LEARNING OBJECTIVES

I. Differentiate between a traditional compliance program and a proactive quality assurance program based on process improvement.

II. Examine process improvement methods involving tools and business/manufacturing processes to increase quality assurance in the clinical research environment.

III. Analyze lean six sigma, continuous quality improvement, process improvement, and change management and how these concepts improve clinical research issues.

IV. Focus on collaborative methods to improve clinical research quality and compliance while decreasing reliance on reactive reviews/audits.

TRADITIONAL COMPLIANCE

Based on established elements of an effective institutional compliance program.
TRADITIONAL COMPLIANCE FOCUS

Institutional Compliance
- Institutional priorities (includes research)
- Annually audit following a pre-identified plan based on risk and institutional goals
- Audit plan is modified as trends are noted
- Investigations

Research Compliance
- RESEARCH-related reviews
- Annually conduct (random) audits based on risk and as upon request (directed/for cause)
- Audit plan is modified as trends are noted

TRADITIONAL COMPLIANCE

Based on established elements of an effective institutional compliance program:
- Clear organizational commitment to act ethically & responsibly (conduct standards)
- Supportive corporate culture with effective lines of communication across system
- Clear & comprehensive written compliance policies, procedures, processes, and programs
- Effective training & education
- Designated Compliance Officer & compliance committee working with accountable management & staff system
- Effective audits, investigations, and evaluation of complaints (including remediation & disciplinary action)
- Adequate documentation and record-keeping
- Internal reporting process


TRADITIONAL COMPLIANCE

Major concern is risk identification, prevention, and mitigation

Fraud or misperception of unethical corporate behaviors

- Unwanted press
- Damage to institution’s reputation
- Fines
- Sanctions
- Corporate probation
- Worse – withdrawal of government associated care allowance (CMS, etc.)
- Prison time
TRADITIONAL RESEARCH COMPLIANCE

A systematic & independent examination of trial-related activities, documents, and data to determine whether:

- the IRB approved protocol was followed and
- if subjects (ethical treatment) &
- data were appropriately managed (recorded, analyzed, & reported)

per protocol, applicable regulatory requirements, GCP, and SOPs. Audits or reviews may be conducted in association with the IRB, institutional compliance or research compliance office.

Audits usually done mid-way or post study; rarely pre-study.

TRADITIONAL RESEARCH COMPLIANCE

- Perform audits/reviews based on a risk assessment;
- Audit & Monitoring outcomes are assessed and reported to Research Team, Management and Research Administration (some institutions also report to IRB); and
- Role is actively supported, reinforced, and monitored by Management/Research Administration.

Types of Audits/Reviews:

- Focused / For Cause / Directed —
  - Consent Form compliance (document, process, EMR)
  - Reportable Events (AEs, SAEs, PD/PV, DSMB, ICF anomalies)
  - Audit prep (FDA, sponsor, or cooperative group)
  - Management or PI concerns
- Random
  - General GCP (from each department)
  - From risk based criteria selected at random (new PI, high turnover)
Traditional Research Compliance (Reactive)

Reviews triggered by need to:
- Verify data to support FDA filing
- Assess regulatory & policy compliance
- Performed due to concerns about risks & to determine risks (risk universe ranking)
- Create policies &/or education
- Evaluate compliance with applicable regulations, policies, and study requirements
- Provide information to administration on reviewed study and to team for other ongoing research

Auditor/Reviewer comes in with:
- The best intentions
- Reviews trial in an effort to support the study team and identify issues
- Reports issues to the study team
- Data from previous audits consistent with FDA audit findings (same types of findings) and some improvements are made moving forward

Post-Audit Feeling...

