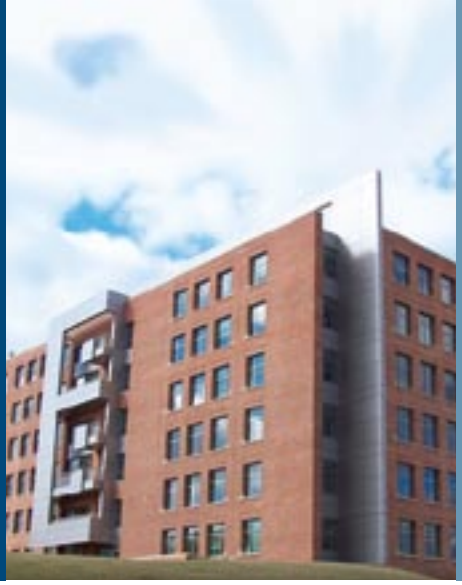
Science • Technology • Quality • Regulatory • Community

PDA Letter

Volume XLVI • Issue #10

www.pda.org/pdaletter



November/December 2010

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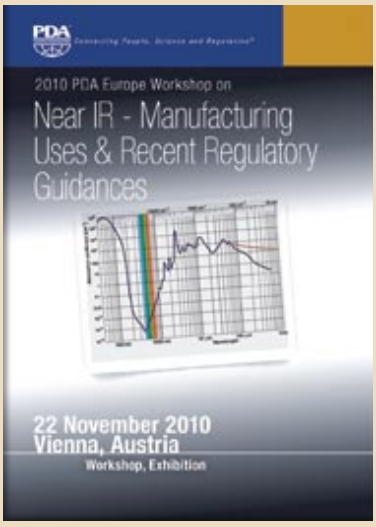


PDA®
Parenteral Drug Association
Connecting People, Science and Regulation®

AstraZeneca CEO Energizes 2010 PDA/FDA Conference Audience

Walter Morris, PDA

The *2010 PDA/FDA Joint Regulatory Conference* opened with AstraZeneca CEO **David Brennan** energizing the audience with his presentation, "Working Together to Meet the Challenges of the Future." Brennan knew his audience well, as the PDA/FDA conference has been a shining example of how industry and the U.S. FDA have come together over the last two decades to discuss and deliberate quality control and manufacturing regulations for the drug industry.

For industry to keep contributing to public health and to succeed in tough economic times, a clear path forward needs to be communicated by regulatory authorities. "We need to have a dialogue between industry and the agencies," said Brennan. "I'm spending $5 bil. a year of my shareholders' money on research and development; [I need to be] sure what the rules are going to be to get through the approval process and the regulatory process for manufacturing."

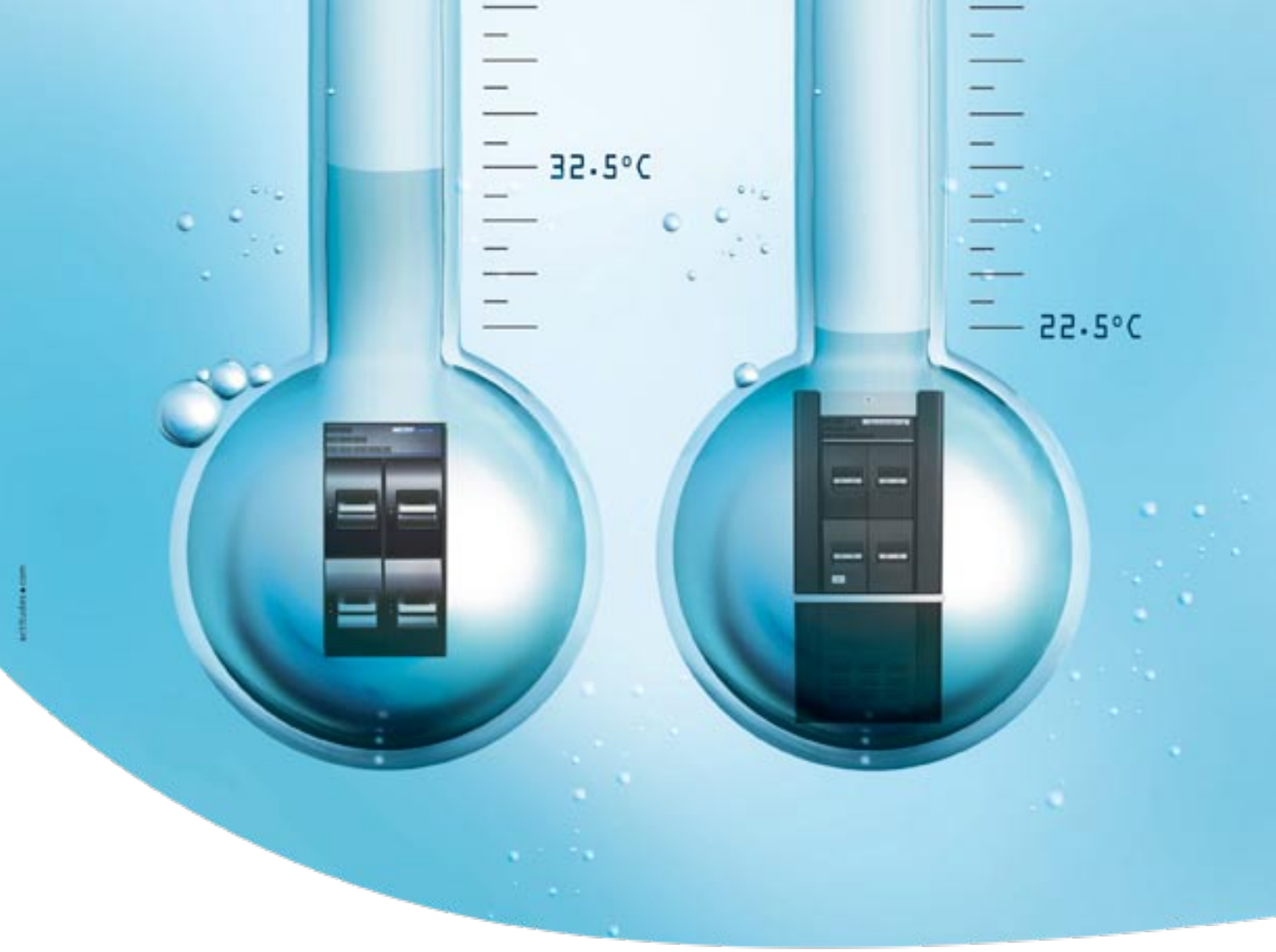
He predicted that emerging markets will play a more prominent role in the manufacturing sector for drug ingredients and product over the next ten years, but they will have to demonstrate the ability to meet advanced quality standards. "The challenge is, as a company, can we be clear about what our standard is and can we audit it in such a way that we have confidence that the standard is being met?"

Regarding the perception of substandard quality in emerging markets, Brennan said that the quality problems are no different than those found in the United States. In the end, he said, "This is all about management and about standards."

Brennan's frank remarks, easy style and, at times, amusing presentation ignited the audience, setting the stage for detailed discussion over the following two and a half days. Conference organizers did a fantastic job of organizing the meeting into three clear tracks, "Foundations," "Quality Today," and "Merging and Emerging," interspersed with plenary sessions on related topics.

In this issue, the *PDA Letter* brings you four reports from the event:

- U.S. FDA Poised to Join PIC/S (p. 14)
- Goals Met in International Pilot Program for Joint API Inspections (p. 17)
- PAT an "Enabler" of ICH Pharma Quality Vision (p. 20)
- Managing the Supply Chain – One Supplier at a Time (p. 21).



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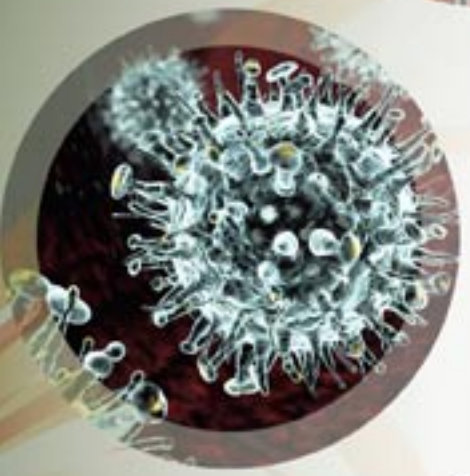

PDA/FDA Adventitious Viruses in Biologics:

Detection and Mitigation Strategies Workshop

December 1-3, 2010

Marriott Bethesda North Hotel
Bethesda, Maryland

This workshop has been developed to address current viral contamination events and is intended to **encourage modernization in industry with respect to viral detection and control measures**. Gaps in our current ability to detect, control and clear adventitious viruses; the availability of emerging technologies in areas where gaps exist; and CGMP expectations for adventitious virus detection and control, as well as consequences for noncompliance will be discussed.

This three day workshop will provide focus on:

- ☑ Current industry standards
- ☑ Review of viral contamination in biologics and case studies
- ☑ Gaps in overall testing strategies and emerging technologies for novel virus detection
- ☑ Best practices to mitigate virus contamination and evaluation of the risk to patients
- ☑ Barrier and inactivation strategies for control of raw materials
- ☑ Application of concepts presented in ICH Q7 and Q10 as they relate to the prevention and detection of viral contamination in production processes and approaches

This workshop is fast approaching, register today to secure your seat!

www.pda.org/adventitiousvirusworkshop

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Cover art:
The only place you'll be able to interact with more FDA officials than the* PDA/FDA Joint Regulatory Conference *is at the FDA's headquarters in White Oak, Md.

Coming Next Issue:
Advances in Cold Chain Technology

Editor's Message

New Openings on *PDA Letter* Editorial Committee and Authors Wanted

PDA is looking for new volunteers to serve a two-year term on the *PDA Letter* Editorial Committee (PLEC). Three members, whose input we've valued for a number of years, are cycling off this year to make room for new volunteers. **Kristina Nordhoff**, Genentech, and **Michael Awe**, APP Pharmaceuticals, both joined the committee when it was in its infancy. The two have contributed valuable reviews, recommended excellent topics, helped us find authors, and have contributed articles of their own. We always looked forward to their contributions. **Anita Whiteford** first became involved with the PLEC after contributing an article on training a few years ago. She helped the committee with reviews and article recommendations, all while completing a PhD and changing careers as a corporate trainer to an instructor at the Pennsylvania College of Technology.

We are now looking for volunteers to fill their large shoes. The annual commitment for PLEC includes participating in bimonthly teleconferences, reviewing 6-10 member article submissions per year, recommending topics for the editorial calendar, and helping solicit authors or contributing an article. If you want to help steer the editorial direction of the *PDA Letter*, email **Emily Hough**, hough@pda.org, with the subject line "PLEC Volunteer."

We are also looking for authors for 2011. See the editorial calendar and submission deadlines on page 6. A good way to get published in the *PDA Letter* is to write about a meeting you have attended, contribute a regulatory brief, or discuss a hot scientific or technology advance. If you've been to a recent meeting or have something else you would like to contribute, contact me at morris@pda.org or call 301-656-5900, ext. 148. We are always looking for contributions from the membership!

In this issue, enjoy several reports from the *2010 PDA/FDA Joint Regulatory Conference*. This meeting never fails to provide interesting, relevant and must-read fodder for the *PDA Letter*. Not only is it one of PDA's best-attended events each year, it is one of the best sources of information for the *PDA Letter.* Of course, nothing beats attending it in person. So if you like the articles you read about the event each year but haven't yet attended, make 2011 your first time!

PDA Letter

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PDA/FDA Conference Deemed an Overwhelming Success

Chair Maik Jornitz credits the PDA/FDA Conference for bringing regulators and industry members close together

The PDA/FDA Joint Regulatory Conference recently held in Washington, D.C. has been an overwhelming success with over 800 regulators and scientists attending and discussing current and upcoming regulatory trends and quality requirements.

"We are very pleased to be the facilitator for the industry, and the large attendance shows that the industry appreciates PDA's efforts," stated **Richard Johnson**, PDA President. "The PDA/FDA Joint Regulatory Conference is a network and discussion platform very much required by industry and regulators, and we have seen both working close together to achieve the product quality needs for our joint client—the patient."

The *2010 PDA/FDA Joint Regulatory Conference* has been the 19th with a history of exceptional content and topics. "It is always a pleasure to be part of the PDA/FDA Joint Regulatory Conference, as it represents the best venue for networking, learning and discussions with peers and regulators," said **Maik Jornitz**, PDA's Board of Directors Chair. "No other conference lets industry and regulators partner this close together. Learning, being the prime objective, has always been achieved without a doubt."

Next year's *2011 PDA/FDA Joint Regulatory Conference* will be held September 19-23, 2011 in Washington, D.C.

Technical Report No. 32 Auditor Requalifications on Hold

PDA will be revising Technical Report No. 32, *Auditing of Suppliers Providing Computer Products and Services for Regulated Pharmaceutical Operations*. Because of the revision, PDA will not issue any auditor requalifications after December 31, 2010 until the revision has been completed. Anyone wishing to assist with the revision of TR 32 is requested to contact **Rich Levy**, Senior Vice President for Scientific and Regulatory Affairs at levy@pda.org. Anyone with questions about auditor requalifications should contact **Bob Dana**, Vice President, TRI and Regulatory Affairs at dana@pda.org.

Share Your Opinions in Customer Satisfaction Survey

Take part in the 2010 PDA Membership Survey and help shape your Association. Go to **www.pda.org/membership** by December 31 to participate.

Authors Wanted!

The *PDA Letter* is looking for authors for the following topics:

Issue	Topic	Articles Due
March	1) Knowledge Management 2) Combating Viral/Mycoplasma Contamination	January 1
April	Process Validation – The New FDA Guidance	February 1
May	Internal Investigations – Finding Out What Went Wrong and What to do about It	May 1
June	Top 5 Supply Chain Solutions	March 1
July/August	1) Compliance 2)Sterile Products/Aseptic Processing	June 1
September	1) Pharmaceutical Microbiology 2) I-Source: Personalized Medicine and the Future of Drug Manufacturing	July 1
October	Cross-Over Moves: Insights from Recent Industry Recruits from FDA and FDA Recruits from Industry	August 1
November/ December	Reports from the PDA/FDA Joint Regulatory Conference	October 1

Send articles to Emily Hough, hough@pda.org.

Goodbye PDA

Hailey (Hee Young) Park, PDA

It is hard to believe that my year at PDA is coming to an end. This year has been one of the most fruitful experiences in my professional life. PDA has provided me with various opportunities to improve my knowledge and network with active professionals. My internship has followed PDA's activities over the year, and I believe that was one of busiest in the Association's history, as well as one of the most successful.

PDA members and experts over the world gathered at numerous conferences to discuss current issues and challenges in the industry. Attending these meetings is the best opportunity to learn pharmaceutical regulatory affairs in the United States and in Europe. I was really excited to participate in them and tried to absorb everything that I heard. It was rare for me to attend overseas conferences, except on inspections or official meetings with other regulatory authorities, when I was in Korea. Every time I attended a conference on a subject I was unfamiliar with, I felt like I had just read a new book filled with valuable information. PDA's conferences are like living textbooks to me.

When I needed more information about what I was interested in after a conference, I was able to study the topic in more depth through a specific and focused course at PDA's Training and Research Institute (TRI). It was helpful to hear case studies from teachers and classmates. The PDA TRI classes helped me to arrange information in such a way that I was able to apply regulations and science theories into practical applications. KFDA provides their inspectors with GMPs training program, but it is rare that these courses contain practical activities under the GMP environment. I have felt that theoretical understanding is not enough to improve one's knowledge. I was surprised that PDA TRI has premises and equipment which are of pharmaceutical grade. It was a perfect place to experience manufacturing processes and quality tests.

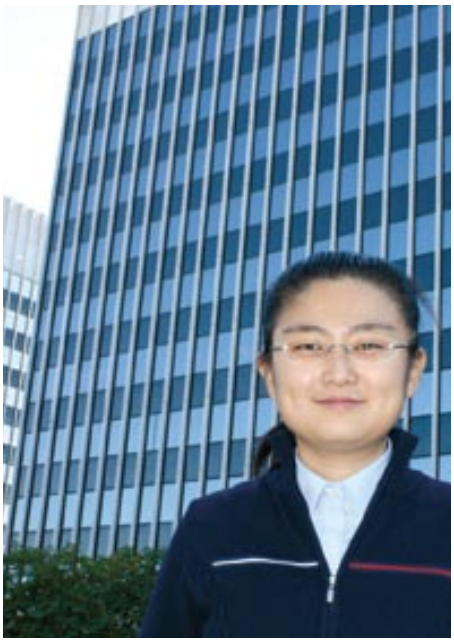
I would say that without a doubt that the most valuable things I've obtained at PDA are my friends. First of all, I want to congratulate my wonderful PDA colleagues for doing such a great job. The small, tight-knit staff accomplishes so much!

