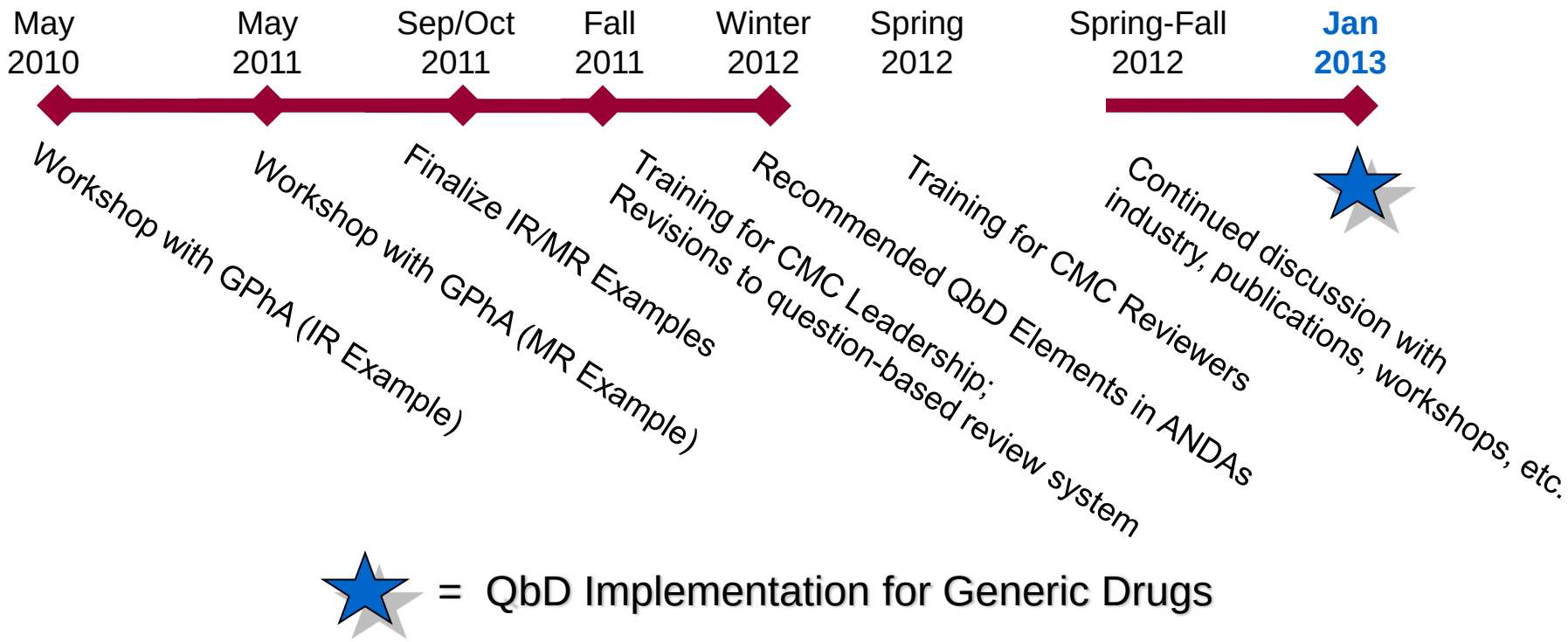
QbD Status Update
Generic Drugs

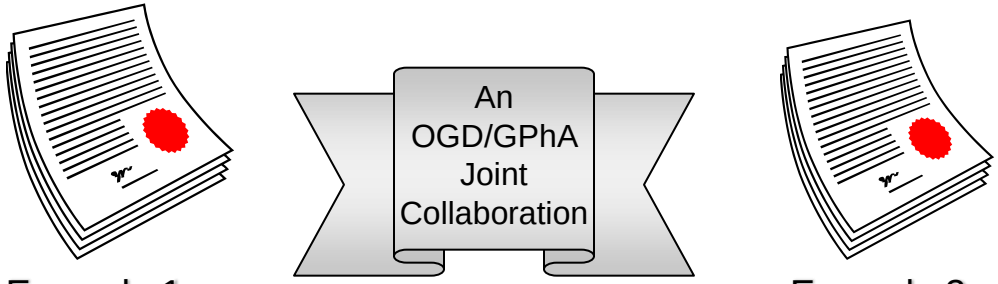
Susan Rosencrance, Ph.D.
Deputy Director (Acting)
Division of Chemistry II
Office of Generic Drugs

GPhA Fall Technical Conference
October 3-5, 2011

The Timeline for QbD Implementation



Sept/Oct 2011 - Finalize the QbD Examples



Example 1
Immediate Release (IR)
Tablet

Example 2
Modified Release (MR)
Tablet

- Pharmaceutical development reports that illustrate the type of studies ANDA applicants may use as they implement QbD.
- Incorporates the QbD principles from ICH Q8(R2), excluding PAT (Process Analytical Technology)

