Patient Centricity and Integrated Quality Management

February 27, 2020

Development of a Standard for Assessing and Improving Quality Culture

Presenter: Susan Schniepp, PDA Chair-Elect and Member of PDA’s Quality Culture Team
1. Background
2. Regulatory Expectations
3. Why Quality Culture is Important
4. Understanding Behaviors vs. Attributes
5. PDA’s Culture Journey
6. ANSI Standard
7. Acknowledgements
Background
FDA’s Quality Metrics Program

A maximally efficient, agile, flexible, pharmaceutical manufacturing sector that reliably produces high quality drug products without extensive regulatory oversight.

Janet Woodcock, FDA, Center for Drug Evaluation and Research October 5, 2005
PDA’s Metrics Journey

- **Initial Industry Responses**
- **ISPE Pilot Announced**
- **PDA Metric Conf #1**
- **Industry White Papers Published**
- **PDA Metric Conf #2**
- **PDA Culture Metrics Survey**
- **PDA Metric Conf #3**
- **PDA Q Culture Assessment Pilot**
- **PDA Metric Conf #4**

Timeline:
- **Feb 2013**
- **May**
- **Aug**
- **Nov**
- **Feb 2014**
- **May**
- **Aug**
- **Nov**
- **Feb 2015**
- **May**
- **Aug**
- **Nov**
- **Feb 2016**
- **May**
- **Aug**
- **Nov**
- **Feb 2017**
- **May**

Events:
- **FR Notice Requesting Metrics to Prevent Drug Shortages**
- **Brookings Stakeholder Meeting**
- **“Metrics of Potential Interest”**
- **FDA Draft Guidance (rev 1)**
- **FDA Technical Conformance Guidance**
- **FDA Draft Guidance (rev 2)**
Optional Proposed Metrics - 2015

- Measuring Quality Culture
- Measuring Senior Management Engagement
  - CAPA Effectiveness
  - Process Capability/Performance
• Metrics is a very complex topic, fraught with unintended consequences.
• Trending is most important
• Optimizing a metric program takes time to evolve
• **Metrics has to be combined with a strong Quality Culture to be meaningful**
• Focusing on a metric can compromise its utility
• Finding forward looking metrics is very difficult
PDA Metric Task Force

- Steven Mendivil
- Denyse Baker
- Cylia Chen-Ooi
- Veronique Davoust
- Marci Goldfinger
- Robert Kieffer
- Shin-ichiro Mohri
- Marty Nealey

- Pritesh Patel
- Edwin Rivera-Martinez
- Anil Sawant
- Siegfried Schmitt
- Susan Schniepp
- Lorraine Thompson
- Glenn Wright
Regulatory Expectations

HOW TO ENSURE QUALITY

WHAT ARE YOU WRITING?

A REQUIREMENTS SPECIFICATION, A TECHNICAL DESIGN, TEST CASES, SYSTEM AND USER DOCUMENTATION

IMPLEMENT A QA REGIME

AUDIT COMING?

YEP, TOMORROW

guy & pole
PIC/S: Good Practices for Data Management and Integrity in Regulated GMP/GDP Environments

• 6.3 Quality Culture
  • Management should aim to create a work environment (i.e. quality culture) that is transparent and open, one in which personnel are encouraged to freely communicate failures and mistakes. Organisational reporting structure should permit the information flow between personnel at all levels.
MHRA ‘GXP’ Data Integrity Guidance and Definitions

3. The principles of data integrity

3.1 The organisation needs to take responsibility for the systems used and the data they generate. The organisational culture should ensure data is complete, consistent and accurate in all its forms, i.e. paper and electronic.