The great conferences and training courses which I enjoyed this year have been developed by PDA's volunteer planning committees and trainers, who have used their knowledgeable experience to create invaluable content.

I have met outstanding experienced teachers. A Korean saying is, *parents granted me my body and teachers gave a birth of my spirit*. I have learned a lot from the teachers that I met here. They changed how I think about pharmaceutical matters. I cannot measure how much I have learned or how much my perspective has changed from people who have been my willingly teachers.

I made good, lasting friendships over the course of the year. I cannot forget the supply chain meeting in Bethesda last April. In the workshop, groups discussed and developed solutions to particular challenges in the pharmaceutical supply chain. I was very impressed that all of attendees participated actively and shared their experiences with others. The outcomes of the conference will be used by a regulatory agency to generate new policy. I think that it was a great example of development procedures of a particular policy from a grassroots start. I ran into some of those attendees several times at subsequent meetings, and they have kept in touch with me. I feel that I am now a member of the global PDA community. I am happy to make new friends who have the same goals and challenges as I do. I am sure that they will support me in my endeavors after I return to Korea.

There is very famous Korean dish, Bibimbap [bee-beam-bob], which means mixed rice. Bibimbap is white sticky-rice bowl topped with various sautéed and seasoned vegetables and usually a sunny side egg or minced beef is added. It is an ordinary dish which can be found everywhere in Korea. But, Korean restaurants are rare in downtown Bethesda. When I get tired of sandwiches or salads, I miss it. But my homesickness does not last long, because I found a version of it here, courtesy of one of my friends. While it is not the same, the Burrito bowl at Chipotle, makes me not miss Bibimbap as much anymore.



PDA will miss Hailey when she returns to Korea

It was not easy to live by myself here away from family, friends and language. However, now I feel sad to leave Bethesda. I was really happy to be here, and I appreciate everything that everyone has done for me.

I hope that you stay well always.

Goodbye.

Science & Technology Snapshot

Technology *Trend*

GSK Takes the Green Revolution to the Plant…Roof

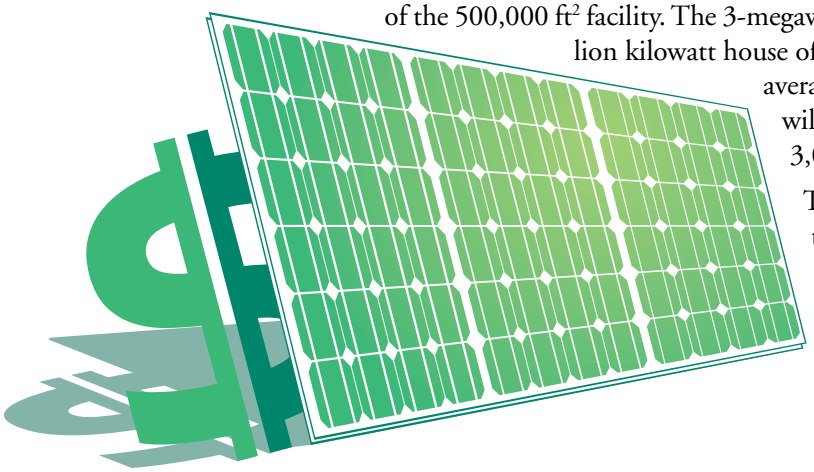
Walter Morris, PDA

It is not likely that GlaxoSmithKline is run by a group of tree-hugging hippies, yet one might be led to think so upon reviewing the company's extensive sustainability programs. The company sketched a sustainability plan in 2001 that covers manifold technologies impacting every aspect of its business, including reducing the impact of its operations and lowering emissions.

In 2009, the company unveiled a CEO Sustainability Award, which was bestowed upon 11 project teams representing operations worldwide. In addition, a special "Vanguard" award was given to an R&D team for innovating a continuous manufacturing project for active pharmaceutical ingredients. The six-year project, according to the GSK website, resulted in a more efficient process with less waste, lower emissions of volatile organic compounds, and reduced costs.

Its efforts to date earned the firm recognition in U.S.-based Newsweek's "2010 Green Ranking" as the fifth greenest company in the world. Johnson & Johnson and Novartis also appear in the global top 10.

On October 28, GSK's Northeast Regional Distribution Center in York, Pa., raised the sustainability bar, literally, from the plant floor to the roof, when it began installation of North America's largest rooftop solar array. The goal is to cover an area of the roof with approximately 11,000 solar panels, equaling the size of seven American football fields, according to the company's press release.



The firm estimates that the array will produce enough electricity to meet the annual energy needs of the 500,000 ft^2 facility. The 3-megawatt system is expected to generate 3.4 million kilowatt house of electricity per year, enough to power 400 average sized homes, the press release says. This will reduce the facility's emission of CO_2 by 3,000 tons annually, the firm estimates.

The 6 ft. long, 60 lbs. panels will be hoisted to the roof by nearly 100 workers over the next two months. American Capital Energy is overseeing the project and plans to install 500 panels per day.

Upon completion of the project later this year, the facility will be GSK's

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Technical Report *Watch*

In Board Review: Following technical editing, TRs are reviewed by PDA's advisory boards (SAB, BioAB). If/when approved, the PDA Board of Directors (BoD) makes the final decision to publish or not to publish the document as an official PDA TR. Balloting at each level can take several weeks or longer, depending on the questions posed or revisions required.

- *Technical Report No. 3: Validation of Dry Heat Processes Used for Sterilization and Depyrogenation* **(BoD)**
- *Technical Report No. 13: Fundamentals of Environmental Monitoring* **(SAB)**
- *Technical Report No. 22: Process Simulation Testing for Aseptically Filled Products* **(SAB)**
- *Guidance for Good Distribution Practices (GDPs) for Pharmaceutical Supply Chain* **(SAB)**
- *Steam in Place* **(SAB)**

In Publication: TR is approved and ready for publication.

- *Technical Report No. 51: Biological Indicators for Gas and Vapor-Phase Decontamination Processes: Specification, Manufacture, Control and Use*

Task Force *Corner*

PDA has formed a Task Force of experts to evaluate the available information and data in scientific literature regarding contamination of drug products with 2,4,6-tribromoanisole (TBA) through contact with wooden pallets threated with TBP (2,4,6-tribromophenol).

A well-known problem for food and beverage manufacturers and distributors, it has only recently come to light in the pharmaceutical industry through recent, high-profile drug recalls by three different manufacturers.

Currently there is no guidance on mitigation of TBA build-up and taint, standardized methodology, nor established thresholds of acceptable TBA levels based on toxicity data.

The new PDA Task Force will examine toxicology and clinical safety information, contributed by task force members. The result will be either a PDA Technical Bulletin or Technical Report that addresses the following:

1. Industry benchmarking
2. Analytical method(s) and standard TBA testing
3. A threshold of acceptable TBA level
4. Controls to mitigate TBA buildup and taint

Anil Sawant, Johnson and Johnson, is the Task Force Chair. The following companies are also represented: Genentech, Pfizer, GlaxoSmithKline, Merck, West Pharma, Rexam Pharma, Patheon, Depomed, Perrigo, and SP Corp. The Consumer Healthcare Products Association is also represented.

Journal *Preview*

Editorial

Anurag Rathore, "Quality by Design (QbD) Implementation for Biopharmaceutical Products"

Research

Andrea Buchacher, et al., "Elevated Endotoxin Levels in Human Intravenous Immunoglobulin Concentrates Caused by (1→3)-ß-D-Glucans"

Akash Jain, et al., "Importance of Early Characterization of Physicochemical Properties in Developing High-Dose Intravenous Infusion Regimens for Poorly Water-Soluble Compounds"

Dennis Jenke , "Application of Quality by Design (QbD) Principles to Extractables/Leachables Assessment. Establishing a Design Space for Terminally Sterilized Aqueous Drug Products Stored in a Plastic Packaging System"

Pradeep Kumar and Meenakshi Bhatia, "Functionalization of Chitosan/Methylcellulose Interpenetrating Polymer Network Microspheres for Gastroretentive Application Using Central Composite Design"

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Journal *POV*

PDA Cell Substrate Workshop Proceedings

Kathryn King, PhD, U.S. FDA and Michael Wiebe, PhD, Quantum Consulting on behalf of the Cell Substrate Task Force

The 2009 PDA Cell Substrate Workshop highlighted three areas in which technological advances have occurred that have the potential to affect biopharmaceutical product quality and safety. The focus areas discussed at the workshop included new cell lines and cell line engineering, raw materials, and virus testing.

The workshop arose from the activities of the PDA Cell Substrate Task Force, which was established to assess recent approaches to scientific and regulatory issues that have arisen due to technological advances subsequent to issuance of previous regulatory guidelines. The importance of the venture is evidenced by ongoing revisions to chapters of PharmEuropa regarding cell substrates, as well as the World Health Organization TRS 878 on cell substrates. The PDA Cell Substrate Task Force currently consists of 25 members representing industry, regulatory authorities and consultants.

One of the first projects of the Cell Substrate Task Force was to survey the membership to define where they thought scientific and technical advances had occurred. While a number of areas were proposed, the three areas that drew the greatest response were selected for discussion at the workshop, namely: new cell lines/cell line engineering, raw materials, and virus testing. The task force considered it important to use real-world case studies as a basis to examine what approaches have been taken to address biosafety issues. In considering the best mechanism for evaluating the current state of affairs, it was decided to hold a workshop with the aim of generating open discussion with the broadest feedback possible, which would be captured in a proceedings document.

The workshop opened with a historical overview by **John Petricciani**, MD, Regulatory Affairs, John Wayne Cancer Institute, on the use of cell substrates for biologics production. The session on new cell lines commenced with talks on the use of, and safety considerations involved with, the establishment of mammalian cell lines using lentiviral vector gene transfer technology. These talks were followed by presentations addressing the use of human, insect and avian cell lines as substrates for the production of recombinant therapeutic proteins. Finally, a US regulator addressed considerations for safety testing of new cell lines.

The raw materials portion of the workshop began with talks on treatment of raw materials to mitigate risk of contamination, including a presentation on UV-C irradiation and high-temperature short-time media treatment. This session then moved on to explore experiences, in the form of case studies, that representatives of industry and consultants have had with

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Technology Trend, continued from page 8

first that is totally powered by solar energy. Four other GSK facilities—two others in Pennsylvania, one in Belgium and one in Singapore—use solar energy, but not for 100% of their electricity needs. The company plans to install solar panels at its regional distribution center in Fresno, Calif.

The rise of solar technology means the sun could be setting for carbon-based energy sources, at least for select GSK plants.

Journal Preview, continued from page 9

Amol Mungikar, Miron Ludzinski, and Madhav Kamat, "Effect of the Design of the Stoppe r Including Dimension, Type, and Vent Area on Lyophilization Process"

Review

Martha Folmsbee, Courtney Noah and Morven McAlister, "Nutritional Effects on the Growth, Cell Size, and Resistance to Stress of Acholeplasma laidlawii"

James A. Melchore, "Prerequisites for Optimized Performance of the Eisai 1088W Automated Inspection System"

Technology/Application

Richard M. Formato, Raffaele Potami, and Iftekhar Ahmed, "Use of Advanced Modeling Techniques To Optimize Thermal Packaging Designs"

Nora Meneces, Silvino A. Olivera, Carlos D. Saccone and Julio Tessore, "Effect of the Resolution of Measurements in the Behavior of the Shewhart Control Charts for Means"

Journal POV, continued from page 9

the Japanese regulatory authority with regard to raw materials and transmissible spongiform encephalopathies, TSEs. Finally, US regulators commented on their perspectives with regard to raw materials and cell line history.

The session on virus testing included presentations on new technologies for contaminant detection and a number of case studies of positive virus test results. It concluded with a presentation from a European regulator regarding the regulatory expectations for validation and qualification of virus assays.

The workshop was designed with the aim of promoting open, robust and productive discussions, and as such, time for question-and-answer sessions was included at the end of each session on the three main focus areas. The workshop culminated with a synthesis session, which was an open forum for highlighting areas where issues remain unresolved and for identifying areas in which consensus was reached.

This September/October edition of the *PDA Journal of Pharmaceutical Science and Technology* consists of articles based on the presentations from the 2009 Cell Substrate Workshop, as well as a summary of discussions from the synthesis session.

PDA Interest Groups & Leaders

PDA Interest Groups are divided into five sections by subject matter. This aligns them for improved effectiveness, supports increased synergies and provides the opportunity for Interest Group members to play a more active role in Task Forces. The five sections are Quality Systems and Regulatory Affairs, Laboratory and Microbiological Sciences, Pharmaceutical Development, Biotechnological Sciences and Manufacturing Sciences. PDA's goal is for each group to have co-leaders from the three major regions in which the Association is active: Asia, Europe and North America. Any PDA member can join one or more Interest Group by updating their member profile (www.pda.org/volunteer). Please go to www.pda.org/interestgroups for more information.

SECTION TITLE

Biopharmaceutical Sciences	Laboratory and Microbiological Sciences	Manufacturing Sciences	Pharmaceutical Development	Quality Systems and Regulatory Affairs

SECTION LEADER

Frank S. Kohn, PhD *FSK Associates*	David Hussong, PhD *U.S. FDA*	Don E. Elinski *Lachman Consultants*	Sandeep Nema, PhD *Pfizer Inc.*	Robert L. Dana *PDA*

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U.S. FDA Poised to Join PIC/S

Five-Year Application Process Turns Tables on U.S. Inspectorate

Walter Morris and Emily Hough, PDA

At the *2010 PDA/FDA Joint Regulatory Conference*, **Brenda Holman**, Regional Director, U.S. FDA, announced that the Agency's five-year application for membership in the Pharmaceutical Inspection Convention and Pharmaceutical Inspection Co-operation Scheme (PIC/S) was coming to an end; in November, PIC/S will recommend FDA's membership at the International Conference on Harmonisation (ICH) Meeting in Fukuoka, Japan.

Following a number of years in which FDA had participated in PIC/S's seminars and had expressed interest in joining the organization that represents Inspectorates in 37 other countries, the accession process formally began in 2005. Holman's presentation discussed in detail this process. "I will tell you it is painful, but for good reason," she said. See the box below for the seven step process Holman outlined.

Once PIC/S agreed to initiate FDA's entrance into the organization, the Agency was asked to fill out an extensive application form and questionnaire. FDA's Office of International Programs coordinated the completion of these documents among the various Centers and Offices within FDA interested in joining PIC/S, including the centers for drugs and biologics and the offices of regulatory affairs and the commissioner. Each group was required to fill out different areas of the application and questionnaire. The Agency also had to determine how its own quality systems procedures aligned with PIC/S's "recommendations on quality system requirements for pharmaceutical inspectorates" document.

> ***When the PIC/S Delegation visited in August, it spent three days going over the deficient indicators one by one, and FDA received the good news that it would be recommended for accession to PIC/S***

"We did not know how to approach this as an Agency, so each [division] took the application and filled out [their] separate parts and threw it back over the wall to PIC/S," Holman explained. "It took several years to sort through all of them. We answered a lot of questions and communicated extensively with the organization and tried to gain some level of understanding and clarity."

It wasn't until August 2009, when the Agency had reached step 5 of the process, that a PIC/S delegation visited to assess the Agency's inspection procedures and observe three to four inspections. "I'll just tell you that the only thing that made any sense in this two-week assessment was going out on inspections and actually going into a District Office and looking at documentation and procedures and realizing that we did have rules of engagement and we did have some policies in place," noted Holman.

The PIC/S delegation evaluated 89 "indicators" grouped into the following broad categories:

- The legislative and regulatory requirements
- Regulatory directives and policies
- GMP standards
- Inspection resources
- Inspection procedures
- Inspection performance standards
- Enforcement powers and procedures
- Alert and Crisis Systems
- Analytical capability
- Surveillance programs
- Quality Management Systems

The Delegation Report (step 6) was issued in January 2010; FDA was found to be in compliance with 68 indicators, partially in compliance with 16 and out of compliance with the remaining 5. Holman said, "That may not sound bad to you, but it was devastating to us because, of course, we think we do it all right. This was a rude awakening for FDA and for my colleagues who put together the application and the assessment questionnaires." ➤

Accession Procedure

Steps to Accession

- General interest & commitment, eg. attend Seminars
- Written application to Secretary & supporting documents
- PIC/S Committee appoints Rapporteur to evaluate
- Applicant invited to Committee meeting to answer questions of Rapporteur and Committee
- PIC/S delegation undertakes assessment visit (Inspectorate's procedures; observe 3 or 4 inspections)
- Delegation report issued (to applicant & Committee)
- Committee decides on membership

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Over the next few months, FDA and PIC/S went back and forth over the Agency's response to the delegations findings. The two sides struggled to narrow the gap on the 21 indicators that were deemed partially acceptable or not acceptable. After several months, only one had been resolved. At one point, the delegation suggested at a meeting in Geneva that the FDA application might be put up for a vote in May 2011. Holman said that she told the assessment team that that was unacceptable as the FDA had been applying for membership for five years, and after six years, according to PIC/S, you need to start the application process over again. "So 2010 was it."