- Report contains "little new info" to some, even with recommendations included
- Additional opportunities not previously identified shared with team (+ tools) to support other clinical trials moving forward
- Bottom line: audit/review feels punitive and not very helpful to team (overall yield not super remarkable with follow-up audits)
QUALITY ASSURANCE PROGRAM

A risk-based, proactive, collaborative, and continuous process improvement assessment of trial-related activities, documents, and data to determine whether:

- Bring in Process Improvement, Lean Six Sigma, and other tools for CQI
- PI & Study Team prepared to operationalize a trial from feasibility through study termination,
- QA works with Team to identify gaps, trial checks, and study process modifications (results in ongoing audit readiness and improved overall subject safety & compliance)
- Partnership with PI & Study Team to identify priorities for process and quality improvement
- Overall and focused education & training needs
- Metrics that include research activities associated with a trial (time to approval for Administrative review, IRB approval, Office of Grants & Contracts review, Clinical Trial Management System compliance, and education attendance)

Communication – variable, mindful, compassionate, collaborative, continuous

Relationship building – active, value-driven customer service

Quality Assurance Manual of Procedures – evidence based, regulatory, guidance, & best practice supported (and an institutional policy)
QUALITY ASSURANCE PROGRAM

Overall Research Program Metrics
Assess Trial Readiness
Assess Monitoring Visit Reports
Review "Subject + Monitoring Visit Surveys"
Assess Monitoring Visit Report Assessments
Support Team - with forms, spot checks, be part of the trial team
Education – Magnet, Professional Practice Model, Shared Governance, Clinical Research Network, SharePoint

QUALITY ASSURANCE

- Plan: What & how are we going to carry out the research? Is there anything we can do better?
- Do: For the research, actively carry out what we committed to do (protocol, IRB, policies, etc.)
- Act: Determine if changes are needed & implement to stay on track

Study Start-up
Environmental Assessments
Support Team (JIT training & education)
Interim Study Assessments
Check: Assess trial performance, any adjustments needed, are we meeting targets

All Sides: Continuous Feedback
UNIVERSITY OF PITTSBURGH PERSPECTIVE

Trial Readiness Assessment

Study Start-Up Assessments
Definitions & Scoring

Done twice: prior to IRB approval & right before study start

<table>
<thead>
<tr>
<th>Process</th>
<th>Critical to Quality</th>
<th>Cost of Poor Quality</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>Flag for missing, with PI</td>
<td>Protocol violation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Critical information available &amp; communicated</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written protocol available in all forms</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Protocol adherence confirmed by all members</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PIC available, sufficiently trained</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Protocol adherence confirmed by all members</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Protocol violation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No personnel take ownership of trial</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Critical information not communicated</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Effective use of time</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Critical information missing</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No personnel take ownership of trial</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Critical information not communicated</td>
<td>1</td>
</tr>
</tbody>
</table>

STUDY STARTUP & 1ST SUBJECT REVIEW

First Subject Review

Score: 10/10

Study start-up Assessment #1

Score: 7/10
Monitor Survey

**Definitions & Scoring**

Done every time/at every monitoring visit and returned to our department email address.

---

**MONITORING VISIT REPORT ASSESSMENTS**

| Categories: 1=, 2=-, 3=☺, 4='''☺'' (none thus far) |

---

**EDUCATION SCORECARDS**

2014 Monthly Clinical Research Education Sessions
Attendance Per Department Comparison
(e.g. Dept. of Surgery vs. Cardiology)

- Surgery n=19
- Cardiology n=21
QUALITY ASSURANCE PROGRAM

Initially – worry, concern, distrust (me and them)
Schooling – QA team had to undergo paradigm shifts and pick up skills
Commitment – strong support by Research Administration, personal goals & focus, and QA team cross pollination/support
Feedback – transparency and continuous feedback to the study team first, high level, de-identified metrics to Research Administration

THE OTHER PI (PROCESS IMPROVEMENT)

What? I can do research/it more efficiently?
Yes, we can (our culture allows for it).
BASIC PI INGREDIENTS
(FOR QA)

