Metrics: A Generic and OTC Perspective

FDA/PQRI Conference

October 2015
Paul Weninger, Perrigo
Agenda

• Brief Perrigo Overview
• Continuous Improvement Journey
• Internal Use of Metrics
• Generic OTC Perspective
• Questions
Sustaining Quality & Business Success at Perrigo

128 year legacy of focusing on people – employees, customers, consumers and neighbors
Global Presence

Positioned to Capture Expanding Global Healthcare Needs

Net Sales*: $5.4-$5.7B

Markets: >80

Operating Locations: 32

Employees: >12.5K

* Guidance includes only 9 months for Omega acquisition translated at €1:$1.09
Leading Global Manufacturer of Pharmaceuticals

Dosage Forms
- Tablets
- Capsules
- Solutions
- Suspensions
- Sprays (Nasal)
- Suppositories
- Creams/ointments
- Powders
- Lozenges
- Foams
- Aerosols
- Gums
- Injectables
- Spot-on pesticides
- Extruded pellets
- Medical devices
- Wipes

- 48 Billion oral solid doses/year
- 7 Billion liquid/cream doses/year
- 6,000+ formulations
- 22,800 SKUs
- Launching 2+ new products/week
- Investing $125-$155M* in new capabilities

* Based on calendar year 2015 guidance
Perrigo Quality Vision and Mission

QUALITY VISION & MISSION

OUR VISION
To achieve best-in-class quality and consistently earn the trust of our customers

OUR MISSION
Integrate quality into our products and processes by partnering with our stakeholders to...

- Implement and Improve Robust Quality Systems
- Deliver Consistent Quality and Sustainable Compliance
- Utilize Quality Science, Risk Management, and Robust Metrics to Drive Continuous Improvement
Core Values & Five Pillars
Foundations of Our Strategy to Attain & Sustain Quality and Business Growth

MISSION: QUALITY AFFORDABLE HEALTHCARE PRODUCTS™
Continuous Improvement Journey

• What has stayed the same?
  – Consistent quality/supply chain objective
  – Build upon key learnings
  – Leverage people and technology
  – Focus on improving control and reducing variability
  – Focus on Sustainability

• Role of Metrics
  – Demonstrate progress of winning or losing
  – Evolved to support CI journey
  – Based on business and site CI roadmap and objectives
  – Turn data and metrics into information and knowledge (more than just numbers)
Multi Level Approach to Metrics – “Line of Sight” Focus

- Department/Shop Floor
- Product
- Site
- Corporate (including Board)
- Supplier
Department Example

1. GEMBA- Go to Where the work is
2. Leader Standard Work- Management on the floor metrics reviews
3. Floor Leads Communicate metrics
4. Organized and controlled (5S)
5. Visual state of the process at any time
6. Culture of Improvement
7. Tied to Five Pillars (balanced scorecard)
### Example: Department White Board

<table>
<thead>
<tr>
<th>Deviation</th>
<th>Packaging Line</th>
<th>Engineer Assigned</th>
<th>Date</th>
<th>CAPA, Communication &amp; Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event A</td>
<td>110</td>
<td>Jennifer</td>
<td>9/14</td>
<td>Action 1,2</td>
</tr>
<tr>
<td>Event B</td>
<td>112</td>
<td>William</td>
<td>9/18</td>
<td>Action 3-6</td>
</tr>
<tr>
<td>Event C</td>
<td>401</td>
<td>Sally</td>
<td>9/29</td>
<td>Action 7-8</td>
</tr>
<tr>
<td>Event D</td>
<td>340</td>
<td>Tim</td>
<td>9/30</td>
<td>Action 9</td>
</tr>
</tbody>
</table>

- Department huddles each day at the metrics boards
- Assignments taken
- Issues communicated
- Preventive and Corrective Actions discussed
Product Level Metrics

- Control and trend charts
- Complaint trends – (review top/significant changes)
- APR (note – definition nuances)
  - Complaints
  - Process Capability
  - OOS
  - Rejects
- APR Reporting cycle staggered through year (effective resource utilization)
- Shifts or trends trigger CI project
Product Metric Examples

Product Assessment

Individually Chart
Assay (n = 27)

UCL = 99.639
LCL = 97.029

X = 98.359

Capability Analysis

Ppk Analysis
Assay

Process Data
- LSL: 90
- Target: 100
- USL: 110
- Sample Mean: 103.069
- Sample Size: 35
- StDev (Overall): 1.37808

Overall Capability
- Pp: 1.68
- Ppk: 1.51
Site Metrics and Trend Examples

- Weekly balanced scorecard reviews
- Monthly Quality Council Reviews
- Variable Bonus Incentive Plans
### Weekly Site Balanced Scorecard

<table>
<thead>
<tr>
<th>Topics / Agenda Items</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Quality</td>
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<tr>
<td>Service</td>
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<tr>
<td>Volumes</td>
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<td>People</td>
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<td>Cost</td>
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<tr>
<td>Inventory/Capital/Other</td>
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</table>

#### Weekly Metrics

<table>
<thead>
<tr>
<th>Weekly Metrics</th>
<th>Weekly Actual</th>
<th>Plan/Flex Target</th>
<th>Weekly % Diff vs. Target</th>
<th>Weekly Status</th>
<th>PTD Actual</th>
<th>Plan/Flex PTD Target</th>
<th>PTD Period Target</th>
<th>PTD % Diff vs. Target</th>
<th>PTD Status</th>
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</thead>
<tbody>
<tr>
<td>Quality</td>
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<td># of Deviations Open</td>
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<td>Inventory $ on Quality Hold (000's)</td>
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<td>Quality related rejects</td>
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<td># Quality Events</td>
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<td>% of Service to Customer - CHC</td>
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<td>Plant 5 - Brite Stock Produced</td>
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<td>ALC - Finished Goods DZ (000's)</td>
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<td>Safety - OSHA Recordable Incidents</td>
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<td>Conversion Cost Bulk</td>
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</table>
Corporate Metrics