The assessment team agreed to come back to the United States in August to see if FDA was closer to meeting PIC/S standards. "So we [had until] the end of May, June, July to get ready for this return visit," Holman explained. "The first thing I had to do when I returned home was to go to the Office of International Programs and make sure I hadn't made a fatal mistake by making that statement."

Fortunately for Holman and those working on the application, International Programs supported her and agreed that the Agency could make a better presentation to the delegation the second time around. In those three months, Holman said that FDA worked together as a team, now representing the whole organization as opposed to individual divisions by launching a weekly meeting. "We collaborated and reviewed each other's responses, we talked through it, looked at documents and really worked as an Agency team. We had to update some policy and guidance documents, update some—make sure they appropriately addressed concerns. We even had a dress rehearsal the week before the team arrived just to make sure that we all were in the same place and could answer the questions across the board."

When the PIC/S Delegation visited in August, it spent three days going over the deficient indicators one by one, and FDA received the good news that it would be recommended for accession to PIC/S. "There was a lot of robust discussion," between the groups, Holman said. "There were times we agreed to disagree but eventually [we] got to some level of agreement." At the end of its visit, the PIC/S delegation wrote its report.

FDA will continue to try and meet agreed upon indicators in the areas of Quality Systems and training and certification programs for pharmaceutical investigators. Updates on the progress of these areas will be submitted periodically and as appropriate to the status of the application progress.

There is much value in belonging to PIC/S, Holman maintained. For one, it provides basic GMP guides for drug products and APIs, as well as annexes cov-

ering sterile medicinal products, sampling starting materials and pressurized meters. She also cited the group's "long history of providing seminars and training sessions" and its "circles and expert working groups relative to APIs, computerized systems, human blood tissues, quality risk management and good distribution practices," the aim of which is to develop guidance documents and train inspectors.

Another reason why PIC/S is valuable, Holman said, is because "there is a strong liaison with other organizations," such as the European Department for the Quality of Medicines (EDQM), UNICEF, WHO and the European Commission. She said that at the PIC/S annual meeting these groups are represented and participate with the PIC/S member countries.

During the Q&A following her presentation, an industry representative pointed out "cracks" in PIC/S policy. He noted that PIC/S generates "interpretation documents" based on predicated standards or regulations, like the EU's Annex 1. The interpretation documents, however, do not always meet the spirit, intent or technical detail of the established standards that are being interpreted. He referred specifically to PIC/S document P1032 on Annex 1, stating that there are not only technical differences but also extrapolations from Annex 1 which go beyond the spirit of the annex. He asked Holman what can be done to assure due process in association with PIC/S policy.

Holman replied, "The opportunity for membership in PIC/S represents to the Agency and to the industry involved is that we are sitting at the same table with other agencies that are looking at you and your products and your procedures. This is a major step forward. In this environment, if we don't collaborate and if we don't come to the same or similar standards, then the outcome is not good. So I think we have a commitment at the Agency level to sit at the table and to participate in being a good member in good standing to get the harmonized and reasonable standards that we have out there internationally."

Goals Met in International Pilot Program for Joint API Inspections

Increased transparency of inspections is one benefit

Emily Hough, PDA

Inspectorates from Europe, the United States and Australia are wrapping up a pilot program for joint inspections of API suppliers and are satisfied that all major objectives were met. The pilot program will officially end in December, but the authorities intend to continue the collaboration indefinitely.

The goals for the pilot program include increased transparency and visibility of inspections planning, an increase in the number of "inspections of value" and a decrease in duplicate inspections by the authorities.

Brendan Cuddy, Scientific Administrator, Inspections Sector, European Medicines Agency, outlined the project and its results to attendees of the *2010 PDA/FDA Joint Regulatory Conference*. "From our own view, from the European Medicines Agency perspective, the pilot program has been very positive," he said.

Increased transparency has been one of the most obvious results of the program, according to Cuddy. The creation of a "master list" of API inspection sites was the driver of increased transparency. This master list was set up after each authority communicated which API sites they had inspected during the previous two to three years, what the outcome of the inspections were, and what sites were going to be inspected during the subsequent 12-18 months.

The goals for the pilot program include increased transparency and visibility of inspections planning

"The master list was circulated regularly to all participants…usually on a monthly basis," explained Cuddy. Information in the master list contained the name and address of the site, the APIs that are manufactured at that site, the date of the last inspection, and the date of the next inspection. "As we went on, we added more information to it," said Cuddy, such as information on the outcome of inspections and if joint inspections were planned. They also indicated if inspections reports were shared. To do the latter, the health authorities each signed confidentiality agreements.

Close communication is critical to the maintenance of the master list. "We had a lot of communication via email, but, from time-to-time, it was necessary to have teleconferences to take care of the issues," said Cuddy.

Cuddy said that the master list has increased the transparency and visibility of inspections planning. "We identified

To determine how a site was jointly inspected, rules of engagement were agreed upon by the authorities so there would be a common procedure in place

about 620 sites supplying APIs in the participating regions, about 35% of those are common to at least two parties. I think for the first time, this master list has given us great visibility on the sites providing APIs to the regions in a special kind of way." He said that there has also been an increase in the number of inspections of value through inspection report sharing and targeting and gave an example of how an inspection of a site that supplied Clopidogrel Acino, an active ingredient that was named in a century-old marketing authorization, led to an additional site inspection and subsequently a 2010 recall of products containing the API.

To determine how a site was jointly inspected, rules of engagement were agreed upon by the authorities so there would be a common procedure in place. ICH Q7 provided the GMP framework. How the authorities could engage with each other, how they could organize and carry out joint inspections, and also what would be done in the event of a negative outcome during an inspection was also discussed.

The rules also stated that once a site of common interest was identified, the authorities involved would agree to not duplicate, within a specified period of time, an inspection which had been planned or performed by another authority. If an authority had an interest in inspecting a site where an inspection was already planned, the authority had four options:

- They could either take the results of the inspection
- They could request the inspecting authority to extend the scope of their inspection
- They could collaborate on a joint inspection
- They could organize their own inspection

Regarding option four, all authorities retained the right to inspect on their own, if they felt conditions warranted it; however, they were asked to inform the other authorities that were interested in that site of any negative outcome of that inspection.

In the case of joint inspections, the two authorities had to develop an inspection plan to determine who the lead inspector was prior to entering the site. In addition, the authorities had to agree in advance that they would produce a consensus opinion on the state of compliance at the end of the inspection. However, separate reports could be maintained by each of the authorities. Each involved authority was responsible for any follow up action, but joint follow up action was also permissible.

The program has led to a decrease in duplicative inspections. In 2009, there were still some repetitive inspections but none in 2010, Cuddy reported.

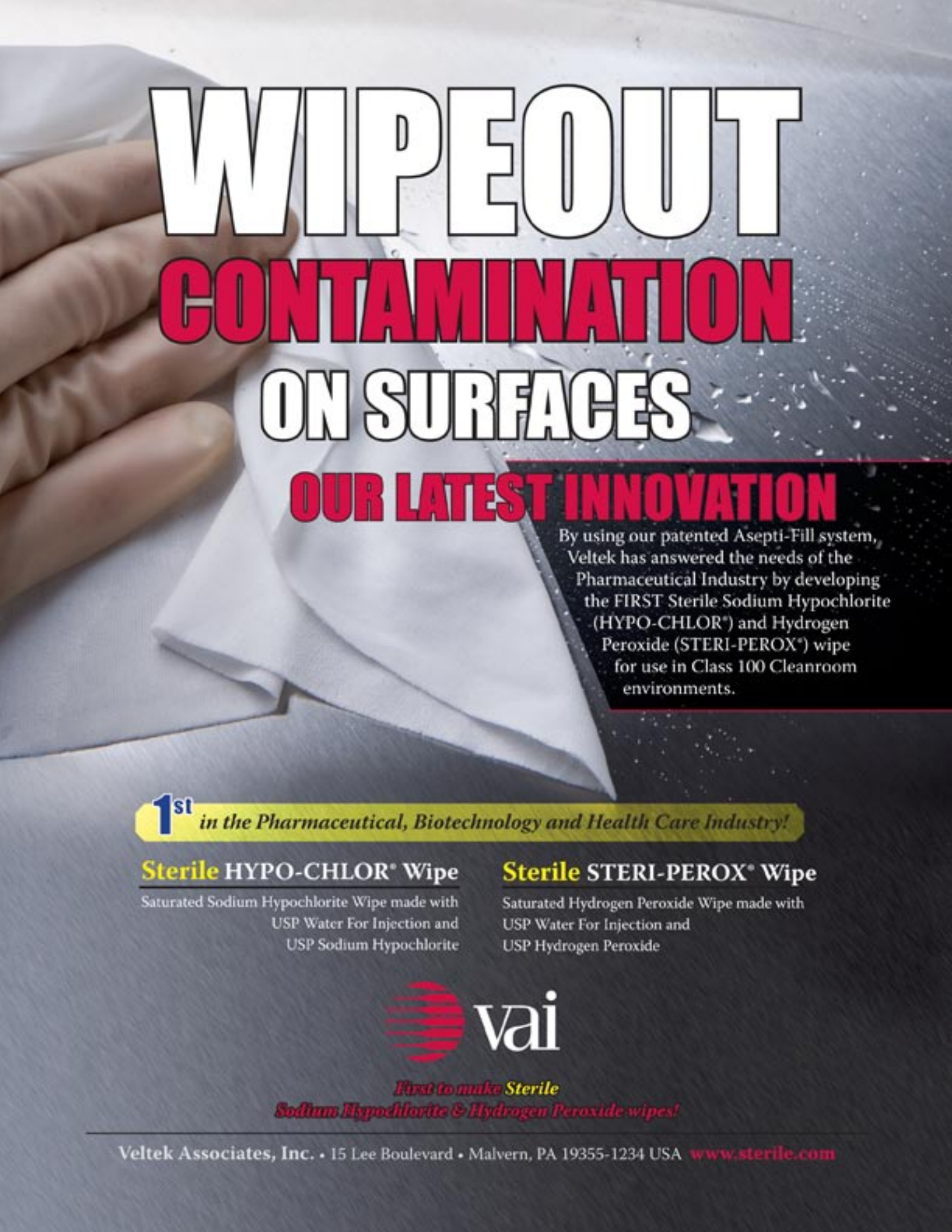
The European Medicines Agency, the U.S. FDA, a handful of competent authorities in Europe Union member states and the Australian Therapeutic Goods Administration participated in the pilot program, which began in 2008. The program derived from talks between the European Commission and the U.S. FDA during the Transatlantic Administration Simplification Workshop in 2007.

Cuddy said that the program has made it easier for more collaborative work to develop between the European Medicines Agency and the FDA in the area of joint inspections of sites for GCP and in the area of GMP inspections of finished product manufacturers.

The final report on the program will be drafted by the end of December 2010 and will be made public. The Australian Agency, TGA, published an interim report on the project on its site in late October.

A parallel pilot program for the joint inspection of finished product manufacturers has been unable to gain momentum, as candidates for inspection are few and far between. In order for the authorities to jointly inspect a finished product manufacturer, the firm must file a marketing authorization in both regions for the same medicinal product. In August, both authorities issued a call for participants in an effort to jumpstart the languishing pilot program.

Cuddy finished his presentation thanking the authorities who were involved within the program. "All the authorities who participated have demonstrated a strong commitment to the program and to international cooperation in general, and I think that we all have a public health incentive to cooperate in this way."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PAT an "Enabler" of ICH Pharmaceutical Quality Vision

FDA's Shah notes that only 45% of new drug manufacturers are using QbD

Walter Morris and Emily Hough, PDA

Process Analytical Technology (PAT) remains an important element in the implementation of the desired state of pharmaceutical quality because of its holistic approach in identifying sources of variability in raw materials, in-process materials and process factors. Regardless, its industry-wide adoption has languished.

Pharmaceutical Scientist **Vibhakar Shah**, U.S. FDA, spoke at the *2010 PDA/FDA Joint Regulatory Conference* about FDA's 2004 PAT guidance and what it offers industry moving towards a new Quality by Design (QbD) paradigm. "The PAT guidance truly is an enabler of the ICH Pharmaceutical Quality Vision. It is, in my mind, a visionary core regulatory document, but it does not tell you how to do it. It provides a complementary and supportive role to both ICH quality guidelines (Q8, Q9 and Q10) and the Agency's draft Process Validation guidance."

Shah discussed the "central thesis of the PAT guidance," which is:

- A holistic approach to identifying sources of variability (in raw materials, inprocess materials and process factors)
- The ability to manage such variability through process understanding and risk-mitigating control strategies, which can improve productivity and product quality throughout the product life-cycle
- Quality cannot be tested into products; it should be built-in (i.e., by design)

Taking a look at prescription and over the counter drugs from 1997 to 2008, Shah pointed out there were a lot of recalls still occurring in the marketplace. He also took a look at drug recalls from October 2009 to July 2010, noting a big spike in Class One recalls this past June.

Shah believes that implementation of PAT and QbD by a majority of drug manufacturers would help bring these numbers down. "We can improve how we conduct product quality," he said. "We need to pay attention to these things and the only way to do it is to focus on quality and product processes."

Citing a McKinsey & Company report, Shah said that roughly 25% of generic makers, 30% of biologic makers and 45% of new drug makers apply QbD.

"Implementing QbD without PAT is like navigating a cruise ship without any controls through icebergs," Shah explained. "It is possible to survive, but it will be purely by miracle."

> ***The PAT guidance truly is an enabler of the ICH Pharmaceutical Quality Vision***

Near the end of his talk, he spoke about how PAT fit with QbD, saying:

- PAT and QbD are two sides of a coin
- PAT forms a crucial component for the foundations of QbD
- It generates Process Understanding
- It provides a practical mechanism for implementing a control strategy
- PAT offers perhaps the best mechanism and a regulatory framework for implementing continuous improvement through product lifecycle
- If QbD is the vision for 21st Century Pharmaceuticals… than the PAT Framework is an enabling, flexible Regulatory Roadmap which will achieve this vision from development through the product's life cycle.

How Does PAT Fit with QbD?

Process Development
- Process monitoring to develop mechanistic understanding
- Statistically design experiments and model building to
- enhance process understanding
- Use of risk analysis in establishment of design space

Manufacturing
- Process monitoring and control to ensure robust and reproducible operations
- Real-time release

Continual Improvement
- Historical data tracking and trending
- Statistical process control for early identification of potential problems

Shah presented Helen Winkle's slide from earlier this year

Managing the Supply Chain – One Supplier at a Time

Emily Hough, PDA

The increasing complexity of the supply chain makes product quality hard to ensure with traditional methods. Counterfeiting and economical motivated adulteration are just two of the activities that render quality systems ineffective.

At the *2010 PDA/FDA Joint Regulatory Conference*, industry and regulatory representatives pointed to communication as the primary tool for fixing and avoiding problems.

Lucy Cabral, Quality Director, External Quality, Genentech, started off by discussing how the supplier-customer dynamic needs to change. "We want to move to partnering with our suppliers to make sure we are getting what we need in the quality end and also are working with them to improve the processes, as well as having common goals. Suppliers and customers need to have common goals in order to fulfill the needs of each other."

Cabral said that to audit a supplier requires a lot of work, and that "we need to somehow organize ourselves as an industry to manage our suppliers so they can fully commit their time to any requirements that we need."

To facilitate this supplier-customer dialogue, PDA has started the Supply Chain Management Interest Group, and Cabral, as its leader, is currently campaigning for experts to join. The goal is to get both sides to understand the other's point-of-view, deliver safe, reliable and quality materials and enhance their relationship with each other. PDA is also looking for a member from Europe to co-lead the IG with Cabral. Cabral also is the head of a task force on supply chain under the Paradigm Change in Manufacturing Operations (PCMO) umbrella.

Steven Wolfgang, Chemist, U.S. FDA, echoed Cabral when he said that in order to build quality into drug products, enhanced communication and synergy within the supply chain is needed. To do this, he said, manufacturers need to employ enhanced analytical tools, harmonize standards with a quality systems focus and common best practices, and finally, raise senior management's awareness of accountability for supply chain issues.

To build prevention into quality systems, Wolfgang said it is important to have good two-way communication with your supply chain. "There is no way your supply chain can function up to your standards unless it has some idea of what your standards are. You really must pay attention to the supply chains and [its] function."

He warned that even with preventative measures in place, there is always going to be a need for detection. "You still have to verify that these systems are working."

