Journal

Issue 27, Winter 2013

2014 What will **YOU** change?

NSF Health Sciences Pharma Biotech

Formerly NSF DBA℠

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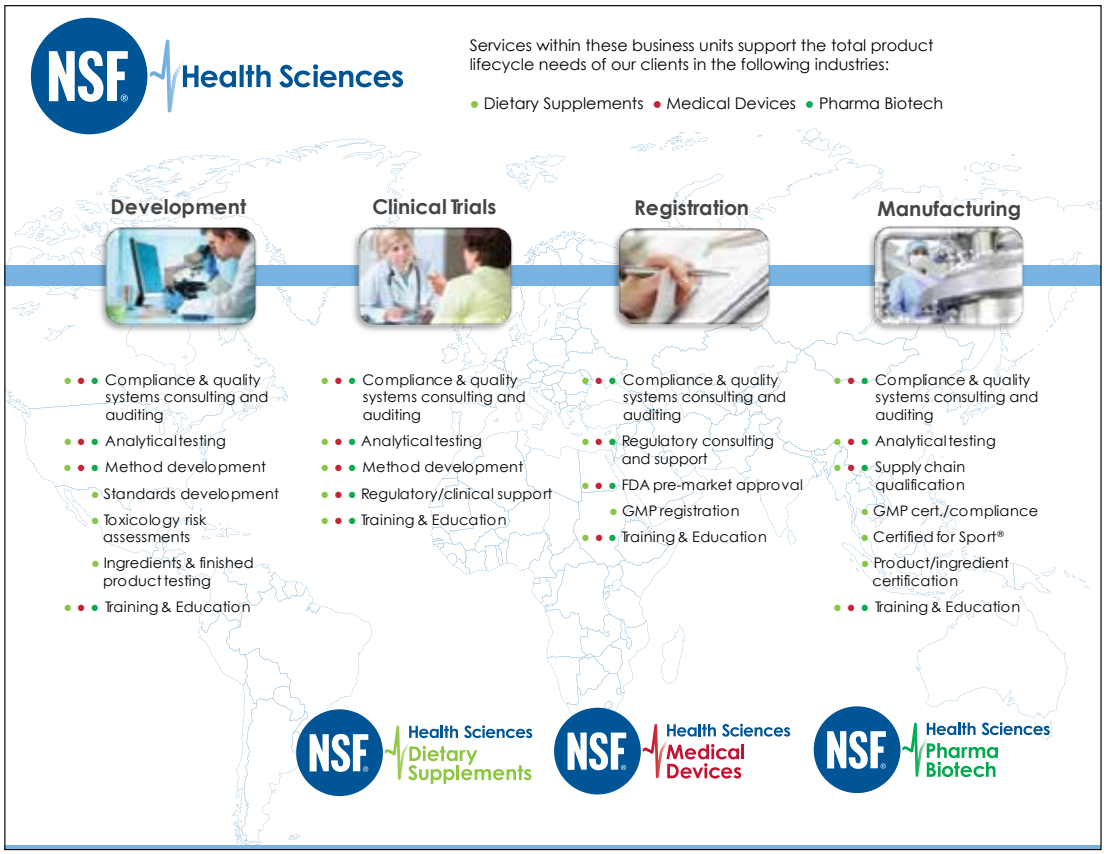
welcome

Welcome to the final issue of The Journal for 2013. As always, at this stage of the year, the past year seems to have flown by!

As I write this introduction, we are in the latter stages of our transition to NSF Health Sciences. The highly respected names of DBA and Becker & Associates will disappear, being replaced on January 1, 2014 by the three business units that make up NSF Health Sciences – ourselves in Pharma Biotech, along with our colleagues in Medical Devices and Dietary Supplements.

NSF Health Sciences now offers you a much wider range of services in the areas of consulting, auditing and education/training, and we are determined to maintain the same high standard of customer satisfaction on which we built our reputations.



Towards the end of the year we all tend to be busy – focused on meeting year-end objectives, as well as keeping an eye on the welcome holiday time ahead, before the onslaught of a new year! In this edition of the Journal, we have tried to recognize this and provide you with some lighter materials to ponder **"What must we do differently in 2014?"**

Have a go at our quick quality management system health-check for your organization – use it to help decide where improvement is needed. Thinking about some of the basics, such as SOPs, is usually a great opportunity for simplification and cost-reduction at the same time.

Get in the mindset to challenge the way you do things as a matter of routine. Or do nothing… and face another year of operational problems, paralysis by investigations, poor decision making by an undereducated workforce and of course regulatory agency actions. Everyone reading this can have some influence on the outcome by not tolerating the status quo and identifying improvement opportunities.

And, by the way, things are not going to get any easier in the pharma sector; the lucrative days of the 1980s and 1990s have gone forever! In a fragile global economy, healthcare systems are struggling more and more to provide affordable medicines and access to new medicines for an increasingly mature population. The pressure on the lifecycle of pharmaceutical development, manufacture and supply to become quicker and less expensive has never been greater.

Quality and operational excellence can, and indeed should, sit together in the pharmaceutical sector to drive down the cost of (poor) quality. As readers of The Journal, we all have a role to play in meeting the needs of our customers, both internally and externally. So let us try to work together to influence and modernize our thinking on the way forward for an Industry sector that has been traditionally slow to change and to fully understand the concept of quality.

What must we do differently in 2014?

Embed and sustain a quality culture throughout the organization	Implement and improve a QMS that is risk-based and drives improvement and efficiency	Ensure our workforce is educated in the “know why” not just the "know how"

Please contact us if you need any help. A fresh pair of eyes often sees things that are not seen by those within an organization.

Here's a sneak preview of what we intend to cover in our 2014 quarterly Journals:

- Quality metrics
- Beyond Q10 implementation
- Corporate compliance
- Investigations & CAPA management
- Data integrity
- Documentation systems/SOPs – have we lost our way?
- Supply chain

Any other topics you would like us to cover? Contact Heather Taylor at **htaylor@nsf.org**.

So, as I reflect on 2013, the pharmaceutical industry is still a great sector to work with, but it could be so much better if it really changed its mindset and really evaluated how quality assurance can drive business excellence. 2014 will be another year of transition and challenge so how will you make sure your organization is in good shape for success?