3.3 The impact of organisational culture, the behaviour driven by performance indicators, objectives and senior management behaviour on the success of data governance measures should not be underestimated. The data governance policy (or equivalent) should be endorsed at the highest levels of the organisation.
1. Introduction

1.4 Examples of controls that may require development and strengthening to ensure good data management strategies include, but are not limited to:

- adoption of a **quality culture** within the company that encourages personnel to be transparent about failures so that management has an accurate understanding of risks and can then provide the necessary resources to achieve expectations and meet data quality standards:
4. Principles

4.7 **Quality culture.** Management, with the support of the quality unit, should establish and maintain a working environment that minimizes the risk of non-compliant records and erroneous records and data. *An essential element of the quality culture is the transparent and open reporting of deviations, errors, omissions and aberrant results at all levels of the organization, irrespective of hierarchy.* Steps should be taken to prevent, and to detect and correct weaknesses in systems and procedures that may lead to data errors so as to continually improve the robustness of scientific decision-making within the organization. Senior management should actively discourage any management practices that might reasonably be expected to inhibit the active and complete reporting of such issues, for example, hierarchical constraints and blame cultures.
Why Culture is Important
<table>
<thead>
<tr>
<th></th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total warning letters</strong></td>
<td>38</td>
<td>22</td>
<td>19</td>
<td>46</td>
</tr>
<tr>
<td><strong>US sites with DI</strong></td>
<td>0%</td>
<td>0%</td>
<td>33%</td>
<td>73%</td>
</tr>
<tr>
<td><strong>deficiencies</strong></td>
<td>(0 of 13)</td>
<td>(0 of 4)</td>
<td>(1 of 3)</td>
<td>(8 of 11)</td>
</tr>
<tr>
<td><strong>Outside US sites with DI</strong></td>
<td>49%</td>
<td>67%</td>
<td>81%</td>
<td>81%</td>
</tr>
<tr>
<td><strong>deficiencies</strong></td>
<td>(10 of 25)</td>
<td>(12 of 18)</td>
<td>(13 of 16)</td>
<td>(29 of 35)</td>
</tr>
<tr>
<td><strong>Total number of warning letters citing DI</strong></td>
<td>26%</td>
<td>55%</td>
<td>74%</td>
<td>79%</td>
</tr>
<tr>
<td><strong>deficiencies</strong></td>
<td>(10 of 48)</td>
<td>(12 of 22)</td>
<td>(14 of 19)</td>
<td>(37 of 46)</td>
</tr>
</tbody>
</table>

**Office of Manufacturing Quality**

**CY17 Warning Letters**

*Through September 1, 2017. Compounding warning letters are not included.*

**Note:** Compounding warning letters excluded.
Emergence of Generic Industry
Emergence of Biosimilars
Emergence of Virtual Companies
Emergence of CMOs
Emergence of Compounding Pharmacies & 503b Outsourcing Facilities
Institutional Knowledge Lost through M&A
Emergence of Information Technology
Between 2005 and 2016 there were ≈225 Warning Letters Issued for “Data Integrity”

In 2002 at the International GMP Symposium Issues of Concern Were:

Improper documentation
Lack of Thorough Investigations
Insufficient Training
For every 5,000 employees, moving from the bottom to the top quintile would save a company $67 million annually.

Harvard Business Review April 2014 “Creating a Culture of Quality”
CEB (Corporate Executive Board) Results of Two Years of Research
2000’s The Importance of Culture was Realized

‘Culture eats strategy for breakfast’
- Peter Drucker

CULTURE EATS STRATEGY FOR LUNCH
THE SECRET OF EXTRAORDINARY RESULTS
Igniting the Passion Within
CURT W. COFFMAN/KATHIE SORENSEN PH.D.

CULTURE EATS STRATEGY FOR BREAKFAST,
OPERATIONAL EXCELLENCE FOR LUNCH
AND EVERYTHING ELSE FOR DINNER.
PDA’s Culture Journey
The PDA Quality Culture Journey

Response to FDA Metrics 2013-2014

Hypothesis to measure Culture

Quality Culture Pilot Program 2016-2017

Can I compare with other sites?

Quality Culture Survey 2014-2015

Is there a correlation between behavior and attributes?

Quality Culture Model 2015-2016

What attributes are most important?
“True culture of quality” is an environment in which employees not only follow quality guidelines but also consistently see others taking quality-focused actions, hear others talking about quality, and feel quality all around them (Harvard Business Review).