- Review from functional, business and board level
- COQ
- Deviation trends
- Dashboard
**Corporate Quality Scorecard**

<table>
<thead>
<tr>
<th>Site*</th>
<th>RFT</th>
<th>Confirmed Consumer Complaints</th>
<th>OOS</th>
<th>CAPA Past Due</th>
<th>Quality on Hold</th>
<th>Deviations Generated</th>
<th>Compliance</th>
<th>Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
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</table>

**Scale:** On Target: [Green Circle] | On Target  | Not meeting target or unfavorable trend: [Red Circle]

*Assessment of trends within a site as well as performance against site targets
*Definitions allow flexibility by site based upon product mix
Metrics: Benefits and Challenges

- Ability to measure progress
- Highlights trends/changes
- Cascaded to provide line of sight/align with objectives
- Triggers additional discussion/action
- Highlights potential new CI areas
- Use as part of internal reward system
- Provide internal visibility to “winning or losing”
- Balanced scorecard

- Absolute numbers may be misleading
- Context matters - careful with “good” and “bad” connotations
- Dialog and discussion around the metrics important
- Selection of metrics will drive behavior – risk of unintended consequences
- Be careful with negative consequences
- May act as filters and miss other signals
- “Standardization” challenges
Considerations in regards to Draft Guidance
Observations on Process to Date

• FDA has engaged in extensive dialog/discussion on metrics
• Appreciate the transparency and conversation at multiple levels
• Clear communication that metrics only one component of assessment
• Draft guidance focused on relatively small set of metrics
# Common Monograph Drug Example

<table>
<thead>
<tr>
<th>Product Example:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>API Suppliers:</td>
<td>6</td>
</tr>
<tr>
<td>API Supplier Sites:</td>
<td>8</td>
</tr>
<tr>
<td>API Material Grades:</td>
<td>10</td>
</tr>
<tr>
<td>Manufacturing Sites:</td>
<td>5 Internal, 2 External</td>
</tr>
<tr>
<td>Formulas:</td>
<td>57</td>
</tr>
<tr>
<td>Lot Site:</td>
<td>~11K-287K units</td>
</tr>
<tr>
<td>Packaging Sites:</td>
<td>5 Internal, 7 External</td>
</tr>
<tr>
<td>Unique Customer Labels:</td>
<td>200+</td>
</tr>
<tr>
<td>Unique Customers:</td>
<td>30+ Customers (including contract manufacturing relationships)</td>
</tr>
</tbody>
</table>

*Some store brand customers are shared with competitors with same NDC#*
Considerations

• Challenges of Finished Dose supplier providing API supplier metrics (multiple suppliers, multiple customers)
• Clarity on objective of site or product focus
• Product by site vs. site by product
  – Additional aggregation: time and burden
  – Potential internal and external combination
  – “Sub processing” steps
• “Product” family definition for Monographs
• CMO considerations
  – Broad range of relationships
  – Potential confusion on who reports given broad range
  – Site or product focus
• Leveraging APR data and cycle to minimize burden
Considerations (continued)

- Other considerations
  - Lot size implication for complaints
  - Specification related rejection (Packaging rejections, OOT rejections etc)
  - Lot definition (solely lot number based, release considerations)
  - Complaints: Report those determined not to be manufacturing/packaging related?, lot or PPM?, time lag
  - Proposed invalidated OOS metric calculation – clarity
  - Pending disposition > x: Snapshot in time or collected over time (potential new burden collection)
  - NDC may not be unique to manufacturer
Broader OTC Industry Comments
Role and Value of OTC Medicines

- Range of products and ingredients
  - Vast majority of OTCs regulated under OTC Review Monographs
  - Nearly 300 ingredients and 100,000+ products
- 58% of medicines are OTC v. 42% Rx
- 1% of US healthcare expenditure on OTC medicines ($29 billion of $2.8 trillion)
- Trusted as safe and effective

(From CHPA comments at August 24, 2015 public meeting)
Quality Metrics Definitions

Reported data needs refinement and clarity

“specification-related”
“product complaint”
“number of products produced at the establishment”
“number of lots attempted”
“right first time”

Industry is committed to working with FDA to improve the reported data and definitions

(From CHPA comments at August 24, 2015 public meeting)
CHPA Recommendations

Data reported needs refinement and clarification

Quality Metrics implementation should begin with high risk facilities/products

Reporting timed to Annual Product Review cycle and site level reporting

Consider that the limited text field can be of substantial value

(From CHPA comments at August 24, 2015 public meeting)
Generic Industry Considerations
Proposed Metrics Guidance

• Start Small, Learn, Evolve
  – Importance of translating large volume of data into information/knowledge
  – Significant time investment by both Industry and FDA on metrics
    • Collection per definition, reporting, validating
    • Focus on small/limited set of metrics
  – Focus on higher risk
    • High risk products and/or potential drug shortage
  – Potential initial voluntary approach to work out details
  – Opportunity to build FDA/Industry collaboration through positive benefits of program
  – Weigh value/benefit of data collected vs. burden of collecting/reporting and unintended consequences
  – Definition clarity and technical details pending