Wolfgang said that technologies are available to detect adulteration, it is just a matter of applying them. In order to be able to accept an ingredient from a qualified supplier and not do the full testing when it comes in, you have to be sure it came from that qualified supplier, Wolfgang said. "We've reached the point of no return in terms of globalization of the pharmaceutical supply chain is concerned." He said that even if the supplier is known, specific known adulterants or nonspecific indicators that could be attributable to some quality aberration have to be screened. Depending on the results, further quality testing might be required.

He reminded audience members that the ingredient supplier management system is an important part of the overall knowledge management and quality system, and it's the company's responsibility to assure that the supply chains follow good manufacturing practices and good distribution practices.

…in order to build quality into drug products, enhanced communication and synergy within the supply chain is needed

"I think the big picture here is that we know relatively little about the quality of the ingredients and about the supply chains that provide these ingredients. If we look back at economically motivated adulteration and what went wrong in these instances, we see that blind trust… serve to provide a lesson that we really cannot rely on testing, much less information from suppliers, without first building trust."

Jim Watson, Director of Quality, Bayer Healthcare, focused on the lack of process control and understanding that some vendors seem to have with the ingredients they receive from their suppliers.

Watson noted that company's must pay close attention to raw materials that they receive, because "specification conformance" doesn't always mean that it is equivalent to what was asked for. He said, "Materials which conform to specifications are often

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Quality & Regulatory Snapshot

Hailey's Comments
KFDA's GMP Inspections

Hailey (HeeYoung) Park, PDA

My previous article in the September *PDA Letter* mentioned KFDA's GMP regulations and its related inspections. For this article, I'd like to focus on KFDA's Preapproval Inspections (PAI) rules and outcomes for the last two years.

This discussion is based primarily on a summary report presented by the Pharmaceutical Quality Division (PQD) of KFDA at a GMP inspection workshop held earlier this year. The summary report covered 331 chemical medicines PAIs conducted from January 2008 to December 2009. The report also analyzed 212 domestic and 119 international inspections, which were performed at 135 domestic sites and 90 international sites.

According to the report, every inspection contained an observation. In total, there were 1627 observations made between January 2008 and December 2009. The average number of observations per domestic product application was 5.3 and for domestic manufacturing site was 8.3 compared to foreign applications and manufacturing sites, which averaged 4.1 and 5.5 observations, respectively (see **Table 1**). The 1.2 observation gap between domestic and foreign applications and the 2.8 observation gap between domestic and foreign inspections was attributed to the fact that domestic company manufacturers have several products at one site.

Table 1 Deficiency observations per application and inspection – domestic vs. foreign

	Per product Application	Per Manufacturing Site
Domestic	1130/212= 5.3	1130/135= 8.3
International	497/119= 4.1	497/90= 5.5

PQD classified their findings during an inspection in three groups: critical, major and minor. Issues which impacted the quality of products were classified as critical observations. Applications deemed critical would be returned to the applicant. An observation was deemed major if it had the potential to develop a larger problem and harm quality compliance. Minor observations were defined as findings that included non-systemic, independent noncompliance issues.

Table 2 breaks down the number of PAIs for either a major, minor or critical observation in regard to the total number of observations. Eleven PAIs had critical observations in domestic products, whereas only four PAIs had

Regulatory *Analysis*

Electronic Regulatory Submissions – Investment in Higher Level e-Skills Necessary

Barbara Jentges, PhACT

With electronic submissions (e-submissions) following the internationally standardized Common Technical Document (eCTD) format, the regulatory submission has changed from paper to digital.

The specification for the eCTD is based on "Extensible Markup Language" (XML) technology and lists the criteria that make an e-submission technically valid. It focuses on "the ability to transfer the registration application electronically from industry to a regulatory authority." **(1)** The data and document files that form part of a submission are mostly provided in a portable document format (PDF) and are embedded into the XML backbone of the eCTD.

The change from paper to e-submissions bears some challenges: The implementation of suitable information and communication technology (ICT), the adaption of related business processes, as well as working practices, and particularly, the professional use of ICT play key roles for a successful e-submission project.

As brought to the point in Europe's Digital Competitiveness Report 2010: "Investment in ICT is not sufficient if not accompanied by the reorganization of internal processes. ICT applications that help automatic business processes can be an important source of efficiency gains when accompanied by innovative working practices and the appropriate skills." **(2)**

continued on page 28

Table 2 Number of inspections with observations

Location	Level	Number of PAIs With Observations	Number of Observations
Domestic	Critical*	11 (5.2%)	
	Major	181 (85.4%)	409
	Minor	20 (9.4%)	721
	Subtotal	**212 (100.0%)**	**1130**
International	Critical*	4 (3.4%)	
	Major	57 (47.9%)	101
	Minor	58 (48.7%)	396
	Subtotal	**119 (100.0%)**	497
Total		331	**1627**

* PQD did not reveal the content of critical observations in detail.

critical observations in international products. There were 181 domestic and 58 international PAIs which had more than one major observation without critical observations. There were 212 domestic PAIs and 119 international APIs which had more than one minor observation without critical or major observations.

Approximately 90% of domstic PAIs received quality concerns higher than minor observations, whereas only half of international PAIs were cited for the same reason. PQD concluded that the Korean pharmaceutical industry needed more time to apply the newly revised KGMPs. The report notes that the PQD will redouble its efforts in 2011 to prompt the domestic industry to improve quality compliance.

In terms of the severity of observations, it seems that the international sites generated more confidence from PQD than domestic sites did. Even still, the fact that over 50% of the foreign sites received critical or major observations during the PAIs is cause enough for PQD to now consider implementing a routine GMP inspection program for the foreign manufacturers.

PQD classified each individual observation into ten groups depending on the KGMPs evaluation list, which are:

- Quality Assurance
- Manufacturing Environment,
- Materials Management
- Premises and Equipment
- Manufacturing Control
- Documentation
- Sanitation and Hygiene
- Qualification and Validation
- Non agreement with submitted application
- Other

The report breaks down all the observations that were found in each area by whether they were found domestically or internationally. (See **Figure 1.1**)

Quality Assurance and Manufacturing Environment issues were the biggest problem areas in both domestic and international PAIs. The report stated that many domestic manufacturing sites have struggled to hire more employees in quality units. The need of qualified professionals has exploded since the revision of KGMPs in 2008. The PQD has related this issue to the high amount of documentation citations (13.5% domestically as opposed to 3.2% internationally).

Figure 1.1

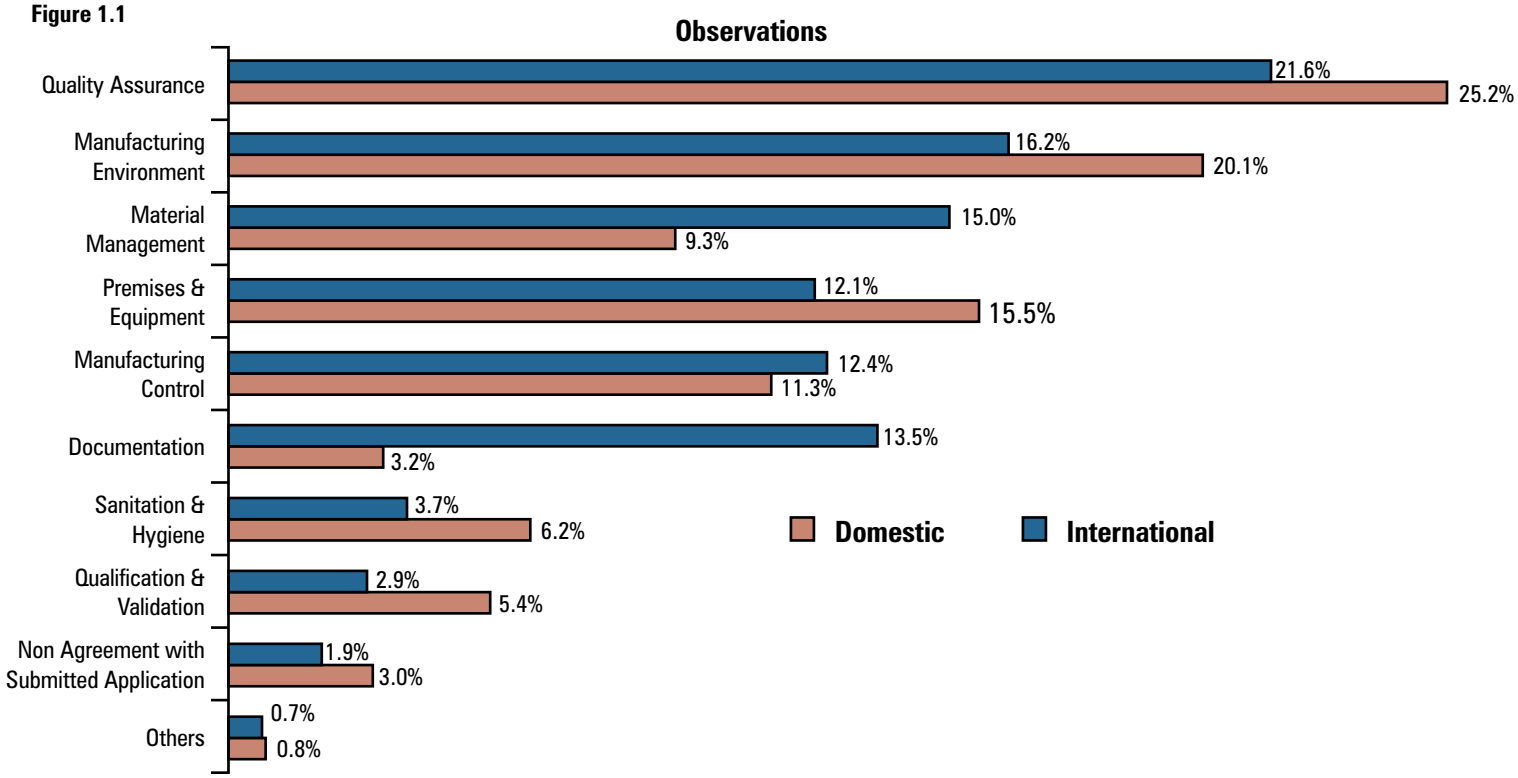

Figure 1.2

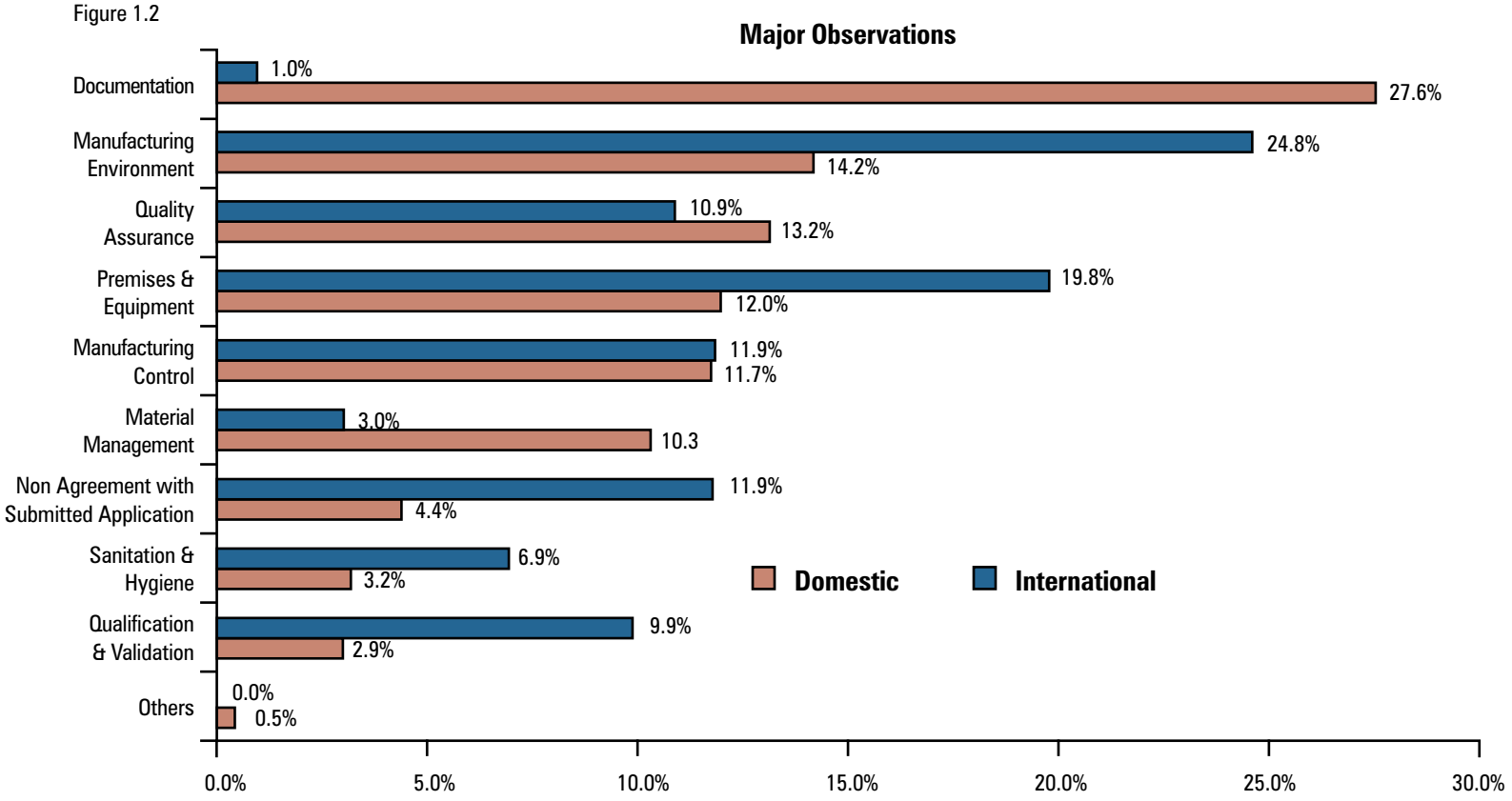

Figure 1.2 shows what the major observations contained. As mentioned above, documentation issues were one of the more problematic areas for domestic products. Manufacturing environment issues were the most problematic for international sites. In the case of international PAIs, as the number of imported products has increased, the level of manufacturing sites has become variable. **Figure 1.3** (shown on page 26) shows that quality assurance was one of the highest issues among minor observations for both international and domestic sites.

At the conclusion of the report, PQD suggested that in order to make the PAI process more effective and valuable, a database that would give risk-based approaches for individual PAIs would be needed. This would help prevent applicants from submitting repeated data for an approval application.

PQD also considered providing more interactive workshops or training for industry in order to ensure the new KGMP regulations were understood. The two issues that would receive the most training would be those on quality assurance and manufacturing environment, which were highly ranked in the observations. PQD will also keep tracking and trending the results of international PAIs.

Table 3 PAI Exemption Period

Dosage Form	Risk	Consideration of Exemption	Exemption Period
Sterile Products	Aseptic Process	Same Dosage From & Manufacturing Room (to Approved products)	1 year
	Terminal Sterilization	Same Dosage From & Manufacturing Site	1 year
Non-Sterile Products	Oral Products, External Products for Systemic Effect	Same Dosage From & Manufacturing Site	2 year
	External Products for Topical Effect	Same Dosage From & Manufacturing Site	3 year

Major Changes to the PAI Procedure

Two months later, following the release of the above report, the PQD announced changes to the 2008 practices. **Table 3** describes the PAI exemption period. If a submitted product is manufactured at the same site with previously approved products with the same dosage form, the submitted product could be approved without on-site PAI during the predefined exemption period. In this case, the exemption period will be one year for sterile products and two years for non-sterile products. However, in case there were significant findings or continuing concerns in the previous inspection history of a particular manufacturing site, PQD can order PAI inspections regardless of exemption periods.