Neil Wilkinson

Best regards,
Neil Wilkinson

Neil Wilkinson
President,
NSF Health Sciences
Pharma Biotech

The Pharmaceutical Industry – Quality Health Check 2014

by Neil Wilkinson

Just over a decade ago, in the early 2000s, I had the privilege of being involved as an industry representative in discussions with key regulators on how to improve the performance of the pharmaceutical manufacturing sector.

At that time, independent reports from PWC (and later IBM Consulting) had confirmed that the sector was in poor shape in terms of how we delivered a quality product to the customer – our costs of (poor) quality were very high, and our level of product and process understanding was poor. The industry view, shared by the regulators, was that part of the problem was also that we had moved into an era of blind FDA compliance following the US generics scandal in the late 1980s, and that the risk-adverse regulatory climate and systems were preventing any changes or improvements. In many firms the mandate from the top was "do whatever we need to do to satisfy the regulators, whether it makes sense or not!"

A decade ago, the FDA genuinely surprised many of us and showed great strategic leadership by issuing the cGMP for the 21st Century initiative that has remained its philosophical direction for quality ever since. The FDA advocated a more science- and risk-based approach to pharmaceutical development and manufacturing, along with a clear vision of the desired state. In Europe, by contrast, the regulators we met with still believed all was healthy in pharmaceutical manufacturing, and did not see a problem at this time.

Since 2003, this direction was developed further by industry and regulators and taken into the ICH process, leading to the issue of ICH Q8, Q9, Q10 (and later Q11). So, by 2008, industry and regulators had a nice new roadmap to modernize and improve the way we do things in the pharma sector… or did they?

The sector was in poor shape in terms of how we delivered a quality product to the customer

As time moved forward to 2013, these external influences have continued to shape our operating environment:

- Globalization and its challenges have continued at a rapid pace
- Emerging markets have continued to emerge and have greater influence

- Regulators have recognized the true impact of globalization and the need for greater collaboration to protect patients around the world
- The "patent cliff" continues to impact many innovator firms and their business models, while providing the generic sector with opportunities
- Adulteration of materials and counterfeiting/ diversion of prescription drugs have risen to become a major global criminal industry
- Unethical compounding pharmacies in the US have caused multiple fatalities
- OTC drugs in the US are at last to be regulated to the same cGMP standard as prescription and generic drugs
- Poor quality medicines and basic data integrity issues are plaguing certain Indian firms

So as the world never stands still, how are we moving forward in improving quality and efficiency in the pharma sector? Slowly at best? The industry and regulators are still in many cases struggling to move forward with converting many of the concepts developed in the ICH Q8-11 series into practice, and trying to do this in a global operating environment:

- Q9 (QRM) is being implemented, but is it really integrated as intended into our systems and processes?
- Q10 (PQS) is being introduced variably across the industry, from those who get it, to those who will wait to be told to do it
- Q8 and Q11 continue to be tried out by leading firms, but others do not see a ROI or remain in functional silos

Let us give credit to all those firms trying to implement these relatively new approaches.

So, the good news is that we are still on the journey toward the desired state, but changing the pharma sector mindset to a culture of quality that embraces continual improvement and operational excellence, while still protecting the patient, is at best a slow evolution – certainly not a revolution! It is time to translate the theory and tools into practice.

However, in 2013 we again saw issues around many firms failing to achieve basic ethical behaviors or minimum basic standards for operating in certain firms and/or cultures:

- Problems with firms in geographic regions where there is not yet a mature pharma culture or effective regulatory system
- Problems within firms in more mature markets where cost overrules quality in decision making

So as the world never stands still, how are we moving forward in improving quality and efficiency in the pharma sector?

One question to address is whether all these diversions will prevent firms with a true quality culture from moving forward? If regulators continue to respond with a one-size-fits-all industry enforcement approach when a problem occurs, progress will remain slow. On the other hand, if regulators really apply a QRM-based approach in a more radical way that treats firms who are clearly highly ethical and operating a modern quality management system differently from the bad "actors", we may see quicker adoption and a better use of the regulators' resources.

Let us hope that the ongoing discussions of the industry and the FDA about quality culture and quality indicators, two offshoots from ICH Q10, continue to move us forward in 2014.

Your Free 2014 Q/

Words of Wisdom

"The secret to high standards of GMP? Well-educated people who do the basics well and with passion. That includes leadership!"

Do you want more of the same or something different?

If you want to improve you have to do something different.

As one year closes and another one beckons it's a time for reflection, looking back as well as forward. How did you do in 2013, and what does 2014 and beyond look like? For many, 2013 has been a real rollercoaster on the business and compliance front. Some of the more sceptical industry observers would say there have been more lows than highs:

- Continuing increase of Warning Letters, Consent Decrees, Field Alerts and Recalls
- Increasing price regulation as governments attempt to balance healthcare budgets
- Supply chains of bewildering complexity… and associated risk
- The unrelenting drive to cut costs
- Problems with data integrity as some companies ignore their moral compass (thankfully, only a very small minority, but we are all at risk of being painted with the same brush)
- Increasing levels of counterfeits and falsified medicines as criminals attempt to cash in, no matter what the consequences
- The erosion of expertise as those with the knowledge of what works and what doesn't leave, taking with them thousands of combined years of knowledge and wisdom
- More regulations to understand, interpret and embed… only with fewer or less experienced staff to implement them
- The need to reengineer quality systems built for a bygone era
- Regulators struggling with their own challenges and smaller budgets as they try their best to protect us all from unsafe medicines and poor GMP standards

Your free 2014 "health check" (on the next few pages) is your opportunity to get everything in order

Here at NSF Health Sciences, we're actually very optimistic about 2014 and beyond. Although the challenges in this unpredictable world may be significant, we think the future offers unparalleled opportunities for those who are well prepared. For tips on managing in an unpredictable environment, you need go no further than Roald Amundsen, the Norwegian Antarctic explorer:

"Victory awaits those who have everything in order. Luck people call it. Defeat is certain for those who have neglected to take the necessary precautions in time. They call it bad luck."