- Be open, have a culture of reporting errors/almost errors, mistake proof
- Determine the Voice/Needs of the Customer – key drivers of customer satisfaction
- Prioritize needs of the customer and process improvement goals
- Identify products of a process or activity to assess for process improvement
- Identify Gaps (areas of opportunity to improve “x” activity)
  - Consider variations that may affect above process
  - Consider costs of poor quality – internal & external factor leading to failure or less value
  - Consider critical process requirements that impact/aff ect quality
- Document process with diagrams/flow chart and/or process maps,
- After verifying viability and sustainability, adopt new process in a Standard Operating Procedure, training, checklists, formalized operationalizing training and change management

PROCESS IMPROVEMENT

QA + TEAM:
1. Be prepared to walk folks through this process (educate yourself, be patient, PARADIGM SHIFTS )
2. Team will identify a process/problem (steps &/or decisions used to complete an activity)
3. Team & any other KEY STAKEHOLDERS will examine ALL STEPS involved (factors, methods, equipment)
4. Collect all data – from the process review, pre-PI process state and post-PI goal state (compare states/reporting metrics)
5. Create a process map with stickies and then when certain with Visio (this takes the most time)
6. Record everything you will see trends and new info not readily visible
7. Create a second process map with the proposed (new & improved) plan with refined process from group input
8. Team reviews new process map and may use Swim Lane Map or Document Map to solidify new steps
9. Collect data based on execution of new plan
10. Assess whether new process is stable/functional/not creating other problems & SUSTAINABLE
11. Plan – Check – Do – Act (if further improvements possible; test them, if not begin formalizing a process)
12. Support training on new process and maintain metrics for control

LEAN SIX SIGMA
(LEAN-BASED ON TOYOTA PRODUCTION SYSTEM + SIX SIGMA – BASED ON MOTOROLA)

Lean: focus on decreasing waste and improving process flow while optimizing the system and includes continuous improvement

<table>
<thead>
<tr>
<th>Step</th>
<th>Process</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Specify value</td>
<td>CTQ-Critical to Quality factors</td>
</tr>
<tr>
<td>2</td>
<td>Identify value stream</td>
<td>SPOC-table to capture suppliers, inputs, process, outputs, and customers</td>
</tr>
<tr>
<td>3</td>
<td>Map current state</td>
<td>VSM-value stream mapping [detailed flow map]</td>
</tr>
<tr>
<td>4</td>
<td>Documents flow of activities &amp; eliminate waste</td>
<td>Gemba, Pull systems, 5S, Kanban, standardized work, Quick setups, Kanban proactive front line view of production type activities for efficiency</td>
</tr>
<tr>
<td>5</td>
<td>Map future state</td>
<td>VSM, Kaizen Events-rapid improvement teams</td>
</tr>
<tr>
<td>6</td>
<td>Continually improve</td>
<td>Mistake proofing, 5 Why’s, A3 – problem solving</td>
</tr>
</tbody>
</table>

Six Sigma: reduce defects and variation using DMAIC (define, measure, analyze, improve, control)
CHANGE MANAGEMENT
(ANOTHER PROCESS IN THE PROCESS OF IMPROVING AN ACTIVITY)

Managing CHANGE is essential for PI adoption, understanding, & sustainability

- Process 1 - Prepare for change (Prepare users/team, assess and develop a strategy for change adoption)
- Process 2 - Manage the change (Detailed and thoughtful planning, continuous and focused communication, and implementation of the change process as it normalizes)
- Process 3 - Reinforce the change (REPEAT, REMIND, & REVIEW) (Facilitate change adoption and gather data about is adoption, advertise wins, assess for corrective action and recognition of users/leaders or other early adopters)

http://betterbusinesslearning.com/change

PROCESS IMPROVEMENT
WHITE BELT PROJECT

Champion: translates the company’s mission & metrics toward strategic planning and goal realization.

WB: trains & coaches other BB & GBs and as a program leader develops & maintains metrics to support overall program.

MBB: assists with hi projects with data collection and analyses and able to lead GB projects/teams.

BB: works with hi projects and supports process improvements to support overall project.

YB: facilitates & works with problem-solving team using basic six sigma.