PQD used to visit all of manufacturing places described in an application during their PAIs, even if a particular process had less risk than others. One example would be the packaging process. PQD visited the ➤

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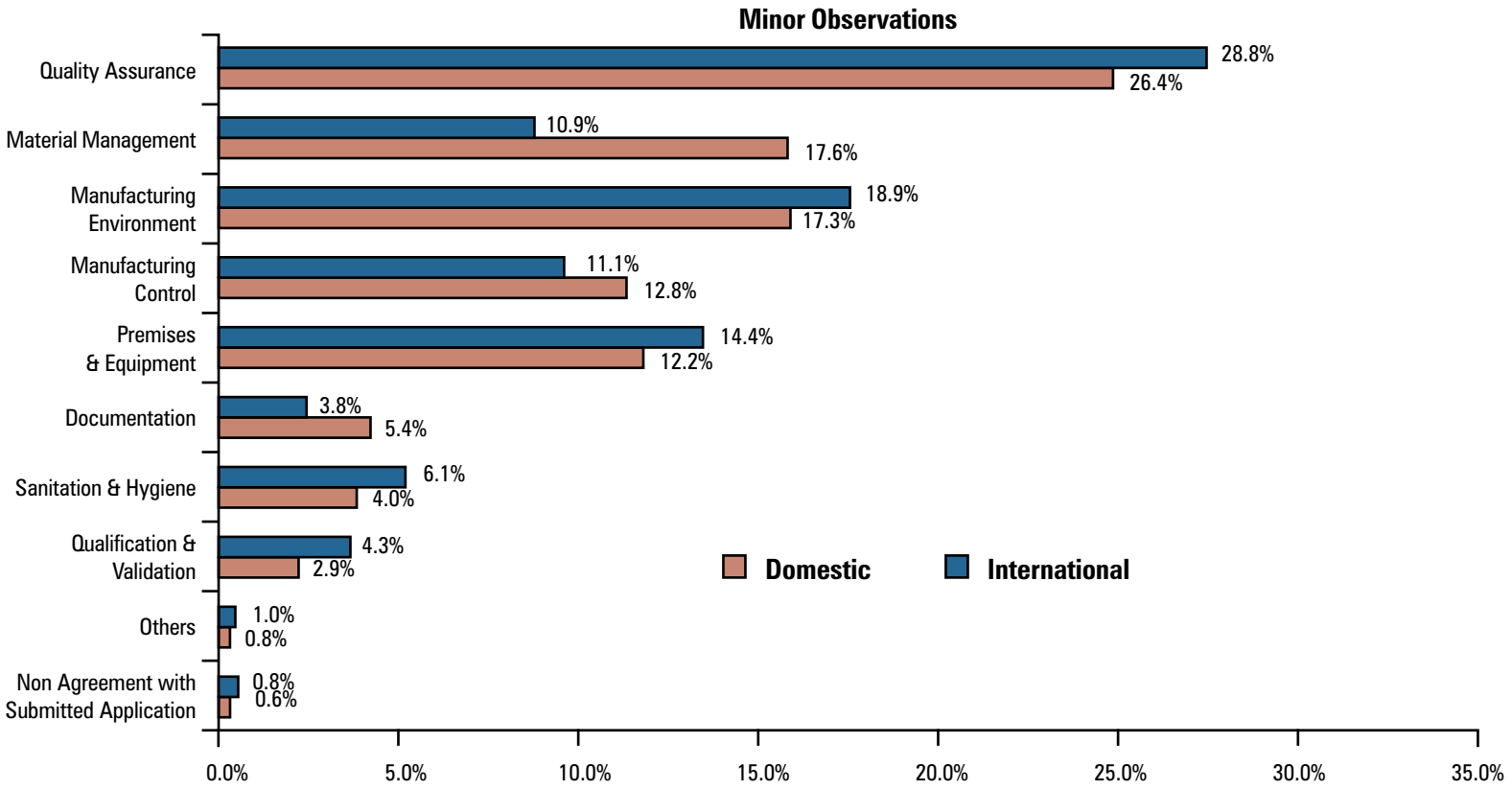
Figure 1.3



manufacturing site where only packaging process of bulk products have taken place in domestic PAIs; whereas, PQD exempted some packaging sites in international PAIs when a process of the site has less risk toward product quality. Therefore, now PQD has clarified that they can evaluate a packaging site in a document review, if the applicant submits more quality data related to the packaging process.

Changed Follow up Processes

Table 4 explains how the follow-up processes have changed for PAIs. Findings which impact risk to patients are defined as critical observations. Any applications associated with them have been rejected and been returned to the applicant. This procedure won't be changed. Back then, major observations were followed up by inspectors within one month of the PAIs; minor observations were not required to be fixed before an approval. The applicant could submit corrections or corrective plans within six months of PAIs. PQD found it difficult to trace and receive follow-ups after an application had been approved. So a new plan was put in place.

PQD will now review both major and minor observations prior to issuing an approval. In terms of recommendations, inspectors previously made verbal comments, but it was hard to record exactly what an inspector said; so, PQD now provides written recommendations to the applicant.

Table 4 Follw-up procedures for PAIs

Classification	Before July 2010	After July 2010
Critical	Rejection	Rejection
Major	Required correction for an approval within 1 month	Required correction for an approval within 2 month
Minor	Required correction within 6 months. Approval can be granted before the corrections	Required correction for an approval within 2 month
Recommendation	Verbal Comments	Written Comments

Biotechnological Drug Products

The Biopharmaceutical Policy Division (BPD) has posted a PAI manual and procedure on its website. Generally speaking, the PAI procedure for biotechnological products is similar to chemical products. Three PAI inspectors implement a site for 2~3 days evaluating based on KGMPs requirements. The PAI exemption period has been also defined as up to three years, however, the exemption period can be reduced depend on the previous history and risk based approach of a specific product's character.

Meanwhile, BPD uses slightly different terminology within findings. Findings either that do not meet the requirements of KGMPs or impact the quality of products. These issues are cited as violations which are concincident to critical observations of PQD. The other findings that do not meet the requirements of KGMPs, yet currently harm products and are considered to be fixed with a corrective action within two ➤

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months are classified as observations. BPD does not segregate the observations as major or minor. All of observations are required to be corrected before an approval regardless of its severity. The issues that do not conflict with KGMPs, yet it is recommended in order to improve better quality compliances are known as recommendations.

KGMPs Information Site

The latest updated information of KGMPs is on the KFDA website. Previously KGMPs related information was scattered all over the website, but one central page was opened on September 1. The presentation files which was used at public conferences, particular policies and recent Q&As can be found on the website. KFDA expects that this will make it easier to look at KGMPs and inspections policies. Also, it can help industry to understand KFDA's current thinking of applying KGMPs.

On a related note, it is hard to find a document translated in English; however, PQD has started a project to translate important KGMPs documents including the KGMPs into English this year. These translated documents will be posted when they finished.

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Electronic Regulatory Submissions – Investment in Higher Level e-Skills Necessary, continued from page 22

In this context, particularly in view of Europe's digital agenda for a flourishing digital economy by 2020, it is worth exploring whether current practices can allow the efficient handling of an eCTD submission project. **(3)**

"eCTD-compliant" Navigable Files

One major advantage of the eCTD is its ability to allow navigation through a complete electronic submission. However, the eCTD can only be navigated provided that each file is *navigable* itself and provided referenced files are hyperlinked with each other.

In order to become "navigable," the PDF files need to fulfill specific formal requirements (e.g., document granularity, specific file names) and need specific properties which allow navigation, like bookmarks, intra- and inter-text hyperlinks (see **Figure 1**). The properties of a PDF file are specified in a U.S. FDA guidance **(4)** and in a number of regional eCTD-related guidance documents. **(5)**

If the author or writer of a document does not consider these requirements, a file needs to go through numerous time-consuming formatting steps until it is ready for a submission in eCTD format **(6)** (for examples, see **Figure 2**). That happens mainly when the files are provided by external parties, e.g., Clinical Research Organizations (CROs) or medical writers.

Figure 1 Portable Document Format Specification **(4)**

Portable Document Format

…needs to fulfil specific formal requirement…

- document granularity (ICH M4 (R3))
- file formats (e.g. PDF 1.4; SAS Xport files for datasets, US)
- file naming conventions (ICH M2 EWG, **(1)** additional regional requirements)

…and allow navigation through an electronic submission by…

- hyperlinked 'Table of Contents' (ToC) within each file
- bookmarks
- intra- and intertext hyperlinks marked with either a blue rectangle or **bold blue letters**
- specific document properties like
  - Inherit Zoom Magnification
  - Initial View: "Bookmarks and Page"

The major efforts of time-consuming reformatting can be prevented by standardizing the document format. This can be achieved by either using harmonized templates and/or by setting up a style guide where aspects of document granularity, document formats, hyperlinking, etc., are specified. However, all parties/persons providing submission-relevant files need to be informed and trained, if necessary, in the document format standardization or as the U.S. FDA points out on its related website **(9)**: "Ask CROs in advance to provide reports in searchable PDF format compliant with the ICH M4 Granularity Annex **(10)** and FDA PDF Specification." **(11)**

Even when working with standardized document format, interoperability problems may occur by using different operating systems and software standards (e.g., by using different Microsoft® Office software versions). Before exchanging any submission-relevant files with

Figure 2 When to Reformat Files

Cases when reformatting of MS Word and/or PDF files becomes necessary

- Documents are not in EU-/US-letter size compatible format
- Word-files are not provided with a hyperlinked 'Table of Contents' (ToC); the ToC does neither list tables nor figures
- Intra- and inter-document hyperlinks are not indicated within the text
- Document files are scanned and provided in image-based PDFs which cannot be navigated and therefore need to be converted to text-based PDFs via 'Optical Character Recognition' (OCR)
- Headers/footers and margins do not comply with regulatory requirements
- Clinical Study Reports – especially when planned to be submitted to the FDA – do not follow the ICH E3 format **(7)** and are not granulated according to the requirements as specified in FDA's eCTD Table of Contents Headings and Hierarchy **(8)**

external parties, an interoperability check may help to identify and prevent the problems.

The need for "interoperability and standards" was identified as one of the seven actions in Europe's Digital Agenda Communication **(2)** initiated to make "proposals for actions that need to be taken urgently to get Europe on track for smart, sustainable and inclusive growth…."

Adapting Business Processes, Working Practices & Improving e-Skills

Working with electronic files rather than paper requires the adaption of eCTD-related business processes.

The eCTD submission project can only be efficient when the underlying business processes are accompanied by innovative e-working practices and the appropriate e-skills.

In practice, however, and as listed below, business processes and working practices sometimes run counter to an efficient eCTD submission project processing, especially in small and medium-sized enterprises (SMEs).

The following are common challenges an eCTD submission project can face, but it is certainly not an exhaustive list:

- Inadequate or even missing project management skills. There is a risk that the eCTD submission project could get out of control and be behind schedule.
- Unnecessary multiplication of documents and bytes when large and confidential files are exchanged via email (see **Figure 3**). A secure, web-based virtual project place (like Microsoft® SharePoint®) is needed as a document repository that is accessible for all project members and enables the collaboration on documents and data (see **Figure 4** on page 32).
- A lack of e-skills, resulting in:
  - missing interdisciplinary communication with ICT specialists regarding ICT-needs (either company-internal or service provider)
  - suboptimal use of software (using the computer as a "typewriter" without being aware of useful software functionalities or the information about additional software to optimize specific working practices)
  - Lack of knowledge about electronic document properties and how to change them (image-based versus text-based PDFs, protected PDFs, file size reduction, inherit zoom magnification, file size reduction, etc.)

In light of these challenges, the following questions arise:

Do regulatory affairs professionals bring along the required e-skills to adapt innovative e-working practices in order to manage a complex eCTD submission project? If not, what measures will become necessary?

One answer was given in last year's European e-Skills Conference: "Organizations need to invest not only in infrastructure but in the higher level e-skills of their workforce….The critical factor for future success…is the capacity for the competitive application of technologies." **(9)**

In conclusion and in view of Europe's digital agenda, the time has come for Good *e-Submission Pr@ctice*. ➤

Figure 3 E-Mail is still a common practice for the exchange of confidential information

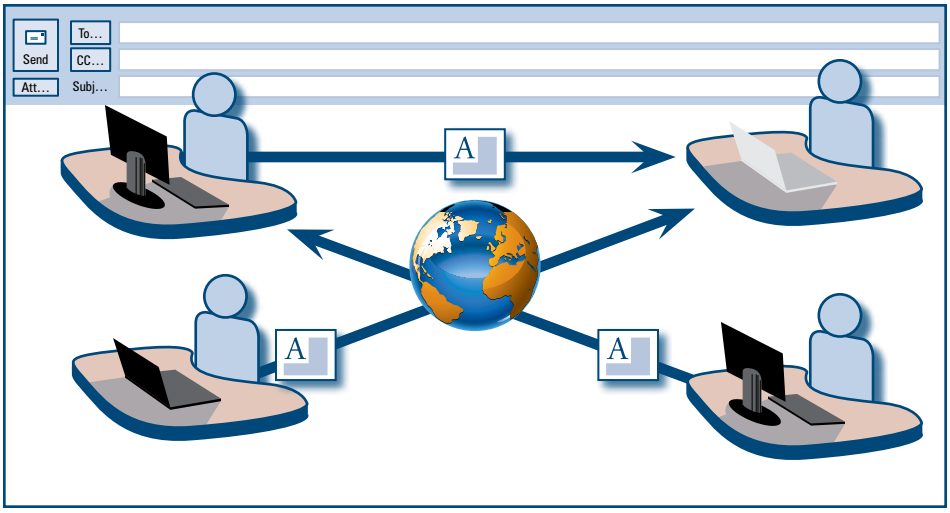

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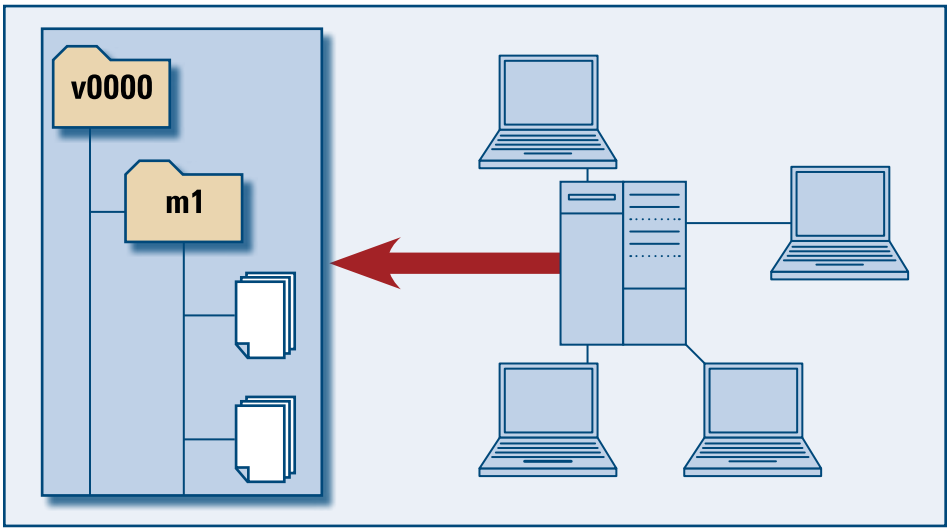
Figure 4 A secure, web-based virtual project place enables the collaboration on documents and data



About the Author

Barbara is based in Switzerland. She is the Managing Director of PhACT GmbH; a company that provides advice and service in drug regulatory affairs, with a specialty in EU regulatory submissions including biotechnology. Barbara has more than 20 years of experience in regulatory affairs and previously worked with the Federal Institute for Drugs and Medicinal Devices (BfArM)-the German Health Authorities.

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The Case for an Excipient Master File System

Kate Denton, Novozymes Biopharma

Novel materials such as biological excipients and drug substances play a crucial role in bringing new, improved and potentially safer medicines to the market. The use of highly pure, consistent and, ideally, animal-free pharmaceutical components can be critical in ensuring final drug product quality, safety and efficacy, especially in the rapidly growing field of advanced therapy medicinal products (ATMPs). However, the lack of globally aligned regulatory mechanisms for reviewing novel excipients is currently creating significant barriers to the development of innovative pharmaceuticals. The situation is particularly problematic within the European Union (EU) where the existing "active substance master file" (ASMF) system is more restricted (i.e., to chemical drug substances only) than in other major world regions (e.g., United States and Japan) where master files can be submitted for a broad range of drug product ingredients.

The lack of a workable master file system in the EU for novel and particularly biological pharmaceutical components is burdensome for excipient/drug substance manufacturers, users and regulators alike. It hinders direct communication between the reviewers and the component experts (i.e., excipient/drug substance manufacturers), potentially leading to a lack of information reaching EU assessors compared to those in regions where master file systems can be used for excipients, called "Excipient Master Files" (EMFs).

There are a number of benefits associated with EMFs. Fundamentally they allow excipient manufacturers to protect their confidential information by submitting it directly to the competent authorities. They also ensure European assessors have access to the same level of information as their counterparts in other countries, as well as to facilitate a standardized approach to provide excipient information worldwide. EMFs would bring the EU in line with other major global regions and improve transparency within the EU regulatory environment.

The International Pharmaceutical Excipients Council (IPEC) is in favor of an EMF system within the EU, especially for novel excipients. They are proposing the use of a partially closed EMF as a voluntary approach for the excipient manufacturer (the "EMF holder"). Following the format of the ASMF system, the EMF would contain confidential information within the "closed" (restricted) part while the marketing authorization holder (MAH)/applicant ("excipient user") would have access to all the information needed to take full responsibility for their product in the "open" (applicant's) section. IPEC seeks to raise awareness of this issue within other relevant industry groups in order to bring to the European authorities attention that companies are already experiencing difficulties due to the restrictive EU system. The overall aim is to present a consolidated industry recommendation to the regulators and work together for legislative changes in this area.