We agree. In an unpredictable world, one thing can be guaranteed… that nothing can be guaranteed. We are privileged to work with some of the best companies in the world. We have found that best-in-class organizations and Amundsen have a few things in common:

- They invest heavily in skills and competencies. They educate, not train
- They demonstrate excellent leadership and teamwork. One team, one purpose, guided

MS Health Check

by Martin Lush

by a moral compass that keeps everyone on track, no matter what

- When mistakes are made, they learn from them, not repeat them
- They focus on doing the basics (core competencies) very well and keep things simple. They don't try to do everything and work hard to drive out complexity and ambiguity
- Although they know what they are good at, they also know where they must improve
- They implement improvements with precision and discipline. In these organizations, actions speak louder than words

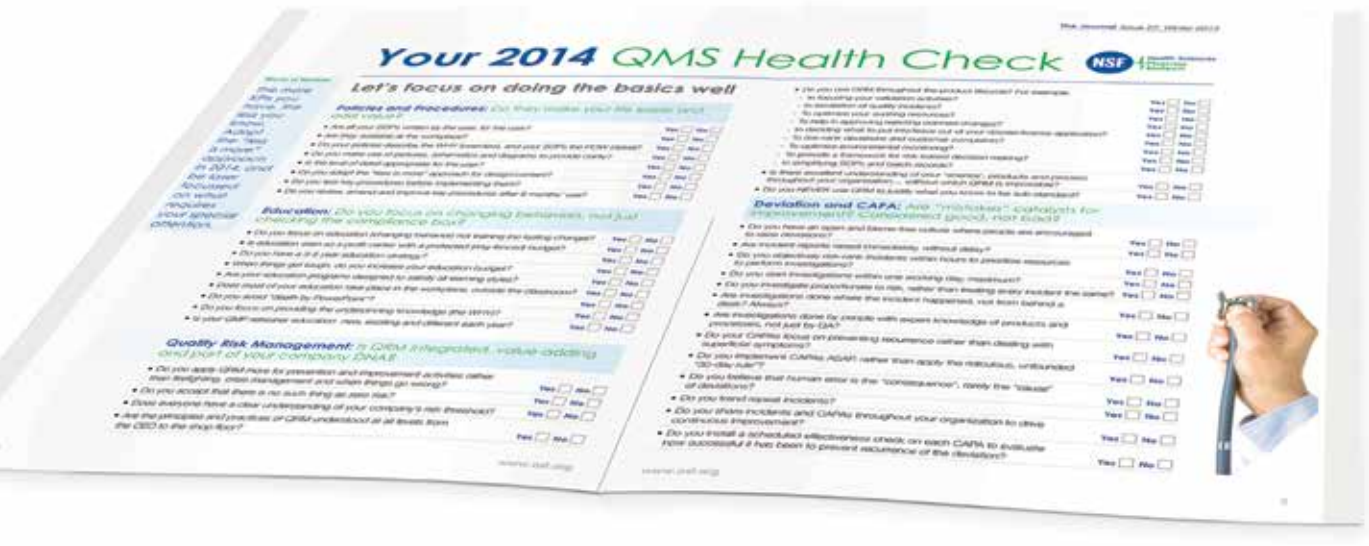
Your free 2014 "health check" (on the next few pages) is your opportunity to get everything in order. To be prepared for success, all you have to do is:

- Complete this really simple health check questionnaire. It will take only 10-15 minutes, but covers each key element of your quality management system
- Publicize it widely. Take it to your next team meeting. Leave copies in your coffee room. Circulate it on your intranet. Put it on your notice board. Ask as many people to complete it as possible. In our experience, you and your colleagues already know your strengths and weaknesses; you just didn't have an opportunity to share them. Until now that is!

- **Just answer each question with a yes or no**
- **Any no's should act as a catalyst for action!**

So, circulate the questionnaire widely, discuss openly, mark yourself honestly and act diligently. If you need any more guidance, help or support, please give us a call. That's what we're here for.

Many thanks to my colleagues at NSF Health Sciences for collating this health check: Stewart Green, Paul Cummings, Peter Savin and Bruce Davis. With over 140 years' combined experience, they know a healthy quality system when they see one.



Your 2014 QMS He

Words of Wisdom

"The more KPIs you have, the less you know. Adopt the "less is more" approach in 2014, and be laser focussed on what requires your special attention."

Let's focus on doing the basics well

Policies and Procedures: Do they make your life easier and add value?

- Are all your SOPs written by the user, for the user? Yes ☐ No ☐
- Are they available at the workplace? Yes ☐ No ☐
- Do your policies describe the WHY (overview), and your SOPs the HOW (detail)? Yes ☐ No ☐
- Do you make use of pictures, schematics and diagrams to provide clarity? Yes ☐ No ☐
- Is the level of detail appropriate for the user? Yes ☐ No ☐
- Do you adopt the "less is more" approach for design/content? Yes ☐ No ☐
- Do you test key procedures before implementing them? Yes ☐ No ☐
- Do you review, amend and improve key procedures after 6 months' use? Yes ☐ No ☐

Education: Do you focus on changing behaviors, not just checking the compliance box?

- Do you focus on education (changing behavior) not training (no lasting change)? Yes ☐ No ☐
- Is education seen as a profit center with a protected (ring-fenced) budget? Yes ☐ No ☐
- Do you have a 3-5 year education strategy? Yes ☐ No ☐
- When things get tough, do you increase your education budget? Yes ☐ No ☐
- Are your education programs designed to satisfy all learning styles? Yes ☐ No ☐
- Does most of your education take place in the workplace, outside the classroom? Yes ☐ No ☐
- Do you avoid "death by PowerPoint"? Yes ☐ No ☐
- Do you focus on providing the underpinning knowledge (the WHY)? Yes ☐ No ☐
- Is your GMP refresher education new, exciting and different each year? Yes ☐ No ☐

Quality Risk Management: Is QRM integrated, value-adding and part of your company DNA?