Culture is the behaviors and beliefs characteristic of a particular social group. It indicates what is important to the companies, thus, impacts their decision making.

Quality culture is the root cause of many of quality problems, such as data integrity.

Many of the things you can count, don’t count, many of the things you can’t count really counts – Albert Einstein.
WARNING SIGNS

- The CEO and other senior executives rarely discuss quality—let alone performance against quality objectives.
- The company's quality vision is either non-existent or has minimal linkage to business strategy.
- Managers throughout the organization either fail to consistently emphasize quality or are resistant to quality initiatives.
- The organization has few if any feedback loops for continuous improvement of processes.
- The company lacks formal mechanisms for collecting and analyzing customer feedback.
- Metrics used for performance evaluation feature little-to-no mention of quality goals.
- Employees are not familiar with the company's quality vision and values—or perhaps worse, view them as mere slogans.
- Training and development do not emphasize quality.
- New hires are not formally introduced to the organization's quality vision and values.
- The organization experiences frequent, though often minor, setbacks owing to inconsistent quality.
Vision / Mission:

Promote Quality Culture, its understanding, assessment and improvement within the Pharmaceutical / Biopharmaceutical Industry by providing tools and knowledge to enable continuous improvement. The ideal state is to ensure a quality mindset and behaviors are imbedded into the daily work of all functions resulting in positive patient outcomes.
Can Quality Culture be measured?

1. Is there a relationship between Quality Culture Behavior scores and Mature Quality Attribute scores?
2. Which Mature Quality Attributes relates to Quality Culture behavior?
Quality Attributes:

- Objective characteristics of a quality system
- Can be verified
- A tangible program or system
- Can be verified

Examples include:

- Deviations reporting
- Change control system
- CAPA system
- Complaints management system
- Environmental monitoring program
55 Quality Attributes were identified

Traditional Quality Attributes

Enhanced Quality Systems
(Q8, 9, 10, 11)
MR Programs, Risk Management Programs, Knowledge Management Programs, QbD Programs, Quality Manual, etc.

Other Systems
Quality Goals, Rewards and Recognition programs, Safety Prevention Program, Personal Development Program, Cost of Quality, etc.

Traditional Quality Systems
Deviation, Complaints Change Control, Disposition, CAPA, Specifications, Environmental Monitoring, etc.
Attributes grouped into 7 areas

Seven Areas of Questions
1. Prevention Programs
2. Quality Management and Issue Escalation
3. Training and Personnel Development
4. Quality System Management
5. People and Communication
6. Continuous Improvement
7. Site Metric Reporting

These 7 areas identified 55 Mature Quality Attributes
What is a Quality Behavior?

Quality Behaviors:
• Actions that need to be observed or experienced
• Difficult to quantify or audit
• Are the characteristics of the culture

Examples include:
• Communication & Transparency
• Rewards and Recognition
• Engagement
• Cross Functional Vision
Quality Culture Behavior

Seven Areas of Behavior Questions

1. Communication & Transparency
2. Commitment & Engagement
3. Technical Excellence
4. Standardization of Criteria or Requirements
5. Cross Functional Vision
6. Rewards and Recognition
7. Speak Up for Quality Culture

These 7 areas identify 42 specific behaviors
IF....

Quality Attributes
(Quantifiable & Easily measured)

= Quality Behaviors
(Difficult to measure, often need to be observed)

= Quality Culture
(Defined by behaviors & Beliefs)

Then....

Quality Attributes
(Quantifiable & Easily measured)

= Quality Culture
(Defined by behaviors & Beliefs)
Is our hypothesis confirmed?