In conclusion, the introduction of EMFs within the EU can be seen as a crucial factor in creating an improved EU regulatory framework to encourage new and innovative product development and accommodate the emerging advanced therapies and technologies.

This is a summary of a PDA Interest Group Regulatory Affairs Europe presentation held at one of the group's internal webinars. If you are interested in the activities or would even like to join the group, please contact either PDA's **Iris Rice** at rice@pda.org or Group Leader **Barbara Jentges** at barbara.jentges@phact.ch

Managing the Supply Chain – One Supplier at a Time, continued from page 21

the source of variability within validated formulations/processes. Specifications, conforming API's and excipients can be the source of drug product formulation and failures, due to inadequate specifications and uncharacterized component attributes." A solution to that problem, he said, is designing specifications and establishing ranges or limits with an effective Quality by Design (QbD) and design space approach.

These methods are becoming more important as a majority of APIs are now being supplied overseas. In his presentation, Watson said that as much as 80% of the APIs currently in US marketed products are produced from foreign sources. "The challenges of the foreign sources is that the longer the supply chain, the more complex it is and the more difficult it is to manage, and the higher the risk."

A number of factors contribute to the risk:

- Regulatory standards in some countries might be less developed
- A lack of harmonization of standards
- Less regulatory oversight (infrequent or no regulatory agency inspections)

To combat illicit activities testing materials is a must. Watson listed a number of technologies that make it easier to test for adulteration, including tamper-evident containers and closures, track and trace technologies, and protective packaging and container design.

The industry's commitment to patient safety through testing and newer technologies and its ability to act proactively on these issues will ensure that the supply chain becomes safer and more reliable. The first step in managing the supply chain, however, is in managing the suppliers.

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ICH

ICH Q11 to Reach Step 2, Q3D to Advance at ICH Fukuoka, Japan

The International Conference on Harmonisation quality guideline on drug substance development and manufacturing (Q11) is expected to reach Step 2 of the harmonization process at the upcoming meeting of the ICH Steering Committee, according to U.S. FDA Assistant Director for Policy Jon Clark. Clark spoke at a meeting hosted by the U.S. FDA and the Pharmaceutical Research and Manufactures of America (PhRMA) on Oct. 13 in advance of the ICH Steering Committee meeting next month in Fukuoka, Japan; FDA and PhRMA are represented on the committee.

Q11 is intended to extend the principles of ICH's Q8, Q9 and Q10 principles to active pharmaceutical ingredients. A key aspect of the document is the inclusion of guidance for both small and large molecule products. The expert working group has been pulling together the guideline for over two years.

Clark also announced that Q3D, which will provide clarification on the requirements for metals, will move forward at the Steering Committee Meeting next month. He said that there was a "race" to get some harmonized interpretation out on metals before the USP and Europe Medicines Agency update their heavy metal chapters and guidelines in 2013.

Clark said that the goal is for the Steering Committee to provide direction to the drafting expert working group regarding the metals to be addressed in the document and the daily exposure limits for Cadmium, Arsenic, Lead and Mercury. Harmonized limits for these metals will be beneficial to industry, helping firms avoid the uncertainty and duplication of work.

ICH Q3D follows on the steps of the ICH Q3A, Q3b and Q3C guidelines that classify impurities as organic, inorganic and residual solvents.

North America

Human Research Studies Conducted under IND Subject of Agency Draft Guidance

This draft guidance, which is intended to assist clinical investigators, sponsors and sponsor-investigators in determining whether planned human research studies must be conducted under an IND, is ready for comment.

Entitled, *Investigational New Drug Applications (INDs) – Determining Whether Human Research Studies Can Be Conducted Without an IND*, the guidance describes the basic criteria for when an IND is required, describes specific situations in which an IND is not required and discusses a range of issues that, in the U.S. FDA's experience, have been the source of confusion or misperception about the application of the IND requirements.

Comments on the associated proposed collection of information are due by December 13, 2010; comments on the draft guidance should be received by January 12, 2011.

Draft Guidance Recommends How to Submit INDs for Early Clinical Trials

A draft guidance providing IND sponsors with recommendations on the submissions of IND's for early clinical trials with live biotherapeutic products is now available.

Comments on the draft guidance, entitled, *"Early Clinical Trials with Live Biotherapeutic Products: Chemistry, Manufacturing and Controls Information"* should be received by December 13, 2010.

Agency Looks for Participants to Develop Surveillance, Monitoring System

The U.S. FDA has announced an award for anyone who can develop a global surveillance and monitoring system for combating counterfeit/falsified medicines and risks and breaches in the supply chain.

The award would allow the winner to enter into a cooperative agreement with the World Health Organization (WHO), and the U.S. FDA anticipates providing one award of $960,500 (total costs including indirect costs) in fiscal year (FY) 2010 in support of this project.

This project represents a collaborative agreement between WHO and the Agency in building a global rapid alert surveillance/monitoring system(s) for combating counterfeit/falsified medicines and risks in the supply chain security that will assist in developing the global landscape and identifying areas of public health risk.

Agency's 2011-2015 Strategic Priorities

The U.S. FDA has published a draft version of its strategic priorities for the fiscal years of 2011 – 2015.The document outlines four key cross-cutting strategic priorities and four strategic program goals that will guide the Agency's efforts to achieve its public health mission, as well as to fulfill its role in supporting the larger mission and strategic goals of the Department of Health and Human Services.

The four cross cutting strategic priorities are:

1. Advance regulatory science and in-

Key Regulatory Dates

Comments Due:

December 13
Comments due for INDs for Early Clinical Trials

December 31
Comments due for BPCI Act

January 12
Comments due for IND Subject of Agency Draft Guidance

novation

2. Strengthen the safety and integrity of the global supply chain
3. Strengthen compliance and enforcement activities to support public health
4. Expand efforts to meet the needs of special populations

The four strategic program goals are:

1. Advance food safety and nutrition
2. Promote public health by advancing the safety and effectiveness of medical products
3. Establish an effective tobacco regulation, prevention and control program
4. Manage for Organizational Excellence and Accountability

The strategic priorities draft document is available at www.fda.gov/AboutFDA.

Challenges Associated with Implementing the BPCI Act

The Biologoics Price and Competition and Innovation Act of 2009 (BPCI Act) establishes an abbreviated approval pathway for biological products that are demonstrated to be "highly similar" (biosimilar) to or "interchangeable" with an FDA-licensed biological product.

A public hearing was held to obtain input from stakeholders on specific issues and challenges associated with the implementation of the Act. Electronic or written comments will be accepted until December 31.

U.S. FDA Seeking Comments on Information Requested in the "Absenteeism" Draft Guidance

The U.S. FDA is collecting comments on information requested in a draft guidance about ensuring that medically necessary drug products (MNP) are available when there are personnel shortages due to an emergency. FDA estimates that it will take about 35,000 hours to set up the initial plan and 32 hours to set up the notification to FDA of the Plan's activation and deactivation.

Entitled, Planning for the Effects of High Absenteeism to Ensure Availability of Medically Necessary Drug Products, the draft guidance recommends that an emergency plan should be developed for each individual manufacturing facility, as well as a broader plan that addresses multiple sites within the organization. The draft guidance discusses the issues that should be covered by the plan, such as:

- Delegating who has the authority activate and deactivate the Plan and make decisions during the emergency
- Prioritizing the manufacturer's drug products based on medical necessity
- Identifying actions that should be taken prior to an anticipated period of high absenteeism
- Ascertaining criteria for activating the plan
- Performing quality risk assessments that would determine which manufacturing activities may be reduced to enable the company to meet a demand for MNPs
- Returning to normal operations and conducting a post-execution assessment of the execution outcomes
- Testing the Plan

In this proposed information collection, the *Federal Register* announcement includes FDA's responses to the comments submitted in response to the collection of information associated with the draft guidance that was been made available to the public in the original January 8, 2010 *Federal Register* announcement. FDA was informed then that there are business continuity plans already in place to address shortages of medically necessary products and that these plans take into account high absenteeism and other factors that could affect production. However, the Agency believes that a general business continuity plan is unlikely to take into account individual products or how execution of the plan would affect product quality.

Other comments suggested that the guidance's recommendations would be too burdensome and provide no value to ensure protection of the public health. FDA agrees with these comments and has revised the guidance to recommend that only the parts of the an absenteeism plan that could have an effect on product quality be reviewed and approved by the Quality Unit before implementation.

Some comments stated that testing an absenteeism plan and producing test batches would be impractical and expensive. FDA agreed with these comments and removed its recommendation to produce test batches of the drug product.

Agency Collection Information on Medical Device Quality System Regs

The Agency has submitted a proposed information collection on the record keeping and reporting requirements established by the Medical Device Quality System Regulations.

The U.S. FDA estimates respondents will have a total annual recordkeeping burden of approximately 3,105,552 hours. This figure also consists of approximately 143,052 hours spent on a startup basis by 734 new firms.

Europe

TGA Publishes Results of International API Inspection Pilot Program

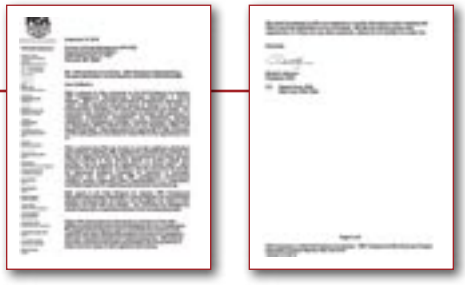
The Therapeutic Goods Administration (TGA) of Australia has published an interim report on the results of the international API inspection pilot program.

After 18 months the results are in line with the expected deliverables. These included:

- An increase in transparency and visibility of inspections performed by participating authorities
- A decrease in "duplicate inspections"
- An increase in the number of inspections of value
- An overall increase in the number of API sites inspected

Inspectors participated from such authorities as the TGA, U.S. FDA and European Medicines Agency, as well as from a number of European Union Member States.

PDA Suggests Moderate Changes to Draft Guidance



For the comments grid, visit www.pda.org/regulatorycomments

September 23, 2010

Division of Docket Management (HFA-305)

Food and Drug Administration

5630 Fishers Lane, rm. 1061

Rockville, MD 20852

Reference: Draft Guidance for Industry: CMC Postapproval Manufacturing Changes Reportable in Annual Reports, Docket No. FDA-2010-D-0283

Dear Sir/Madam:

PDA is pleased to offer comments on the Draft Guidance for Industry CMC Postapproval Manufacturing Changes Reportable in Annual Reports. PDA is a non-profit international professional association of nearly 10,000 individual members having an interest in the fields of pharmaceutical, biological, and device manufacturing and quality. Our comments were prepared by a committee of experts with experience in regulatory submissions management and determining reporting categories for postapproval changes, including members representing our Regulatory Affairs Interest Group and our Regulatory Affairs and Quality Committee. PDA appreciates the opportunity to offer comments on this draft guidance and wishes to thank FDA for the opportunity to do so.

PDA is pleased that FDA has chosen to provide additional clarification and guidance regarding CMC postapproval manufacturing changes for NDA and ANDA products that FDA has determined will likely present minimal potential to have adverse effects on product quality and, therefore, may be reported by applicants in an annual report. Upon finalization of the Guidance, we believe that this document will provide the appropriate guidance necessary for sponsors to accurately categorize and report relevant CMC postapproval manufacturing changes, thereby supporting FDA's implementation of a cooperative, risk-based approach for regulating pharmaceutical manufacturing.

With regard to the Draft Guidance for Industry CMC Postapproval Manufacturing Changes Reportable in Annual Reports, we have provided detailed comments that we believe will strengthen the utility of this Guidance for both FDA and industry. Our comments are identified by section along with a supporting rationale in the accompanying table.

Again, PDA appreciates the opportunity to comment on this draft guidance and provides these recommendations for your consideration. We suggest that the Agency look to consolidate the contents of this guidance with other existing FDA guidance and strive for consistency with other regulatory bodies from a global perspective. PDA believes that these comments will clarify and strengthen the final guidance to better serve the needs of both regulators and industry.

We would be pleased to offer our expertise in a public discussion and/or meeting with FDA to provide clarification of our comments. Should you wish to pursue that opportunity, or if there are any other questions, please do not hesitate to contact me.

Sincerely,
Richard Johnson
President, PDA

PDA Concerned Over Clarity of WHO Draft Document

For the comments grid, visit www.pda.org/regulatorycomments

September 30, 2010

Dr A. J. van Zyl

Head of Inspections

Prequalification Programme

Quality Assurance and Safety: Medicines

World Health Organization

1211 Geneva 27

Switzerland

Reference: WHO Good Practices for Pharmaceutical Microbiology Laboratories, July 2010, draft

Dear Dr van Zyl:

PDA is grateful to have the opportunity to provide comments on the draft "WHO Good Practices for Pharmaceutical Microbiology Laboratories, July 2010". Our comments were prepared by a group of member experts in this field, and are attached in the requested WHO format. We would like to highlight a few issues that we believe to be of particular concern, as follows:

1. The document refers to the EU environmental classifications (Grade A/ B/ C/ D) and in some cases the ISO classification is also provided. PDA recommends that for an international guidance document such as this it is appropriate to use only the ISO denominations.

2. Regarding the proposed classifications tables on Pages 9 and 27 respectively, PDA believes that the table in the appendix (p27) should be adopted and remain in the appendices. The table on Page 9 represents a burdensome increase in requirements for micro labs, requiring substantial modifications to existing laboratories, and should be deleted. Specific comments are provided in the comments table.

3. Regarding the requirement for growth promotion testing by the user on every batch of media, PDA believes this may be unnecessarily burdensome. Likewise, the addition of antioxidants and free radical scavengers to media which are irradiated is not always necessary. We have proposed alternative wording.

PDA appreciates the opportunity to comment on this important document. If I can be of further assistance, please feel free to contact me 1-301-656-5900 ext. 123 or Johnson@pda.org.

With best regards,
Richard M. Johnson
President, PDA

The Parenteral Drug Association presents...

2 Workshops Based on PDA Technical Reports!

PDA Technical Reports (TR) are unique global technical documents, prepared by content experts, including scientists and engineers, working in the pharmaceutical and biopharmaceutical industry, regulatory authorities and academia.

PDA Workshop on Aseptic Processing: Issues and Approaches

November 15-16, 2010 | Hyatt Regency Bethesda | Bethesda, Maryland

www.pda.org/asepticprocessingworkshop

Along with regulatory and industry representatives, you will leave this interactive workshop with a better understanding of how to **meet the challenges of aseptically manufactured health care sterile products** in a modern global technological and regulatory environment.

A session at this workshop will explain *PDA TR 22, Process Simulation Testing for Aseptically Filled Products.* Additional session topics include:

- Sterility by Design
- Identifying and Evaluating Aseptic Process Challenges
- Innovative Approaches with Sterility Assurance
- Quality Systems
- Intervention Control
- And more!

PDA Technical Report Workshop:

Moist Heat Sterilizer Systems, Steam in Place and Parametric Release of Pharmaceutical and Medical Device Products Terminally Sterilized by Moist Heat

December 6-7, 2010 | Wyndham Chicago | Chicago, Illinois

www.pda.org/moistheatworkshop

Join members of numerous PDA Task Forces and industry representatives to discuss the essential subject matter addressed in PDA Technical Reports that represent the leading best practices in the understanding and use of moist heat sterilization technology.

Technical Reports highlighted at this workshop include:

- PDA Technical Report No. 48: *Moist Heat Sterilizer Systems: Design, Commissioning, Operation, Qualification and Maintenance*
- Draft of PDA Technical Report No. 30: *Parametric Release of Pharmaceuticals Terminally Sterilized by Moist Heat*
- PDA Technical Report No. 1, Revised 2007: *Validation of Moist Heat Sterilization Processes Cycle Design, Development, Qualification and Ongoing Control*
- Draft Technical Report on Steam in Place produced by a Task Force of industry experts

Session topics include:

- Fundamentals of Moist Heat Sterilization
- Parametric Release Part I/II
- Development of User Requirements
- Verification and Validation
- Maintenance of a Validated State and Post-Aseptic Fill Lethal Treatment
- And more!

Visit the workshop websites for more details and to register!

Vaccine, Biological Production Discussed at PDADV Meeting

Chapter Committee Member Sue Vogt Speth

The PDA Delaware Valley Chapter (PDADV) during its meeting presented a talk by **Bob Darius**, entitled, "Global Challenges and Opportunities in Vaccine and Biologicals Production" and hosted its annual Vendor Night Extravaganza Wednesday, September 22. This year's September 2010 meeting had 120 participants in attendance from local area Pharmaceutical and Biopharmaceutical Industries at the Desmond Hotel and Conference Center in Malvern, Pa. The evening commenced with displays from 37 area vendor sponsors, an excellent sponsorship for PDADV. Participants got hands-on information about the latest technologies, resources and supplies, as well as the opportunity to speak with and discuss the latest and greatest tools of the trade with technical experts from our valuable suppliers.