- Do you apply QRM more for prevention and improvement activities rather than firefighting, crisis management and when things go wrong? Yes ☐ No ☐
- Do you accept that there is no such thing as zero risk? Yes ☐ No ☐
- Does everyone have a clear understanding of your company's risk threshold? Yes ☐ No ☐
- Are the principles and practices of QRM understood at all levels from the CEO to the shop floor? Yes ☐ No ☐

ealth Check

NSF Health Sciences Pharma Biotech

- Do you use QRM throughout the product lifecycle? For example:
  - In focusing your validation activities? Yes ☐ No ☐
  - In escalation of quality incidents? Yes ☐ No ☐
  - To optimize your auditing resources? Yes ☐ No ☐
  - To help in approving rejecting planned changes? Yes ☐ No ☐
  - In deciding what to put into/leave out of your dossier/license application? Yes ☐ No ☐
  - To risk-rank deviations and customer complaints? Yes ☐ No ☐
  - To optimize environmental monitoring? Yes ☐ No ☐
  - To provide a framework for risk-based decision making? Yes ☐ No ☐
  - In simplifying SOPs and batch records? Yes ☐ No ☐
- Is there excellent understanding of your 'science', products and process throughout your organization… without which QRM is impossible? Yes ☐ No ☐
- Do you NEVER use QRM to justify what you know to be sub-standard? Yes ☐ No ☐

Deviation and CAPA: Are "mistakes" catalysts for improvement? Considered good, not bad?

- Do you have an open and blame-free culture where people are encouraged to raise deviations? Yes ☐ No ☐
- Are incident reports raised immediately, without delay? Yes ☐ No ☐
- Do you objectively risk-rank incidents within hours to prioritize resources to perform investigations? Yes ☐ No ☐
- Do you start investigations within one working day, maximum? Yes ☐ No ☐
- Do you investigate proportionate to risk, rather than treating every incident the same? Yes ☐ No ☐
- Are investigations done where the incident happened, not from behind a desk? Always? Yes ☐ No ☐
- Are investigations done by people with expert knowledge of products and processes, not just by QA? Yes ☐ No ☐
- Do your CAPAs focus on preventing recurrence rather than dealing with superficial symptoms? Yes ☐ No ☐
- Do you implement CAPAs ASAP, rather than apply the ridiculous, unfounded "30-day rule"? Yes ☐ No ☐
- Do you believe that human error is the "consequence", rarely the "cause" of deviations? Yes ☐ No ☐
- Do you trend repeat incidents? Yes ☐ No ☐
- Do you share incidents and CAPAs throughout your organization to drive continuous improvement? Yes ☐ No ☐
- Do you install a scheduled effectiveness check on each CAPA to evaluate how successful it has been to prevent recurrence of the deviation? Yes ☐ No ☐

Your 2014 QMS Health Check cont...

Words of Wisdom

"Education is what remains when training has been forgotten. Invest in education, not check box training."

Quality Metrics and KPIs: Do they drive the right behavior toward improvement, not punishment?

- Do you have more "leading" (process related) metrics than "lagging" (output focused)? Yes ☐ No ☐
- Do your metrics drive the right behavior? Yes ☐ No ☐
- Do you use the "less is more" approach, focusing on the 20% of metrics that provide 80% of benefit? Yes ☐ No ☐
- Are your metrics "owned" by the users? Are most driven bottom up, not top down? Yes ☐ No ☐
- Is data shared with users and stakeholders to drive continuous improvement? Yes ☐ No ☐

Internal Audits and Self-Inspections: Are you really inspecting?

- Is your program risk-based? Yes ☐ No ☐
- Do you have a fast and effective escalation process for critical observations and trends? Yes ☐ No ☐
- Are your auditors fully certified, up to date, educated pharmaceutical auditors from across all disciplines, not just QA? Yes ☐ No ☐
- Do your auditors offer practical advice and solutions, not just criticize? Yes ☐ No ☐
- Are inspections used to add value, not just for the sake of "compliance"? Yes ☐ No ☐
  - To help prevent problems waiting to happen? Yes ☐ No ☐
  - To share best practice across functions and sites? Yes ☐ No ☐
  - To drive out complexity, not create it? Yes ☐ No ☐
- Do you trend audit findings to assess the big picture? Yes ☐ No ☐
- Does your audit and self-inspection program ensure you are inspection-ready at all times? Yes ☐ No ☐

Change Control: Does your system manage risk, prioritize resources and drive improvement?

- Has your change control system been designed with the active participation of all stakeholders, not just QA/regulatory affairs? Yes ☐ No ☐
- Is your system simple and understood by all? Yes ☐ No ☐
- Is change control considered vital for business improvement and risk management, not just for compliance? Yes ☐ No ☐
- Does your system allow a change request to be reviewed and approved in hours, not days, weeks or months? Yes ☐ No ☐
- Do you use a risk-based impact assessment form to help approve or reject changes? Yes ☐ No ☐
- Does your system reject 30-40% of change requests to help focus on priorities? Yes ☐ No ☐
- Do you follow up on every approved change to ensure it worked? Yes ☐ No ☐

Validation: Do you REALLY understand your processes or just check the compliance box?

- Do you really understand process variability or just check the validation box? **Yes** ☐ **No** ☐
- Does everyone understand your process critical control points? **Yes** ☐ **No** ☐
- Does everyone really understand your key product attributes; those that impact patient safety? **Yes** ☐ **No** ☐
- Do your metrics confirm a process in control? ZERO reworks/reprocessing and 100% right first time? **Yes** ☐ **No** ☐

DATA INTEGRITY: Is it considered to be your life blood, or just assumed?

- Does everyone realize that poor data integrity = NO regulatory trust? **Yes** ☐ **No** ☐
- Do you have all your data? Is it backed up and archived? **Yes** ☐ **No** ☐
- Do you routinely review and check for data integrity? **Yes** ☐ **No** ☐
- Do you routinely challenge all transactions (the audit trail)? **Yes** ☐ **No** ☐
- Have you validated your data handling systems? **Yes** ☐ **No** ☐

Your QUALITY CULTURE: What do people do when no-one is looking?