- Higher MQA score the higher the behavioral score

- Given this is a Social Science Analysis, this is a strong relationship

Yes! There is a relationship between Quality Culture Behavior and Mature Quality Attribute
St. Gallen confirms PDA’s Quality Culture Survey outcome

PDA Survey Analysis 2014  
St. Gallen Analysis 2017

- R² = 0.34  
- R² = 0.66

- 326 pharmaceutical sites of different size and focus within St. Gallen database confirm PDA
1. Participation at conferences to stay current
2. Collecting Error Prevention Metrics
3. Management Communication that Quality is Everyone’s Responsibility
4. Utilization of new proven technologies
5. Clear performance criteria for feedback and coaching
6. EH&S Environmental Program with trained staff (risk assessments, emission controls, spill prevention and response)
7. Site has formal quality improvement objectives and targets
8. Quality topics included in at least half of “all hands” meetings
9. Collecting Management Review Metrics
10. Collecting Employee Turn Over Rate Metrics
11. Program to show how employee’s specific goals contribute to overall quality goals
12. Program to measure, share and discuss product quality performance and improvement from shop floor to executive management.
13. Continuous Improvement Program / Plans with active support of CEO and Corp Management of QMS Program that establishes quality system maturity model and action plan and tracking to measure progress
14. Internal survey measuring a company/site quality culture

Voted by ~225 Conference Participants, Dec 2014
Overview of the on-site assessment tool – 24 sub-attributes

1. Accountability and Quality Planning
   Accountability & Quality Planning

2. Enabling Capable Resources
   Feedback & Staff Development
   Training
   Rewards and Recognition

3. Quality Communications
   Quality Communications

4. Communication and Collaboration
   Operations Readiness & Knowledge

5. Understanding Quality Goals
   Impact on Product Quality
   Patient Impact

6. Staff Empowerment and Engagement
   Process Ownership & Engagement
   Safety Program

7. CAPA robustness
   Root Cause
   Human Error

8. Management Review and metrics
   Management Reviews
   Metrics

9. Clear Quality Objectives and Targets
   Continuous Improvement

10. Internal Stakeholder Feedback
    Internal Stakeholder Feedback
    Quality Culture Survey

11. Utilization of New Technologies
    Manufacturing Technologies

12. Maturity of Systems
    QMS Processes
    Business Conduct
    Quality Risk Management

Connecting People, Science and Regulation®
Total of 75 assessors trained; 9000+ survey respondents
What did the pilot involve?

- Training
- On-site assessment
- All staff survey
- Analysis & action

- PDA course
- Assessment tool
- On-line survey
- Benchmarking
Example of site pilot results
Key learnings from the pilot

Positive feedbacks
• Clear framework and scoring method
• Drive effective discussion with site leadership
• “Best PDA training”
• In-person discussions provides more value in understanding the culture at the site (vs. only a survey)
• Reliable way to help select partners and CMOs

Challenges
• Assessment is most effective with a different mindset and approach
• Pre-work needed to gain efficiency
Critical pilot objectives were met

- Was the training effective?
- Can sites be differentiated?
- Was the tool user-friendly?
- Were the assessment results useful for discussion with site management?
Over 100 regulators from MHRA and USFDA have been trained on PDA’s Culture Assessment Tool.
“[We] can apply the Quality Culture Attributes to improve how we assess firms in non-compliance context”

“As industry becomes aware and comfortable with this tool… it can be a powerful tool for evaluating CMOs and business partners.”

“Industry can use the PDA tool as part of internal/self-assessment for improvement of Quality Systems.”

“Industry could use the PDA tool to be more open with regulators on quality culture.”

“I will consider quality culture when reviewing data from industry.”

“Nice to differentiate quality Culture from Quality Systems and emphasize the importance of what we make relative to what we do.”