Following the vendor displays, Bob, the Regional Director of Quality Assurance and Quality Control for GSK Biologicals, gave his presentation and provided an understanding of the diverse challenges for vaccine and biologicals production and supply in an environment of escalating costs; increasing customer demands; and increasing global regulatory requirements and oversight. He shared insights about the "New FDA"; which promotes itself as being faster, stronger, more transparent, globally integrated and less tolerant. He covered critical issues and challenges including the need for leadership at all levels, making good decisions fast, communication, as well as developing and maintaining standards. Bob encouraged, and successfully received, active participation from the audience.

As always, copies of the presentation were forwarded to all attendees by the PDA Delaware Valley Chapter President.

PDA TOOLS FOR SUCCESS

Brought to you by the PDA Career Center.
Go to www.pda.org/careers for the latest opportunities.

Nailing That Next Presentation

John Fallon

Many recruitment and human resource specialists believe that a lack of presentation skills can be damaging to career advancement. In a survey of over 300 businesses by the Association of American Colleges and Universities' Leap initiative, 89% of employers stated that they want colleges to place more emphasis on oral, written and visual communication. That percentage was higher than any other skill, knowledge or ability. Recent surveys conducted by Commispond (sponsored by Avery Dennison) estimate that more than 50 million presentations take place each day across the world, with a majority being poorly designed and/or delivered. The final result of this survey shows that our ability to communicate orally and visually is the single most-needed attribute for success in the business sector.

This is a new concept for many of us. With the need for communicating ideas and information now becoming everyone's job, we realize that public speaking and presenting aren't the same beast. When compared to public speaking, presentations make greater use of visual communication, demonstrations, interactive audience participation, humor and have a higher entertainment value. Presentations demand applying a huge body of knowledge and skills that excellent presenters make look natural, but in reality, it's an acquired talent. Seeing a final presentation is just the tip of a huge iceberg. The amount of work and time that goes into preparing what is seen and heard is mind-boggling. However, there is good news. Neither the knowledge nor the skills are difficult to learn and contrary to popular belief, good presenters are made, not born. Now, we have to ask ourselves the question… do we have the necessary skills to be that "good" presenter?

For those of you who need a few helpful hints in becoming good presenters, remember that most "total package" presentations are developed and designed from three areas: the message, the messenger and the medium.

THE MESSAGE

1. To determine your message, find the "core" idea you want your audience to remember, then develop three to seven points that will support your message. Remember, the amount of points you have may be determined by the amount of time you have to present. Don't have more than seven points because your audience will become overwhelmed with information. "Twitterize" your information and make it "short and sweet" for the audience to absorb. Try to have no more than three points per presentation, that way you'll know you're delivering all the right information in small packets.
2. Be sure to incorporate personal stories into the message. Even though it's cliché, the adage, "a picture is worth a thousand words" is still viable today. When you're using stories, you're creating "mental" images for your audience. People love stories, and when you conversationalize your stories and "tell" them like a storyteller, you'll create emotional attachments between you, your audience and the topic. Remember, emotion wins over logic!
3. Make sure that you have a good "opening hook" (an attention getter for the audience), several "timely grabs" (similar to opening hooks but found spaced throughout your message) and a "call to action" (which is what you want to see your audience do as a result of your presentation). In any presentation, you want to immediately get the audience's attention, keep their attention throughout the presentation and excite them enough so want to take some type of action at the end of your presentation. A good presentation generates excitement on many different levels.

THE MESSENGER

1. The physicals and vocals of your presentation will be what helps you create a relationship with your audience, so use your facial expressions, vocal inflections, gestures and body movements to develop that relationship and reflect the content of your message. Incorporate all your vocals and physicals into the storytelling process, they're part of your story as well.
2. Find those qualities about your presentation delivery techniques that are going to distract your audiences. Audio tape yourself and really listen to the quality of your voice. There really are certain voice types that turn an audience off and once they're off, the message is pointless. Video tape yourself to see exactly what you're doing on the platform in front of an audience. Now, re-play the recording in "fast for-

ward" and if you're moving all over the stage, chances are your movements are going to distract your audience.

3. Dress for success and your role. You are the presenter and even though the presentation isn't about you, dress so you physically and visually create no distractions that will cause your audience to lose the message.

THE MEDIUM

1. With whatever software you're using to create and deliver your "digital storytelling," make sure that the technology doesn't become the focus of your presentation. Moving text, transitions and other pointless animations really don't do anything to enhance the presentation. As a matter of fact, it can cause so much distraction that the audience loses the message entirely.
2. Use images on slides in place of text to support your message. Most audiences will remember images before they'll remember text, charts and statistics. Also make sure that you use quality images. There's nothing worse than looking at a screen with a fuzzy or blurred picture.
3. Design your digital storytelling support material last. In most cases when people are told to deliver a presentation, the first thing they do is open up the software, create the support and then develop the message. Start with pen and paper first and end with the technology. The message should drive the digital storytelling, not the other way around.

Follow these guidelines and make every presentation your best!

About the Author

John Fallon is a Presentation Skills consultant, Speaker, Author, Performer, Vocal Coach, Educator and PowerPoint Expert. He is the author of several books, including *Teaching Presentation Skills* and *Learning Pecha Kucha*. He is also the creator of "PPT for Teachers," a website of free resources for teachers and educators. John has addressed the needs of students, teachers, community organizations, corporations and individuals for over thirty years. To find out more about his speaking and consulting, please visit www.johnfallonpresents.com or call (864) 933-2633.

Send in your feedback on *Tools for Success* section. Email Emily Hough at hough@pda.org.

Volunteer Spotlights

www.pda.org/spotlight

Bengt Ljungqvist, PhD, Professor, Royal Institute of Technology (KTH)

PDA Join Date: 1992

Areas of PDA Volunteerism (Years of Participation): Since 1992, I've been working in cooperation with R3-Nordic and PDA; participated in program committees; arranged three joint PDA/R3-Nordic conferences in Stockholm; and arranged around 30 PDA courses in Stockholm. I have also participated as a speaker and teacher at several PDA conferences and at PDA courses in Europe, the United States and Japan.

Interesting Fact about You: I've had a long experience of solving practical contamination questions in pharmaceutical industry, hospitals and laboratories, and I try to look at contamination questions in a scientific way. I'm also interested in challenges, this means that the boundary between work and leisure activities sometimes becomes blurred. To work with an article or scrutinize data from a research activity may take hours outside the working day. My leisure time is spent with my family, children and grandchildren.

Why did you join PDA and start to volunteer? R3-Nordic needed international contacts for the benefit of their members and PDA represented members of the pharma and biopharma industries in the United States. During my time as a visiting Professor at the North Carolina State University and as the Chairman of R3-Nordic, I met Jim Akers (chairman of PDA) and Ed Fry (President of PDA). We decided to cooperate internationally for the benefit of the members and for the exchange of knowledge. At that time, the three of us exchanged membership in our respective organizations. The cooperation between PDA and R3-Nordic has over the years been very fruitful. I'm one of R3-Nordic international contacts for PDA, PHSS, A3P and ICCCS. I'm also active in the international standardization work on clean rooms.

Of your PDA volunteer experiences, which stand out the most? Attending the first European PDA International Conference in Basel in 1992 as a speaker was outstanding. The first PDA Annual Meeting in the United States in 1992 was also a fantastic experience. The Annual Meetings in Anaheim, Calif. in 2006, where I was appointed "Outstanding PDA Scientist," and in Colorado Springs, Co. in 2008, where I was awarded "PDA Honorary Membership," are of special importance to me.

How has volunteering through PDA benefited you professionally? PDA has always had a close relationship with the U.S. FDA. My contacts to FDA have mostly been through PDA. To meet and establish contact with people of outstanding reputation from the industry and from regulatory authorities have been very useful in my work.

Which PDA event/training course is your favorite? PDA training courses with attendees from all over Europe and teachers, such as Dr. Akers, Ms. Dixon, Dr. Meltzer and Dr. Pflug, to mention only a few of outstanding teachers. Courses with teachers that have both knowledge of theories and huge experience of practical applications are highly appreciated.

What would you say to somebody considering PDA membership? If you have an interest to stay updated in pharmaceutical and biotech industry and follow the development in regulatory areas and in scientific based practice only one answer is possible: Join!

Jette Christensen, Aseptic Scientific Director, Novo Nordisk A/S

PDA Join Date: 1998

Areas of PDA Volunteerism: Speaker at PDA Conferences; Annex 1 Committee Member (End 2005 -2006); Planning committee for PDA's Annual Global Conference on Pharmaceutical Microbiology Member (2006, 2007 and 2008); Co-chair (2008); Task force member revising TR #13: Fundamentals of an Environmental Monitoring Program (End 2006 – 2010); Chair for PDA European Conference on Pharmaceutical Microbiology (End 2009- 2010)

Interesting Fact about Yourself: My professional focus areas are clean rooms, aseptic production and microbiology. Besides setting directions for and giving support within these areas to the Danish sites, I also set the direction and provide support to our sites in the United States, China, France and Brazil which gives me a global view on the manufacturing process, authority requirements and culture.

Why did you join PDA and start to volunteer? I was informed that PDA is the most important organization within aseptic processing, so I joined PDA to learn more about aseptic processing. By participating in conferences, training courses and by reading the *PDA Journal of Pharmaceutical Science and Technology* and the *PDA Letter*, PDA supported me in broadening my knowledge in this area. At conferences, I met very knowledgeable and very friendly people who made it natural to volunteer for different tasks.

Of your PDA volunteer experiences, which stand out the most? Planning the PDA's Annual Global Conference on Pharmaceutical Microbiology.

Recipients of the 2009 Honor Awards

www.pda.org/2009honorawards

The honor awards have been presented to esteemed PDA members since the first award was given in 1958. It is our intention to highlight each of the 2009 Honor Award Winners (announced at the 2010 Annual Meeting in March) in each upcoming issue of the *PDA Letter* until the 2011 Annual Meeting. This month we have chosen to spotlight the individuals who were awarded the Distinguished Editor/Author Award.

Distinguished Editor/Author Award

This award is presented annually for the best editor/author of PDA-DHI co-published books as selected by PDA members.

Maik W. Jornitz

Maik W. Jornitz is the Senior Vice President of Marketing at Sartorius Stedim Biotech Inc. He is receiving this award as Co-Author of "Anatomy of a Pharmaceutical Filtration: Differential Pressures, Flow Rates, Filter Areas, Throughputs and Filter Sizing."

Jack Lysfjord

Jack Lysfjord is Principal Consultant for Lysfjord Consulting LLC since 2007. He is receiving this award as Author of "Practical Aseptic Processing, Fill and Finish, Volume 1 & 2"

Theodore H. Meltzer

Theodore H. Meltzer, PhD, is a consultant for Capitola Consulting. He is receiving this award as Co-Author of "Anatomy of a Pharmaceutical Filtration: Differential Pressures, Flow Rates, Filter Areas, Throughputs and Filter Sizing."

How has volunteering through PDA benefited you professionally? I have met many knowledgeable people from pharmaceutical companies, regulatory bodies and from consultant companies. I have had the opportunity to talk and learn from them.

Which PDA event/training course is your favorite? PDA's Annual Global Conference on Pharmaceutical Microbiology, but there are also many other good events.

What would you say to somebody considering PDA membership? I would, of course, encourage the person to join.

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PDA Europe Conference, Exhibition

Freeze Drying

23-24 November, Vienna, Austria

Conference, Exhibition

Download the complete program on:
www.pda.org/FreezeDrying2010

There has been an increasing number of products to be freeze dried. How can we harmonize their development, production, and quality to ensure their unconditional application? This conference will be addressing practical aspects from perspectives of technology, development, and production: • Most recent technologies • Freeze drying process: equipment, IPCs, general handling • PAT concepts • Final product testing • Handling incidents like silicon oil leakages and glass breakage • Containers influencing quality of the process and the final product • Present regulatory issues and trends: Regulatory guidances, inspection results, and observations • Case studies This conference will be providing you with an update on the present best practice, showing the latest trends in the manufacture of freeze dried products. A panel discussion will allow for even more exchange of information, experience, and views.

Chapter Contacts

The following is a list of the PDA Chapters, organized by the regions of the world in which they are located. Included are the Chapter name, the area(s) served, the Chapter contact person and his or her email address. Where applicable, the Chapter's website is listed. More information on PDA Chapters is available at www.pda.org/chapters.

Asia-Pacific

Australia
Contact: Ano Xidias
Email: ano.xidias@pharmout.com.au
www.pdachapters.org/australia

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Please Welcome the Following Industry

Makoto Abe, Japan
Masato Abe, Rion
Donald Ahearn, Georgia State University
Stephen Allan, Unilife Medical Solutions
Frank Arnold, Tunnell Consulting
Denise Aronson, Safety Partners
Lars Asking, Novo Nordisk
Daniel Avelar, Fresenius Medical Care
Norman Barnabe, Cangene Corporation
Patrick Bell, Pfizer
Leigh Bergeron, Boston Analytical
Joseph Bernsley, Influidix
Nishant Bhasin, Centocor
Regina Bielen, Catalent Pharma Solutions
Denise Bohrer, Federal University Santa Maria
Laura Bowman, Eli Lilly
Judith Braccio, Allergan
Tommy Brady, Elanco Animal Health
Reginold Branch, Althea Technologies
Michael Busby, Teva Parenteral Medicines
Jay Cashman, Hospira
Peter Cavallaro, American Stelmi
Juan Cerdan-Diaz, Amcor
Imtiaz Chaudry, Dey Pharma
Cher Cicirello, Hospira
Ashley Clark, Nice Pak/PDII
Natalie Cohen, Teva Pharmaceutical Industries
John Cooley, Lonza Bioscience
Anna Coso, Alcon Cusi
Lisa Coutts, CRO
Michael Cross, Biogen Idec
Vijay Damodaran, Eli Lilly
Melvyn Davis, Mel Davis & associates
Benjamin DeBerry, Slayton Search Partners
Michael DiGiovanni, Eli Lilly
Tamara Dillberg, Abbott
Steve Dorland, Sangart
Jovo Dragicevic, Abbott
Roger Ducker, Plastipak Packaging
Mark Dudley, Sanofi Pasteur
Terence Dunleavy, Hospira
Jeff Durflinger, Zogenix
Michael Elling, Eli Lilly
Panagiotis Fakitsas, F. Hoffmann-La Roche
John Fengler, Novadaq Technologies
Ulrike Feuerstein, Abbott
Rita Flores-Saa, Gilaed Sciences
Michelle Frame, Gilead Sciences
Joseph Frantz, Sanofi Pasteur
Sandrine Gaillard, Baxter
Scott Gardner, Cibavision
Michelle Gawrys, Merck Sharp and Dohme
Brandy Gaydos, SAIC
James Gilbert, Biogen Idec
Rick Gillis, Integrity Device Auditing and Consulting
Scott Goldstein, Althea Technologies
Cindy Goldstein, Life Technologies
Mario Gorziglia, Merck
Gary Gressett, Excellent Pharma Consulting
Susan Griesemer, Covidien
Ruby Gulati, Genetech
Pramod Gupta, Coldstream Laboratories
Martin Haerer, Holopack Verpackungstechnik
Shannon Harrell, Norwich Pharmaceutical
Catherine Hass, Validation Resources
Eric Hennezel, Gerresheimer
Murase Hiroaki
Tara Hogan, Pfizer
John Horab, APP Pharmaceuticals
Taiji Horita, Taisei Kako
Jeffrey Horne, Merck
Susan Hotham, Merck
Brandon Hudson, Schering Plough
Michael Irwin, Pacific Biosciences
Craig Jacoby, Synthes
Keith Johnson, Novartis
Julie Johnson, Becton Dickinson
Takahiko Kagawa, Mitsubishi Chemical Medience
Dae Sik Kang, Yuhan Corcoration
Angela Kapetanakis, MedImmune
Sheila Kappelmeier, W.L. Gore & Associates
Natalia Khorushkina, Worldwise Clinical Trials
Peter Kiechle, Siegfried
Michael Kim, Baxa Corp
Larry Kranking, Coldstream Laboratories
James Kranz
Marie Kristiansson, Fresenius Kabi
Roger Lee, Bayer HealthCare
Ki Lee, Genzyme
Gerald Leister, Eli Lilly
Phil Lever, Cambridge Consultants
Terry Lewis, Hospira
Anthony Liberatori, Valspec
Ivy Louis, Vienni Traning and Consulting
Robert Lund, Beckman Coulter Inc
Bruce Lynch, Intervet Schering Plough
Alice Maden, BD Medical – Pharmaceutical Systems
Jennifer Magnani, Genentech
Sandra Marguillier, Pfizer
Mary Ellen Marks, Shire
Jose Marrero, Bristol-Myers Squibb
Kevin Martin, Azzur Group
Bert Martinez, Boehringer Ingelheim
Carmen Martinez, Pfizer
Michael Mashoke, Shire
Vasilis Mavrogenis, Novartis
Amanda Mbewe, APP
Thomas Mebes, GlaxoSmithKline
Line Meilstrup, Novo Nordisk
David Mitchell, Dendreon
Andy Moore, DSM Pharmaceuticals
Julie Nedin, Plastipak Packaging
Sherry Nelson, Vantage Consulting Group
Hieu Nguyen, Takeda Pharmaceuticals
Sara Niemann, Novo NoFDArdisk
Fionnuala O`Driscoll, Johnson & Johnson
Trevor Page, GEA Pharma Systems
Bhavik Parikh, Apotex
John Peattie, Genentech
Jim Penzin, Emergent BioSolutions
Robert Perry, Genentech
Kenneth Petelinkar, Bristol-Myers Squibb
Richard Pfeltz, BD Diagnostic Systems