VOICE OF THE CUSTOMER: “WE NEED TRAINING ON RESEARCH DONE THE ‘METHODIST’ WAY”

Data Collection Plan Form

1. I didn’t know that Methodist expects...
2. No one has trained me to do...
3. Our audit & monitoring findings show...
4. Methodist’s goal is to have a strong research program (please & maintain visibility)
5. Methodist’s goal is to have a strong research program (please & maintain visibility)

What are they... what do we want to know about our customers

Who - CUSTOMER
What and Why - what do we want to know about our customers
Customers = research trial participants, data integrity (end users = sponsor & IRB), internal & external reviewers

Would like to:
- get input from new & experienced clinical research personnel
- get input from Methodist education program to maximize our processes
- model project after nursing residency program (review their success & pitfalls)
- maybe work with credentialing to benchmark the a cohort of new research hires or ask for volunteers from existing research personnel list to test project

You could ask:
- What is important to you?
- What is a defect?
- How are we doing?
- How would you compare us to others?
- What do you like? Methodist Mission
- What don’t you like? Research training is a mix of theory & practical application. Methodist Credentialing does a fair job providing standardized theory type of info to all Research Personnel, however new & existing research personnel lack practical type training on how to carry out basic research processes in a systematic or standardized manner.

Sources

Reactive Sources
- Complaints
- Claims, credits
- Direct observation
- Web page activity
- Quality scorecards

Proactive Sources
- Customer service calls
- Voice of the customer
- Customer or service calls

Relevant data to analyze the customer’s needs & concerns. The problems to solve are the customer's want fulfillment and satisfaction with the service the customer will
**PLAN**
- New & improved CR Education project’s features and functions - help staff review some clinical research basics
- Quality characteristics or measures developed by group
- Investigational product and protocol objectives are more understood,
- Better retention of subjects, better safety monitoring & data reporting
- Targets-Research Personnel (new & current)
- Tools: Regulatory File review, ICF checklist & documentation, taking a baseline “study” history, NTF template, standardizing measures around study visits & IP or interventions (1.5 years later....)

**RESULTS**
- Monthly New CR Professionals Training and CR content included in new Nurse orientation
- Clinical Research Network SharePoint site (archive for education, tools, training, policies, etc.)
- Monthly Clinical Trial Managers/Administrators Meetings
- Periodic Leadership Meetings, CR Shared Governance, Journal Club, Mentoring Program

---

**PROCESS MAP**

---

**SWIM LANE**

---
CONTINUOUS QA

Value added activities for all involved in clinical research:

- Communication – clinical research shared governance, leadership meetings, journal club, ad hoc PI committees
- Relationship building – confidentially, mentoring, ladder of accountability, bidirectional teaching, therapeutic business communicable
- Data sharing/feedback - from front line to upper research & hospital administration
- Continuous quality improvement – customer focused activities towards a goal
- Process improvement – activity to optimize outcomes for a process &/or persons
- Impact lean six sigma – share proven business methods for process improvement inspired by PDCA
- Change management – structured transition support, research compliance navigator to increase change adoption
- Audit Monitoring prep – ad hoc reviews & spot checks
- Support PI, Study Team, departmental leadership – ad hoc meetings (e.g. SIV, training, departmental meetings), detail policies & procedures, and support team needs
- Tailor education and bring information back to lean – ongoing multi-directional learning & training, new employee orientation, monthly educative, lunch & learn
THANK YOU IACRN!

QUESTIONS OR COMMENTS?
Patty Mendoza, BA, BSN, RN, CCRC, CHRC
pamendoza@HoustonMethodist.org
(713)441-5855

THANK YOU!
Mary Clancy, MSN, CCRC, CIP
Director-HMRI/Office of Research Protections

Cathy Simmons, BS, BSN, RN, CCRC
Quality Assurance Analyst, ORPQA

Mary Clancy, MSN, CCRC, CIP
Director-HMRI/Office of Research Protections

Cathy Simmons, BS, BSN, RN, CCRC
Quality Assurance Analyst, ORPQA