- QbD components included in the examples:
  - Quality Target Product Profile (QTPP)
    - Critical Quality Attributes (CQAs), including predictive dissolution
  - Product Development and Understanding (Risk Assessment and DOEs for high risk components)
  - Process Development and Understanding (Risk Assessment and DOEs for high risk parameters)
    - Scale Up and Manufacture of Exhibit Batch
  - Establishment of Control Strategies

Things to Remember about the QbD Examples

1. They are guides to help manufacturers understand OGD's expectations and to help prepare and train reviewers on how to evaluate ANDAs with QbD concepts.

2. Development of a real product will differ from the examples.

3. DOE and risk assessment are tools to facilitate the implementation of QbD.

4. The number of experiments depends on prior knowledge (needs to be explained in the submission)

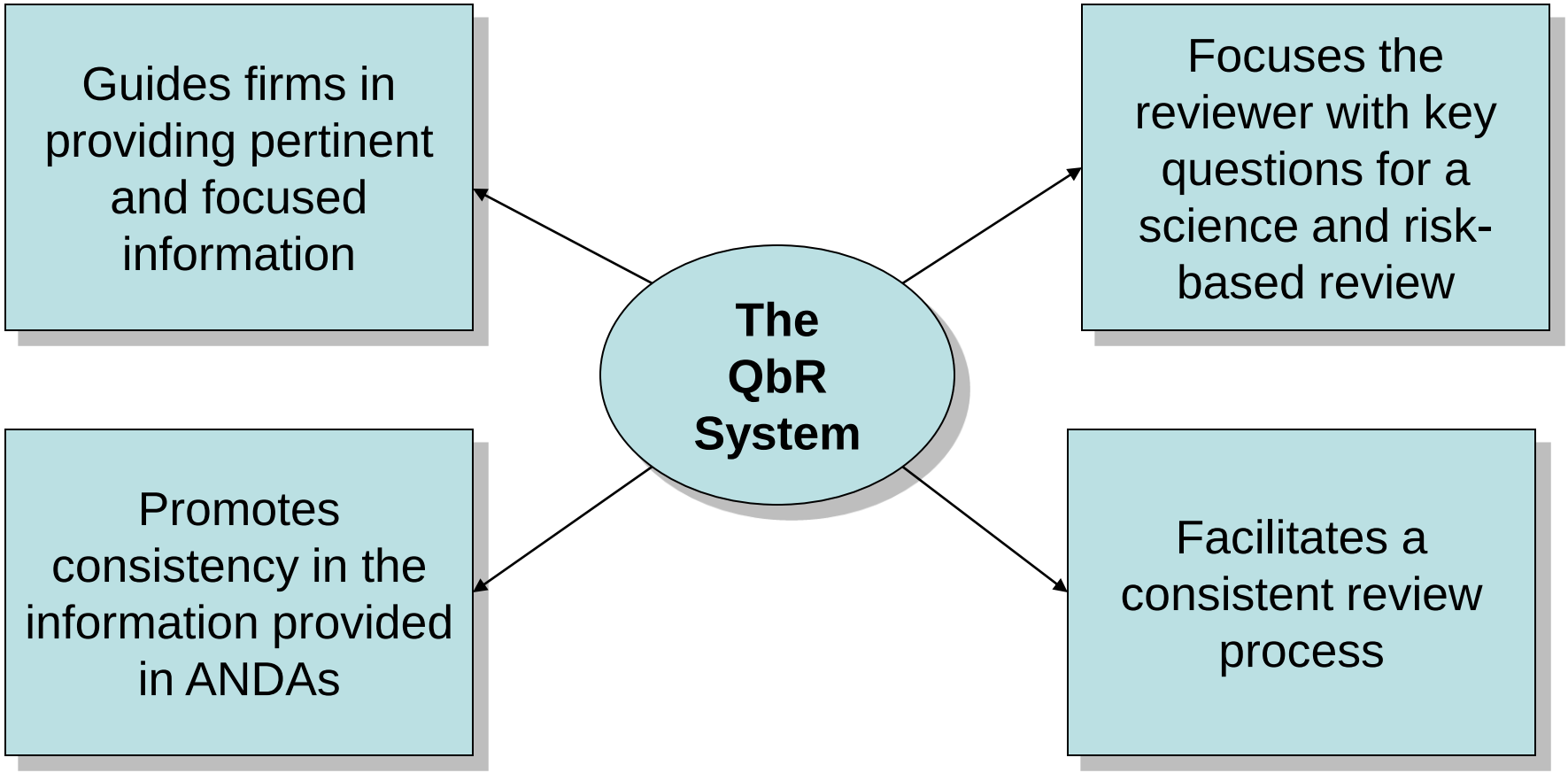
5. Applicants should make an effort to develop predictive dissolution for MR products and poorly soluble IR products.