Leaders to the PDA Community

Teresa Porter, Allergan
Heino Prinz, Wilco
Nicole Quesada, Genentech
Dora Rau, Prometheus Laboratories
Renato Ravanello, Genentech
Catherine Rice, Lonza
Saddy Rivera, Prolong Pharmaceuticals
Gregory Rockers, JCB Laboratories
Jesus Rodriguez, Genzyme
Susana Romo, Pfizer
Travis Roth, ALK Abello Source Materials
Arup Roy, Eli Lilly
Paul Ruther, Althea Technologies
Philip Rybczynski, Amicus Therapeutics
Masoud Samandi, UniLife Medical
Jan Sandman, Eli Lilly
Robert Scalese, Safety Syringes
Steve Schwenning, Genetech
Melva Scott, Eli Lilly
Scott Self, Takeda
Yasuyuki Shiraishi, Taisei Kako Co.,Ltd
Alan Shortall, Unilife Corporation
Iain Simpson, Sagentia
Geeta Singh, Genentech
Rebecca Spohn, Amgen
Susan Stahl, Commissioning Agents
Andrew Staines, APP Pharmaceuticals
Craig Stephens, GlaxoSmithKline
Phil Sticha, Lifecore Biomedical
Debra Stiffler, Eli Lilly
Andrea Straka, West Pharmaceutical Services
Rony Szwec, GE Healthcare
Helen Takanabe, Amgen
Ajit Tamhane, Lisaline Lifescience Technologies
Julie Taylor, Janssen
Binh Thai, Genentech
Mark Todd, MG America
Michinori Togawa, Taiho
Dianelly Torres, Roche Operations
Christian Torstensson, Novartis
Roger Touma, Pall
Paul Treacy, Janssen
Karen Tyburski, Genzyme
Nathan Tzodikov, Sanofi-Aventis
Donna Ucci, Watson Laboratories
Alexandra Urbain, Teoxane
Rebecca VanDerWege, Hospira
Dirk Vollenbroich, Minerva
Yueh-Ju Wang, Center For Drug Evaluation
Deborah Williams, Teva Animal Health
Joyce Winters, J Winters Consulting
Anita Wooten, Talecris Biotherapeutics
Tsuyoshi Yoshimoto, Terumo
Lin Zhu, Abbott

Develop Strategies to Harness Knowledge at Annual Meeting

San Antonio, Texas • April 11 – 13 • www.pda.org/annual2011

Chris Smalley, Merck

We have all experienced situations where we have a process that we believe is well controlled and understood, only to find that when we transfer the process to another site, to a contract facility or simply have senior personnel retire, we struggle to continue the process. What happened? We did not harness and manage the power of the knowledge that was within our grasp.

Information and knowledge of our processes are corporate assets, and we need to better develop strategies, tools and policies for managing these assets

The Annual Meeting Program Committee did an excellent job identifying this challenge as a global impetus in the economic and regulatory environment that we now find ourselves in. Today's economic environment has put pressure on our organizations to optimize performance. From ICH Q10 to guidance documents like the finalized FDA Process Validation Guidance, we are being reminded of what should be a good business practice, that we need to know and understand our processes. Speakers, Interest Groups, exhibitors, as well as workshops will be focusing on the theme of the 2011 annual meeting that will be about harnessing the power of knowledge to drive world class science and technology.

Information and knowledge of our processes are corporate assets, and we need to better develop strategies, tools and policies for managing these assets. All of us, from the development scientist to the operator, have knowledge of the process. Organizationally, we need to do better than recording data in batch records and validation reports. Managing this information is an opportunity for achieving significant improvements in human performance, product quality and compliance and cost savings.

In over 45 presentations, you will hear about developing, using and qualifying single-use systems, managing information in R&D and in the laboratories; knowledge transfer in manufacturing; best practices in rapid microbiological methods; blow-fill-seal technology; QbD for suppliers; as well as others that will demonstrate how to harness and manage the power of knowledge.

In plenary and concurrent sessions, you will hear from regulators. **Piotr Krauze**, Scientific Administrator/Compliance and Inspection Sector, EMA will be a keynote speaker in the Opening Plenary, and the U.S. FDA will be speaking in the Closing Plenary. In concurrent sessions, **Kurt Brorson**, PhD, Staff Scientist, Monoclonal Antibodies, U.S. FDA will be speaking about analysis of glycoform characterization within MAb regulatory submissions, and **David Doleski**, Biologist, Reviewer/Inspector, U.S. FDA will be speaking about regulatory expectations for biologics applications.

The PDA has prided itself on collaboration with regulatory agencies, but this program also reaches out to academia to build collaboration and cooperation. Speaking in the opening plenary will be Professor **Janet Walkow**, PhD, Director, Drug Dynamics Institute, University of Texas, introduced by **Lynn Crismon**, PharmD, Dean, University of Texas College of Pharmacy. In addition, over 30 posters include presentations by the University of San Paulo, Tokoku University and the University of Stellenbosch.

An exciting opportunity is the special track being introduced at this meeting called **"Fundamentals."** This track will take place through the whole day on Tuesday and is focused on that basic knowledge needed by your staff who may be new to your company or have a new focus due to realignment. Each session will feature two 30 minute presentations followed by 30 minutes of questions and answers. For each topic discussed, there will be handouts or other materials provided for the attendees to obtain more detailed information, including PDA educational opportunities.

All this will be taking place at the JW Marriott in San Antonio, Texas on April 11 through 13, followed by the Training and Research Institute courses on Wednesday afternoon, (April 13), as well as Thursday and Friday.

The setting will be ideal in San Antonio in April for strolling the River Walk, networking with old friends and meeting new ones.

Come join the experience of interacting, learning and discussing the challenges and solutions our industry faces.Visit www.pda.org/annual2011 for details and to register.

The Difference Between Atypical Actives and Excipients

Bethesda, Md. • March 9-10 • www.pda.org/atypicalactives2011

Janeen Skutnik, Pfizer and Dave Schoneker, Colorcon

Do you use or sell *Calcium Carbonate, Isopropyl Alcohol or Sodium Chloride?* Do you know how they are used in your formulations or by the companies you are selling to? Did you know that while we may think of these as excipients, they may actually be functioning as *atypical actives?*

Did you also know that by the strict interpretation of the law, ICH Q7A is required? But is that really appropriate or necessary? Do you realize that many suppliers of these materials are not even aware that their material is being used as an API; therefore, they may only be applying excipient GMP principles when manufacturing these materials and are not currently meeting Q7A and do not intend to do so?

Many excipient suppliers find out their excipient is being used as an atypical active when the U.S. FDA arrives on their door step to do a pre-approval API inspection. Many pharmaceutical manufacturers hear from the FDA that their supplier is not a registered API supplier after the material has already been formulated in their products which results in approval delays. Agency inspectors face challenges when they show up to inspect a facility that is not aware there are listed as the manufacturer of the API.

Think this may be a problem for you and your company? Not sure? Then come to the PDA/FDA Atypical Actives Workshop from March 9-10 at the Hyatt Regency Bethesda, Bethesda, Md. For the first time pharmaceutical industry, contract manufacturers, excipient suppliers and regulators, will have an opportunity to discuss this issue and develop realistic action plans to tackle this challenge from a technical, regulatory, legal and sourcing perspective. You will have the opportunity to have your voice and opinions heard and be at the cutting edge of developing solutions.

For more details on the workshop and to register, please visit www.pda.org/atypicalactives2011.

Faces and Places: PDA/FDA Joint Regulatory Conference

Opening Remarks

(l-r) Richard Johnson, PDA; Maik W. Jornitz, Sartorius Stedim; Susan Schniepp, OSO BioPharmaceuticals Manufacturing

Plenary 1: AstraZeneca's CEO Discusses Future Challenges

David Brennan, AstraZeneca

P2: Patient Regulatory and Fiscal Responsibility in a World of Change

(l-r) Michael C. Rogers, U.S. FDA; Pat Yang, F. Hoffman-La Roche; Barbara A. Ryan, Deutsche Bank Securities

Cross-Cultural Dynamics and Quality Compliance in Times of Change

(l-r) Stephan Roenninger, F. Hoffmann- La Roche; Edwin Rivera-Martinez, U.S. FDA; David Cummings, U.S. FDA; Thomas S. Griggs, New Science Consulting Group

Compliance Update

(l-r) Bob Dana, PDA; Ilsa Bernstein, U.S. FDA; Mary Malarkey, U.S. FDA; Steven Silverman, U.S. FDA; Neal Bataller, U.S. FDA; Rick Friedman, U.S. FDA

Center Initiatives

(l-r) Deborah Autor, U.S. FDA; Michael Chappell, U.S. FDA; Susan Schniepp, BioPharmaceuticals Manufacturing; Timothy Ulatowski, U.S. FDA; Dennis Bensley, U.S. FDA; Christopher Joneckis, U.S. FDA; Rick Friedman, U.S. FDA

Interest Groups

Sterile Processing/ Lyophilization Interest Group


(l-r) Ken Muhvich, Micro-Reliance; Lyophilization IG Leader Edward Trappler participates in the discussion

Process Validation Interest Group

Scott Bozzone, Pfizer

Quality Systems Interest Group

Tara Gooen, U.S. FDA

Clinical Trial Materials Interest Group


(l-r) Ziping Wei, MedImmune; Stephan Krause, MedImmune

Supply Chain Management Interest Group

Lucy Cabral, Genentech

Regulatory Affairs Interest Group

Amy Giertych, Baxter Healthcare

Quality Risk Management Interest Group

Anurag Rathore, Indian Institute of Technology

Faces and Places: PDA/FDA Joint Regulatory Conference

Foundations Track

FDA 101


(l-r) Adrienne Hornatko-Munoz, U.S. FDA; Michael C. Rogers, U.S. FDA; Marsha Major, J&J

CAPA


(l-r) Kimberly Trautman, U.S. FDA; Marsha Major, J&J

Quality Unit Responsibility



(l-r) Valerie Welter, Teva Animal Health; Rick Friedman, U.S. FDA; John Finkbohner, MedImmune

Recall Root Causes



(l-r) Lynn Torbeck, Torbeck and Associates; Michael Smedley, U.S. FDA; Daniel Hoch, Protocol Link

Breakfast Sessions

Process Validation

(l-r) Scott Bozzone, Pfizer; Grace McNally, U.S. FDA; David Jaworski, U.S. FDA; Hal Baseman; ValSource


(l-r) Takuya Suenaga, Chugai Pharma Manufacturing Co.; Rich Levy, PDA

Merging & Emerging Track

Emerging Regulations


(l-r) Nakissa Sadrieh, U.S. FDA; Brendan Cuddy, EMA

Merging Quality Systems for Merging Companies


(l-r) Anders Vinther, Genentech; Joyce Bloomfield, Merck; Elizabeth Leininger, Elizabeth Leininger Consulting

Case Studies: Business & Quality Systems, Implications In a Post Aquisition Setting


(l-r) Mark Ehlert, 315 Ventures; Jim Bedford, Regulatory Compliance Associates

Foreign Inspection Practice

Vincent O'Shaughnessy, Pfizer

Quality Today Track

ICH Q


(l-r) Swroop Sahota, Merck; Jon Clark, U.S. FDA

Knowledge Management

(l-r) Frank Hallinan, Pfizer; Russell Wesdyk, U.S. FDA

Cross-Cultural Dynamics: A Shorter Short Course

Kathleen S. Greene, Novartis Vaccines & Diagnostic

Biologics

Gustavo Grampp, Amgen

Faces and Places: PDA/FDA Joint Regulatory Conference

Exhibitors Hall

Networking










Big Changes at TRI in 2011

James Wamsley, PDA

As you begin planning for 2011, we'd like to draw your attention to a couple of big changes TRI is making such as holding more courses in our Bethesda facility and scheduling more "student-driven" courses. These new strategies are being implemented in an effort to bring you classes that are in one place and are of high interest.

The first change, scheduling most courses at our training facility in Bethesda, Md., instead of hosting stand-alone course series at off-site locations will benefit you in a few ways.

First, rather than holding a group of courses off-site within a 3-day period (thereby forcing you to select only your favorite), you have the opportunity to attend more courses that interest you when running only 1 or 2 courses at a time at the facility.

Second, you benefit by having full use of our facility. If the instructor is talking about facility design, personnel/material flow or an autoclave, he or she can actually take you to see what they're talking about.

Finally, we will offer themed weeks that blend similar lecture and laboratory courses. Previously, if you attended an off-site biotech themed course series in San Diego, you could only register for lecture courses. Now, by attending our "Prefilled" week in March 2011, you have the opportunity to experience two lecture courses and a lab course, putting what you learned in the classroom to immediate use.

The second change in 2011 is that we will be offering fewer but more industry-driven courses. How will fewer courses benefit you?

1. It will allow us to focus on better execution of each course
2. Provide more personal attention to you
3. Track hot topics and trends in the industry, as well as to schedule courses as needed

Having more "open" time allows us to schedule additional "hot topic" courses, so that you will get the training that you need right now, rather than having to wait a year for us to schedule the course.

This strategy proved most successful this year when we waited to schedule courses in conjunction with the *PDA Universe of Prefilled Syringes and Injection Devices* conference in Las Vegas until it was evident which topics were most desired. As a result, each course in Vegas had a record-breaking number of over 50 students! I think those numbers speak for themselves.

As changes are being made, we will still be offering courses in conjunction with all of our conferences, and the *Aseptic Processing Training Program* will be offered 5 times again. As you look ahead to 2011, please keep your training needs in mind and be sure to check out our calendar for all the latest updates at www.pdatraining.org.

Have any course ideas that you believe TRI should be offering? Would you like to be an instructor? Please contact **Robert Dana**, Sr. Vice President, Regulatory Affairs and Training and Research Institute at dana@pda.org or (301) 656-5900 x224.

Need to brush up on training? See what courses are available at TRI's facility.

2011 PDA Europe
Activities and Events

15-16 February	**Clinical Trial Material**	Conference, Exhibition	**Frankfurt, Germany**
1-3 March	**Technical Report – Update**	Workshop, Exhibition Training Course	**to be announced**
15-17 March	**Pharmaceutical Microbiology / Mycoplasma**	Conference, Exhibition Training Courses	**Berlin, Germany**
22-24 March	**Parenteral Packaging**	Conference, Exhibition Training Courses	**Berlin, Germany**
24 March	**IG The Universe of Pre-filled Syringes and Injection Devices**	Interest Group Meeting	**Berlin, Germany**
5 April	**IG Freeze Drying Technology**	Interest Group Meeting	**to be announced**
6-7 April	**Stoppers + Elastomers**	Workshop, Exhibition	**Rennes, France**
3-6 May	**PDA/EMA Joint Conference**	Conference, Exhibition Training Courses	**London, UK**
26 May	**IG Visual Inspection**	Interest Group Meeting	**to be announced**
7-8 June	**Advanced Therapy Medicinal Products (ATMPs)**	Workshop, Exhibition	**Helsinki, Finland**
7-8 June	**4th Monoclonal Antibodies Workshop**	Workshop, Exhibition	**Basel, Switzerland**
28-30 June	**Virus / TSE Safety Forum**	Conference, Exhibition	**Barcelona, Spain**
27-30 September	**Pharmaceutical Cold Chain Management & Good Distribution Practice**	Conference, Exhibition Training Courses	**Berlin, Germany**
25-28 October	**Freeze Drying Technology**	Conference, Exhibition Training Courses	**Barcelona, Spain**
7-11 November	**The Universe of Pre-filled Syringes and Injection Devices**	Pre-Conference Workshop Conference, Exhibition Training Courses	**to be announced**
15-16 November	**Green Pharmaceutical Production**	Conference, Exhibition	**Copenhagen, Denmark**

For latest info: http://europe.pda.org

Subject to change

Shortlist 2010-09-27

For more information, please do not hesitate to contact us:

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