Roundup & Recap.

"If you don't have good alignment, your resources may be constrained in the complaint handling area, and/or your procedures or work instructions might not be crystal clear," Ulmer says.

And there is wiggle room depending on how big the firm is.

A firm "might have a regulatory person who handles complaint handling, but generally speaking I would say a quality leader should be in charge," he said. "At a smaller start-up that might be the same person – the quality and regulatory person maybe have both responsibilities.

"Complaint handling, per se, is typically handled under the quality function, but that's not a hard-and-fast-rule, and at larger companies there might be multiple complaint handling teams," Ulmer continued. "Obviously it's a function of the size of the organization and making sure you scale it appropriately."

Ulmer recommended that manufacturers pull together its cross-functional complaint handling team when needed.

"It could be weekly; it could be monthly," he said. Now, that's dependent on the adverse events that are stimulating the need to meet, but I would say the team should probably get together at least monthly to conduct some sort of cross-functional assessments."

### RESOURCES: AN ABSOLUTE MUST

Ensuring adequate complaint handling resources is an absolute must, consultant Kopyta says.

"One of the areas that a lot of companies struggle with is applying resources to do the complaint investigations, to basically identify the root cause of the problem," he said. "Generally, in most cases – or a lot of cases – you're pulling from your engineering team or your manufacturing team to conduct investigations of an issue that's been reported to determine if corrective action is necessary. The investigation may actually determine that it's reportable. Initially, it may not be obvious, but once they get into the investigation and find out the issue, it may turn out that it should be reported to FDA.

"That's one of the biggest struggles: getting the right resources from the investigation side applied to the complaint process."

It's often difficult, however, to bend top management's ear when it comes to providing adequate resources.

"One of the things that can raise the awareness of senior management is communicating what the potential risks are across the board for failing to properly handle complaints," Kopyta said. "But the other is providing metrics. So provide routine reporting on complaint handling in terms of what the turnaround time is to get complaints, how long complaints are open, how long it takes for them to close, and then providing management with some trends.

"Another way you can gain the attention of upper management is to say, 'This is direct information we got from a customer,'" he added. "So then it becomes a customer satisfaction piece, and now management will look at it from a business perspective – 'These are things that, if we could address them, would make our product better and provide higher levels of customer satisfaction."

Implant Direct's Ulmer says it's crucial for a firm to have all its ducks in a row so complaints are handled efficiently and adequate resources are appropriated.

"If you don't have good alignment, your resources may be constrained in the complaint handling area, and/or your procedures or work instructions might not be crystal clear, or as clear as they could be," he said.

"When I say 'alignment,' I mean that everyone – particularly senior leadership – clearly understands the importance of complaint handling and adverse event reporting," Ulmer said. "And then there's this quintessential question of, 'Are you adequately resourced to execute against FDA's regulatory requirements? Do you have a robust quality system at a very high level?' And those are key questions that, as managers, you have to decide on a regular basis to manage your resources appropriately.

"So 'alignment' means that a firm has adequate resources and specifies the people who have responsibility for executing complaint handling; that you can point to a particular person or a group of persons, and there's accountability and performance plans, or developmental plans, or both."

*Published online 10/11/16*

Medtech Insight
Pharma intelligence | informa

# advertise with us and take your business to the next level.

# you won't believe the transformation

Contact our sales executive to learn about our various advertising opportunities available to you!

**Christopher Keeling**
+44 203 377 3183
christopher.keeling@informa.com
Customer Care: +1 888-670-8900 (USA)

**medtech.pharmamedtechbi.com**

Over 100 event types

Over 100 catalyst types

Over 5,000 products

Meddevicetracker
Pharma intelligence | informa


# Double the Power

Meddevicetracker with Medtech Insight reports is a new interactive real-time source of in-depth medical technology market intelligence

## Meddevicetracker brings you closer to the medtech market, helping you to:

- Identify upcoming device regulatory events/filings
- Search for medtech clinical trial starts and data
- Find historical and forecasted procedure volumes data
- Monitor drug delivery technologies and identify partnership opportunities
- Quantify the market size for devices or diseases
- Discover forecasted market share of devices by type
- Understand the device competitive landscape and identify unmet clinical needs

Request your free demo today:
please visit - **www.meddevicetracker.com**