- Is QA totally integrated on the shop floor? **Yes** ☐ **No** ☐
- Do first-line managers/supervisors spend more time on the shop floor than in meetings? **Yes** ☐ **No** ☐
- Does everyone have personal quality performance objectives? Everyone? **Yes** ☐ **No** ☐
- Do your leaders walk the talk and demonstrate the right quality behaviors? **Yes** ☐ **No** ☐
- Do people talk about quality, not just output and financial returns? **Yes** ☐ **No** ☐
- Do you develop, reward and retain expertise rather than allow it to leave the organization whenever something better comes along? **Yes** ☐ **No** ☐
- Do you treat your suppliers as extensions of your production line? **Yes** ☐ **No** ☐
- Do you select your suppliers based on quality, not price? **Yes** ☐ **No** ☐
- Does everyone feel connected to the patient, not the share price? **Yes** ☐ **No** ☐
- Do you regularly “benchmark” your quality standards against best in class? **Yes** ☐ **No** ☐

Next steps: Scoring

Write down the areas where you scored "No"

Are these areas featured in your 2014 Goals and Action Plan? **Yes** ☐ **No** ☐

Write down who can help you address these areas of concern. What do you need to tackle these concerns in 2014?

Regulatory Update

by Pete Gough

Words of Wisdom

"Nothing was ever achieved without passion. The same goes for GMP. In 2014, put the P back in GMP – Passion!"

EU Pharma News

EMA Reorganization

As of September 2013, the European Medicines Agency (EMA) is restructuring and reshaping its organization to better support its public and animal health mission.

This will help to:

- Better support the scientific work of the EMA committees
- Better share the data that the Agency holds
- Better meet the needs of its stakeholders and partners

The full structure is not yet finalized and more information will be given as work proceeds. The changes announced are the beginning of a transition period, expected to be completed in 2014.

The new structure has eight divisions, including four new core units that have responsibilities throughout the lifecycle of a medicine for human use.

The four new core units are:

- Human Medicines Research and Development Support Division
- Human Medicines Evaluation Division
- Procedure Management and Business Support Division
- Inspections and Human Medicines Pharmacovigilance Division

The other four divisions are:

- Veterinary Medicines Division
- Stakeholders and Communication Division
- Information and Communications Technology Division
- Administration Division

The reorganization introduces a new operating model for how medicines are managed throughout their entire lifecycle, with separation of scientific and procedure management.

FDA News

FDASIA Implementation

In September 2013, the US FDA published the draft guidance "Specification of the Unique Facility Identifier (UFI) System for Drug Establishment Registration". This draft

Revision of EU GMP Chapter 2

The EU issued a draft revision of Chapter 2 in November 2009 and the final version was published on August 16, 2013. The revised chapter becomes effective on February 16, 2014

The main changes in the revised version are:

Senior management quality responsibilities now clarified making leaders accountable for assigning adequate resources to QMS

- New references to the responsibilities of senior management, which are consistent with Chapter 1 and ICH Q10. The new requirements for senior management are to:
  - Determine and provide adequate and appropriate resources (human, financial, materials, facilities and equipment) to implement and maintain the quality management system and continually improve its effectiveness
  - Ensure an effective quality management system is in place to achieve the quality objectives
  - Establish a quality policy
  - Ensure continuing suitability and effectiveness of the quality management system and GMP compliance through participation in management review
- The recognition that a separate head of quality assurance or head of the quality unit may be appointed
- New requirements for consultants (which are virtually identical to US 21 CFR 211.34) to have adequate education, training and experience to advise on the subject for which they are retained and for companies to have adequate records of consultants used

Is your Senior Manager or Director aware of this change?

states that the FDA's preferred UFI for a drug establishment is the Data Universal Numbering System D-U-N-S (DUNS) number, assigned and managed by Dun & Bradstreet. The FDA has been using the DUNS number as a registration number for drug establishments since the implementation of electronic drug registration and listing.

Words of Wisdom

"If your QA folks are not on the shop floor, they are not doing their job."

Preparing for Unannounced Inspections from Notified Bodies

by James Pink

Europe has introduced further measures for unannounced audits of manufacturers by notified bodies. With this in mind, James Pink, VP Europe-Health Sciences Medical Devices at NSF International, provides a little help to prepare for them.

Background

There are two important documents that are concerned with unannounced inspections:

- European Commission recommendation of September 24, 2013 concerning unannounced audits by notified bodies in the field of medical devices
  - http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:253:0027:0035:EN:PDF
- Team NB's Code of Conduct for Notified Bodies version 3.0 October 2012, pages 21-23
  - http://www.team-nb.org/documents/2013/Code_of_Conduct_Medical_Notified-Bodies_v3-0.pdf

Unannounced inspections are already being undertaken by notified bodies and competent authorities are preparing for them to become mainstream by early 2014.

Consider the following steps to ensure that you are prepared for EU notified body unannounced inspections.

Step 1: Be prepared

Establish and review the sources of information for unannounced inspections; in particular, ensure you create links with other companies in the area with the same notified body and products. Review your contract with your notified body and ensure you identify when you are manufacturing product. Communicate this through your organization and to your notified body.

Step 2: Plan for unannounced audits

Undertake formal business continuity planning activities to ensure you consider worst-case scenarios and develop procedures that can be used later for drills, exercises and simulations. These procedures can then serve as the basis of your business continuity strategy.

Each of these steps is addressed in more detail in a dow

Step 3: Undertake your own mock unannounced audits

There is nothing better than actually undertaking mock audits. Utilize NSF Health Sciences' expert audit team to help kick off unannounced inspections so you can learn lessons from the best in the business and refine your contingency procedures.

Step 4: Implement procedures for unannounced inspections

It is imperative that you have procedures that inform and train all personnel involved in unannounced inspections so that they can implement them as soon as an unannounced inspection occurs. Do not forget that this also needs to extend to your supply chain!

Step 5: Raise awareness and train your people and suppliers for managing inspections

Practice makes perfect. Simulation, exercises, drills, scenarios – whatever you call them, there is nothing better than training your people and suppliers so that you can use assessment methods to understand whether they are able to contingency plan, apply unannounced audit procedures and, more importantly, effectively respond to notified body requests during the audit. Do not underestimate the importance of having competent and confident people on hand during the audit.

Step 6: Maintain compliance to the EU medical device directives

Are your devices classified correctly? Do your declarations of conformity actually cover every medical device? Is your technical file updated with the appropriate information so that it shows you are on top of things? If not, you need to ensure that you have a technical file review, a risk management review and post-market surveillance summaries that are current and responding to your data.