***Both examples are presently being finalized and will be available soon ***

Fall 2011 - Training for CMC Leadership

- Training is discussion-based using the IR and MR Examples.
- Involves the presentation of practical examples from ANDAs for analysis and critique.
  - >50 ANDAs containing QbD elements already in-house.

Fall 2011 - Revisions to the Question-Based Review (QbR) System



- Key Points for Revision

1. Review questions will be revised to fully incorporate QbD elements.
2. Revisions will focus on OGD's QbD expectations.

Winter 2012 - Recommended QbD Elements in ANDAs

- ANDA applicants will be strongly encouraged to begin applying a QbD approach in their original submissions.
- Deficiency letters issued by OGD will start communicating this recommendation.
- The IR and MR examples can be used as a guide for presenting the information in submissions.

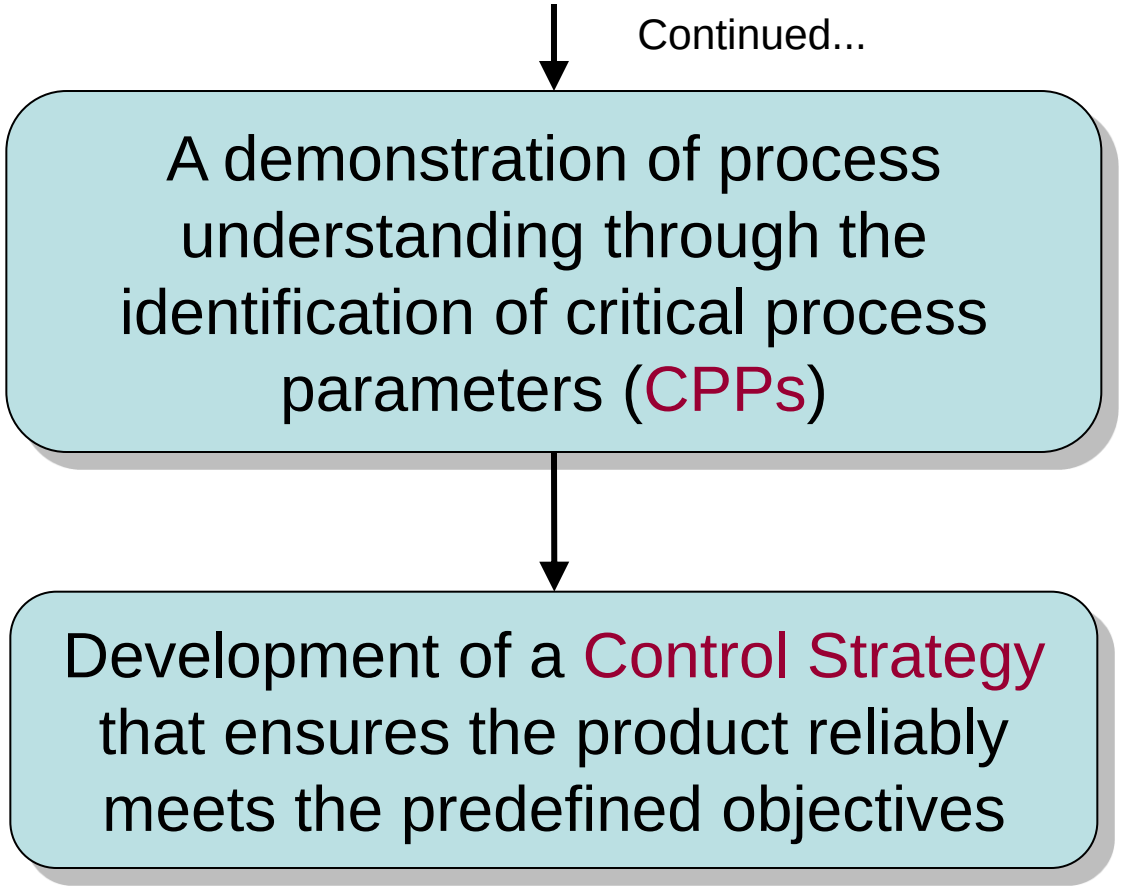
A QbD based ANDA should include…….

A quality target product profile (QTPP) and a list of critical quality attributes (CQAs).

A demonstration of product understanding through the identification of critical material attributes (CMAs) of the drug substance and excipients.