“This course does help identify quality culture issues in a company. This may help [us] to evaluate the quality of a pharmaceutical company.”
Title of Proposed Standard: 
Quality Culture Assessment Tool

Stakeholder Category being represented:

- General Interest
- Producer Interest members
- User Interest members
- Regulatory Interest members

Project Description:

The U.S. FDA continues to focus on the use of quality metrics to modernize pharmaceutical quality systems and advance innovation. In a recently published document, FDA has called for routine assessment and management oversight of quality culture. In addition, MHRA, PIC/S and the WHO have all issued guidance on data integrity that specifically call for companies to address the issue of quality culture. There is currently no agreed-upon standardized way for companies to effectively measure their quality culture. PDA has already designed a comprehensive Quality Culture Assessment Tool and Training, designed to guide companies to a better understanding of quality culture, how to assess it, and what actions to take to improve it. The tool helps a company effectively collect verifiable data that will help them to assess their culture at all levels of their organization. The tool allows the company to facilitate positive culture changes and continuous improvement within their organization. This tool will serve as the basis for the development of a consensus standard to guide quality assessment and facilitate benchmarking both within and across organizations.
PDA (Parenteral Drug Association)
Contact: Christine Alston-Roberts, (301)-656-5900-, roberts@pda.org
Bethesda Towers, 4350 East-West Highway, Bethesda, MD 20814
New Standard
BSR/PDA Standard 06-201x, Quality Culture Assessment Tool (new standard)
Stakeholders: Quality assurance, quality control, quality engineering, operations, production, manufacturing, general interest, regulatory interest members.
Project Need: Provide a data-driven assessment approach to allow companies to effectively measure quality culture and its importance in providing high-quality medicinal products to patients.
A comprehensive Quality Culture Assessment Tool and Training, designed to guide companies to a better understanding of quality culture, how to assess it, and what actions to take to improve it. The tool helps a company effectively collect verifiable data that will help them to assess their culture at all levels of their organization. The tool allows the company to facilitate positive culture changes and continuous improvement within their organization.
PDA® Standards Development: Call for Volunteers.
Standard 06-201x, Quality Culture Assessment Tool (new standard).

PDA is very pleased to announce the launch of the Parenteral Drug Association’s sixth standard!

We are seeking volunteer participants to assist in developing, writing, and fine tuning the following proposal:

**Standard 06-201x, Quality Culture Assessment Tool** (new standard).

A comprehensive Quality Culture Assessment Tool and Training, designed to guide companies to a better understanding of quality culture, how to assess it, and what actions to take to improve it. The tool helps a company effectively collect verifiable data that will help them to assess their culture at all levels of their organization. The tool allows the company to facilitate positive culture changes and continuous improvement within their organization.

This proposed American National Standard (ANS) was presented by Susan Schniepp, Distinguished Fellow with Regulatory Compliance Associates.

Those individuals involved in Quality Assurance, Quality Control, Quality Engineering, Operations, Production, and Manufacturing, Regulatory, and General Interest are needed.

Nominations/Volunteers to serve as a member of the technical team (consensus body) must have some subject matter expertise, and willing to help write/contribute to this standard. Applicants should apply by contacting the PDA Standards Manager at standards@pda.org.

The deadline to submit notification of interest in serving on the consensus body is **January 14, 2020**.
Time Line for Development of Standard

- Idea and New Proposal
- Formation of Technical Team
- Draft Standard Development
- Ballot and Public Review
- Deliberation, Resolution, finalized draft
- Published Standard

Approximately 1.5 to 2 years
Cylia Chen (Amgen) – team lead
Steve Mendivil (Amgen)
Machelle Eppler (Patheon)
Pritesh Patel (Novartis)
Sue Schniepp (Consultant)
Chuck Bornhoeft (Upsher-Smith)
Joerg Gampfer (Hovione)
Dixie Webster (Allergan)
Tara Gooen-Bizjak (FDA)
Gerald Heddell (MHRA)

Matija Gabrovsek (Novartis)
Brianna Peterson (BI)
Jan Paul Zonnenberg (PwC)
Sandra Lueken (AstraZeneca)
Anne Eickhoff (GSK)
Rick Burdick (Consultant)
Bob Kieffer (Consultant)
David Leuck (Patheon)
Denyse Baker (PDA)
Rich Levy (PDA)
David Talmage (PDA)
“Quality is always fashionable.”

Boy George (George Alan O’Dowd), Lead Singer of Culture Club
1961 - present
Thank you