Consider the scenario of a notified body suspecting that your device is not in accordance with the medical device directive's essential requirements – how do you prove it is, do you have the evidence and do you have access to the relevant tests and information?

Step 7: Use the NSF Health Sciences Medical Devices team for support

Whether regulatory strategy, regulatory science, quality assurance, training, auditing or testing, we can help you. We are only a phone call away.

Time for a Rethi

HUMAN ERROR CAUSES AND PREVENTION

"Where the true root cause(s) of the issue cannot be determined, consideration should be given to identifying the most likely root cause(s) and to addressing those. Where human error is suspected or identified as the cause, this should be justified having taken care to ensure that process, procedural or system-based errors or problems have not been overlooked, if present. Appropriate corrective actions and/or preventative actions (CAPAs) should be identified and taken in response to investigations."

The Rules Governing Medicinal Products in the European Union Volume 4

The regulatory agencies have a uniquely broad perspective on the causes of GMP deviations, batch rejections and recall. And this insight has driven the agencies to expect a higher degree of scrutiny when performing root cause analysis. And when "human error" is cited as the root cause, is this true or just a convenient coatpeg for all ill defined or low performing QMS. For too long in our industry, those at the sharp end have been blamed for most deviations and unplanned quality incidents. Why? Because it's quick and convenient. Over 50 years ago, Deming said that 90% of errors were not caused by the worker, but by the systems created by management. We agree. What the regulators are expecting is to see a comprehensive investigation and to make sure the real root cause is identified before attributing any deviation to human error. For 2014, we recommend the following guidance:

- Remember that human error is the consequence, and rarely the cause, of deviations
- Human error should be the starting point of your investigation, rarely its conclusion
- People make mistakes for a reason. Over complexity, poor process design, stress and anxiety. The list is endless. Address these issues and repeat incidents stay away. If you blame the operators and then retrain them, incidents will come back
- Remove "human error" as a category in your deviation management system. Force your deviation investigators to identify the real root cause
- Get better informed and educated about human error, causes and prevention

We'll cover these issues in more depth in upcoming Journals.

For more information contact us +44 (0)1751

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John Johnson joins NSF Health Sciences Pharma Biotech as Executive Director

We are pleased to announce that John has joined our UK executive leadership team. John has 30 years' experience in pharmaceuticals. A chemist by profession, John has held senior

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STANDARD OPERATING PROCEDURES

One of our clients had over 2,000 SOPs with an average of 15 pages each. Not unusual you may think. With our help the client estimated that each SOP cost approximately £18,000. When you take into account the cost of the people writing them, the time spent reviewing and approving them, the cost of infrastructure and training and the myriad of administrative activities, the estimated cost is huge, but shouldn't be surprising. The problem was that the company had a history of procedural non-compliance and deviations caused by overly complex SOPs. So that's £36,000,000 for SOPs that were difficult to follow so therefore rarely used. Hardly a good return on investment. Now have a go at this:

Aocdrnicg to a rscheeacrh at Cdmgabrie Uirevtisny, it deosn't mttaer in waht odrer the ltteers in a wrod are, the olny iprmoetnt tihng is taht the frist and lsat ltteer be at the rghit pclae. The rset can be a ttoal mses and you can stll raed it wouthit porbelm. This is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe.

Azanmig huh?

So, use 2014 to rethink your approach to SOPs

- Remember their core purpose is to ensure consistency and standardization, not to confuse and frustrate
- Write them for the target audience, not the auditor or inspector. Get users involved
- Make sure their level of detail reflects the complexity of the task and the experience of the target audience
- Adopt the "less is more" approach. The greater the complexity, the greater the risk
- You don't need words. Azanmig huh!
- Use pictures, diagrams, schematics and symbols. In fact, anything other than words
- Invest in proper SOP training in the workplace, not in the check-the-box approach in the classroom
- Road test key SOPs to make sure they work before you implement them
- Do not allow "non-users" to add unnecessary complexity. QA take note!
- Surgeons, pilots and the military use well-designed checklists to improve consistency, so why don't we?

If you need any advice or guidance, please give us a call.

432999/+1 857-277-0060 or visit www.nsf.org

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leadership positions with Hospira, Piramal and Ipsen. Although a sterile products specialist he also has excellent knowledge of all major dosage forms, associated global standards and shares our passion for modernizing quality management systems and culture. His other passions include fly fishing, the wilderness and the Orange Guide! John will be telling you more about himself in our next Journal.

NSF Health Sciences

Offering You Mor

In response to feedback from our clients in mainland we continue to expand our local language portfolio

As head of our Europe-based office, I work closely with our growing team of Associates to provide our European clients with tailored training and consultancy solutions. We can now offer our GMP-related services, including training, auditing and consulting, in English, Italian, German and French.

Each of our team of expert quality management consultants in Europe has many years of experience in the pharmaceutical and/or pharmaceutical biotechnology industry, as well as being fluent in one or more European languages.

Our **Italian mother-tongue Associates** include:

Giovanni Cosmi, Cristina Funaro, Francesco Antonetti, Marco Budini, Claudio Mancini, Pasquale Anastasio, Laura Morelli, Angel Mateo Echanagorria and Massimo Barbanera

Our **German mother-tongue Associates** include:

Hans Zulliger, Klaus von Jan, Martin Poertner, Martin Kloemkes, Christof Langer, Ulrich Behrend and Monika Sauter

Our **French mother-tongue Associates** include:

Marie-Cécile Krief, Claude Ammann, Christophe Viala and Jean-Luc Clavelin

International Phar Legislation Update

We recently presented a one-day International Pharmaceutical Legislation Update course in Milan, Italy, with the sponsorship of AFI (Associazione Farmaceutici Industria). The pharmaceutical and biotechnology industry is highly regulated and it is important for various personnel (including the Qualified Person and other technical staff) to keep abreast of new and updated legislation. The current rate of regulatory change in the law and guidelines regulating the pharmaceutical industry is unprecedented, with no sight of slowing down.

Two of our seasoned tutors, Giovanni Cosmi and Pete Gough, delivered the course, which also featured Claudia Savani (Bristol-Myers Squibb) as guest speaker. The mix of presentations in Italian and English was well received by delegates and stimulated a good level of audience interaction.