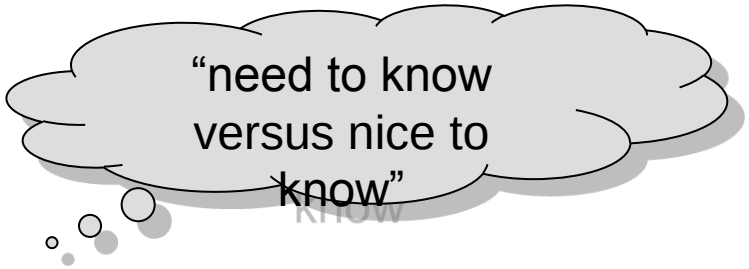
Continued...

A QbD based ANDA should include…….



Spring – Fall 2012

- Internal training for the CMC review staff with emphasis on:
  - How to apply recommendations in the ICH Q8(R2), Q9, and Q10 guidances.
  - How to determine whether an ANDA contains OGD's defined approach to QbD.
  - How to ensure the ANDA includes sufficient information to demonstrate the applicant's understanding of process and product.
  - How to issue appropriate regulatory-based deficiencies given the additional information provided under QbD.



Spring – Fall 2012

- Further discussion with industry is expected throughout 2012.
  - OGD will grant QbD meetings upon request.
  - QbD Implementation Workshop with GPhA (May 2012)

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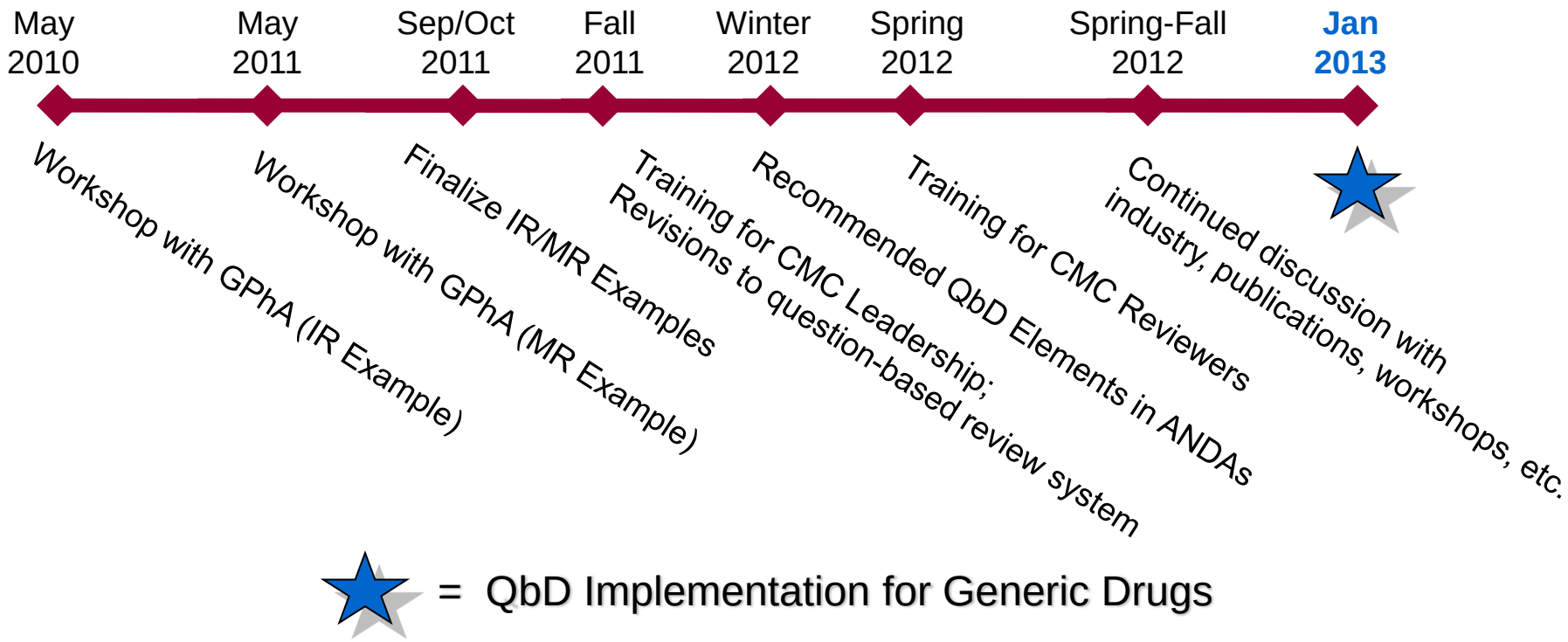

Pharmaceutical Quality in the 21st Century

"We will implement QbD together"
-Lawrence Yu-