The course covered the structure and interpretation of recent and new

For more information on tailored training a

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legislation, with updates including changes to legislation or guidance documents in relation to Europe, USA (FDA), GMP, International Inspections, ICH, PIC/S and Italy.

Get in touch if you'd like us to run this course in your country, or in-house for your company. We have an extensive range of courses which we can adapt to suit your needs.

Delegate feedback on this course:

"I appreciated the clarity of exposure of Dr Cosmi and the relation summarizing GMP chapters"

Marta Carboniero, Laboratorio Farmaceutici SIT, Italy

"Very good the idea of a 360° updating"

Simone Sormani, Farmaka SRL, Italy

1st European QA Conference Bonn, September 2013

We also participated in this event which was attended by over 700 industry professionals. The theme of this very broad-based conference was Quality Across Europe, with the aim being a full European QA Conference involving European Regulatory Authorities and European QA Societies.

Over the three days, delegates had the opportunity to take part in wide-ranging sessions including:

- Outsourcing – Vendor Oversight
- Risk Management
- Data Challenges
- GLP
- GMP
- Animal Health
- GCP/Medical Devices
- Information Technology
- Pharmacovigilance/Medical Devices

Speakers included representatives from industry and from various European health authorities. On the last day of the conference two interesting key note speeches discussed the future of the pharma industry and the importance of leadership in quality management.

The conference is scheduled to take place every three years, with the next meeting to be held in France in the Spring of 2016 (location yet to be announced).

We will keep you updated on our European activities.

Stephen Engels, Principal Consultant

nd consultancy solutions visit www.nsf.org

Forthcoming Courses

What's planned for January – April 2014

Pharmaceutical Packaging

QP

Hilton York Hotel, York, UK

January 20-24

Despite advances in technology, quality problems with packaging still occur. Print origination and packaging processes continue to be a major reason for product recalls!

This course has been carefully designed to cover all important aspects of the packaging process, from selection of suitable components, pack design, packaging processes and their associated GMP challenges, through the supply chain to the patient.

The course includes visits to a wholesaler and a pharmacy, with input from printed packaging component suppliers.

Course Fee: £3,200 plus VAT

New Regulations and Legislation: What does this mean for you?

WEBINAR

10am EST

January 23

Stay up to date on how key legislative changes impact pharmaceutical manufacturing and the supply chain. This webinar will focus on FDA's Safety and Innovation Act (FDAISA), implementation timeline and the major implications for pharmaceutical, biopharmaceutical and generic companies. Topics which will be covered include:

- Definition of "adulterated" drug product including failure of a firm to manage its supply chain?
- Expanded FDA authority regarding drug importation
- Registration requirements for foreign manufacturers and excipient manufacturers
- Status of the Unique Facility Identifier
- cGMPs for raw materials and drug components

Course Fee: $100

Human Error Prevention and Reduction

Marriott at Research Triangle Park, Durham, NC, USA

February 4-5

NSF-DBA has been teaching human error prevention for over five years, touching delegates from over 200 companies including regulatory agency representatives in Europe and the USA. Building on this track record, we have developed a comprehensive human error reduction program which will achieve dramatic reductions in human error and especially deviation recurrence. Our program includes training, site assessments and in-house certification.

The training in human error reduction is a core component of our program and includes three primary elements: the science of human error, investigative techniques for error avoidance and proactive approaches for error avoidance. This two-day course will help you and your staff see human error from an entirely different point of view, and provide you tools and techniques that will make a difference back at your site.

Course Fee: $1,775

GMP for Biological and Biotechnology Products

Manchester Marriott Victoria & Albert Hotel, Manchester, UK

February 18-20

The development of new biopharmaceuticals and biotechnology products promises to bring about a revolution in global healthcare. However, the manufacture and control of such products brings with it special concerns and challenges which, if inadequately addressed, could jeopardize product quality and patient safety.

If companies are to be successful in this highly important arena, it is essential that staff at all levels clearly understand:

- The risks and challenges associated with biopharmaceuticals manufacture and control
- The rapidly changing international regulatory demands and expectations for these products
- How these requirements can be translated into a practical, effective and cost-effective quality management system

All these issues and more will be addressed in this introductory three-day training course.

Course Fee: £1,910 plus VAT

For more information www.nsf.org/info/pharma-training

Course details and prices are correct at the time of printing and are published in good faith.
NSF reserves the right to make any changes which may become necessary.

NSF Health Sciences Pharma Biotech

How to Audit – Bulk Biotech Operations

How to Audit

Manchester Marriott Victoria & Albert Hotel, Manchester, UK

February 21

This course gives existing auditors, who have no 'bio' background, sufficient exposure to some specific issues in biologics and biotech processing to approach a biologics/biotech audit with confidence. It will also be extremely useful for manufacturing and quality personnel already working in a biologics/biotech facility who wish to undertake effective self-inspection. We will cover:

- How to develop an audit aide-mémoire for risk-based auditing of bulk bio manufacturing
- A structured approach to an audit that addresses both EMA and FDA expectations
- Reasonable expectations for environmental and in-process monitoring for bio facilities
- Risk-based prioritization of activities to be audited when time presses (doesn't it always!)
- Practice, in a non-threatening situation, in classification of bio facility audit observations

Course Fee: £735 plus VAT

Effective Pharmaceutical Audits and Self-Inspections

IRCA CERTIFIED TRAINING COURSE A17638

(An IRCA Certified Pharmaceutical QMS Auditor/Lead Auditor Course)

Marriott San Mateo San Francisco Airport Hotel, San Mateo, CA, USA

March 3-7

Faced with industry and regulatory pressure, NSF-DBA was actively encouraged to successfully redesign an existing, popular course and reintroduce it as the first International Pharmaceutical Quality Management Systems Auditor/Lead Auditor Qualification. This course has been specifically designed to provide delegates with education, understanding and development to meet today's pharmaceutical pressures, including the auditor skills and toolbox of auditing techniques needed by the successful pharmaceutical lead auditor. Given the course focus, content and delivery of EudraLex Volume 4 Chapters 1 to 9, ICH Q10 as the combined QMS, the team at NSF-DBA sees this as the first truly certified GMP auditor training course available globally today.

Course Fee: $3,200

Risk-Based Decision Making for Quality Professionals and QPs

Amsterdam Marriott Hotel, Amsterdam, The Netherlands

March 4-5

The manufacture of medicines is easy – until something goes wrong. Important decisions have to be made quickly and these are rarely simple. There is never enough time, and important data and information are usually in short supply.

To protect your patients and your reputation your decisions must be:

- Scientifically justified
- Based on an objective and realistic assessment of RISK
- In compliance with regulatory requirements and expectations
- GOOD for your business!

This course will provide you with the tools and techniques to make the right risk-based decision no matter how challenging the situation. It is not what you know that matters – it is what you do with what you know.

Course Fee: £1,470 plus VAT

*Early Bird or Second Delegate discounts apply to some of our courses. Please visit our website, **www.nsf.org**, for full details*

Book your place at www.nsf.org/info/pharma-training

Forthcoming Courses

What's planned for January – April 2014

Quality Management Systems

QP

York Marriott Hotel, York, UK

March 10-14

We all know that the quality of your products depends on the quality of your people and the effectiveness of your Quality Management System. This course will provide you with answers to some really tough questions such as:

- How to meet the ever increasing demands of global regulatory agencies, both now and in the future
- How to succeed when others have failed and implement ICH Q10 (Pharmaceutical Quality Systems) successfully throughout the product lifecycle
- How to manage quality across your supply chain, including contractors and third parties, no matter how complex
- How to simplify every aspect of your QMS to reduce bureaucracy and improve speed and flexibility
- How the best in class manage quality to improve their competitive edge and improve regulatory compliance

Course Fee: £3200 plus VAT

Free Seminar for Prospective QPs and Sponsors

QP

FREE SEMINAR

York Marriott Hotel, York, UK

March 11

Since 1990, NSF-DBA and the University of Strathclyde have collaborated to present a structured modular course designed for people wishing to become Qualified Persons. This course is now recognized as the most successful and main route to QP education in the UK and increasingly in Europe. Attend this free seminar if you are:

- Planning to train to become a QP
- Interested in maximizing your technical knowledge and value to your organization
- Responsible for QP training or technical development
- Interested in gaining a vocational MSc, postgraduate diploma or certificate

…or want to know more about sponsoring a QP

Course Fee: FREE

How Is the Implementation of FMD Going? Successes and Challenges

WEBINAR

10am EST

March 13

Stay up to date on this landmark legislation for Europe and get the latest information on the European Falsified Medicines Directive, including guidelines on API importation, excipient GMP risk assessments, supply chain controls and safety features (tamper evidence and track and trace). This will include an update on the phased implementation timeline and what companies and agencies are doing to respond on time and not risk supply chain disruption.

Course Fee: $100

Effective Pharmaceutical Audits and Self-Inspections

IRCA CERTIFIED TRAINING COURSE

A17638

(An IRCA Certified Pharmaceutical QMS Auditor/Lead Auditor Course)

Renaissance Manchester City Centre Hotel, Manchester, UK

March 17-21

Supply chain assurance is the key topic in our industry today. From starting material to patient, pharmaceutical companies are expected to be able to demonstrate control. Increasingly that means audit or justify why not! Regulators' expectations for the quality of auditors and their work continue to increase. This course will prepare you to perform your best audit ever.

You will develop a toolbox of auditor skills from planning to execution and follow-up. This course provides the training required for the IRCA certified Pharmaceutical Quality Management System Auditor and Lead Auditor certificate (satisfactory completion of the course exam and post course audit experience are required to gain certification).

Course Fee: £2,750 plus VAT

For more information www.nsf.org/info/pharma-training

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NSF Health Sciences Pharma Biotech

Pharmaceutical GMP Law and Guidances

QLP

Boston Marriott Cambridge, Cambridge, MA, USA

March 25-27

This course will provide a comprehensive review and analysis of pharmaceutical GMP requirements globally, including the roles of ICH, PIC/S, and pharmacopoeias. The course will deepen your knowledge of the pharmaceutical regulatory environment and keep you up to date with the latest developments and trends in the pharmaceutical industry related to regulations, guidances and inspections. It is a cornerstone course of our modular educational program and a key knowledge requisite for quality leaders and technical professionals. If you are ready to deep dive into the pharma regulatory environment and want to stay abreast of the latest regulatory developments, this course is for you!

Course Fee: $2,950

Pharmaceutical Legislation Update: Continuing Professional Development for Qualified Persons and Technical Personnel

Manchester Marriott Victoria & Albert Hotel, Manchester, UK

March 26

The Qualified Person and other technical personnel need to be informed and aware of pharmaceutical legislation. Changes in legislation and guidelines, and their interpretation, can have significant implications for the individual and the company. The course will cover:

- The reality and interpretation of recent and new EU legislation
- Changes to EU GMPs
- An update on ICH and other international initiatives
- USA changes to legislation and FDA guidance
- UK updates

Course Fee: £735 plus VAT

Sterile Products Manufacture

Renaissance Manchester City Centre Hotel, Manchester, UK

March 31-April 3

Sterile products manufacture represents the most hazardous activity (to the patient!) performed by pharmaceutical companies. This is why it attracts so much regulatory scrutiny. Recent regulations and guidelines from EU (Annex 1) and the US FDA's industry guidance, Sterile Drug Products Produced by Aseptic Processing, are confusing to many and very difficult – and expensive – to comply with in full.

This course is designed to help you comply with these and other documents in a way that is:

- Practical
- Scientifically sound
- Cost effective

Course Fee: £2,550 plus VAT

*Early Bird or Second Delegate discounts apply to some of our courses. Please visit our website, **www.nsf.org**, for full details*

Book your place at www.nsf.org/info/pharma-training

NSF-DBA, NSF-Pharmalytica and Becker & Associates are changing their names to **NSF Health Sciences** on January 1, 2014.

NSF Health Sciences

NSF Health Sciences offers the same integrity, service and innovation, now enhanced by NSF International's comprehensive range of global services and resources

NSF Health Sciences Pharma Biotech

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