Mayo Clinic and North Central Cancer Treatment Group

An Academic-Community Partnership

Jan C. Buckner, MD
Group Chair
NCCTG in 1977
Today, NCCTG has 43 members and >340 treating locations in 33 states as well as Canada & Puerto Rico
(Number of locations/state in circles)
Improving Therapeutics

The Patient

Targeted therapies
Chemotherapy
Radiation
Surgery

Measure of Success
Survival
AND
Quality of Life
NCCTG Organizational Overview

Mayo Clinic & other Academic Centers
Community Oncologists
Idea Generators
NCCTG Leadership
NCCTG Programs
Community Oncology Programs

NCCTG
NORTH CENTRAL CANCER TREATMENT GROUP
NCCTG Organizational Overview

Mayo Clinic & other Academic Centers
Community Oncologists
Idea Generators
NCI Cooperative groups
Industry

NCCTG Leadership

Clinical data
Community Oncology Programs
Biospecimens

NCCTG
NORTH CENTRAL CANCER TREATMENT GROUP
<table>
<thead>
<tr>
<th>NCCTG Committees</th>
<th>Disease Specific</th>
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<tbody>
<tr>
<td><strong>Discipline-Oriented Scientific</strong></td>
<td><strong>Breast</strong></td>
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<tr>
<td>• Cancer Control</td>
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<td>• Quality of Life</td>
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<td><strong>Modality</strong></td>
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<td>• Imaging</td>
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<td>• Radiation Oncology</td>
<td>Pockaj</td>
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<td>• Surgery</td>
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<td><strong>Core Function</strong></td>
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<td>• Audit</td>
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<td>• Oncology Nursing</td>
<td>Greder</td>
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<td>• Patient Advocates</td>
<td>Smith</td>
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<tr>
<td><strong>Statistics and Data Center</strong></td>
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<td>• Biostatistics</td>
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### Mayo Clinic Cooperative Group Activities

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<tr>
<th>MCCC</th>
<th>Scientific Leadership</th>
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Mayo Clinic Cancer Center
Clinical Trials Venues (Non-Group)

- Phase I Program (U01 & Industry)
- Phase II Consortium (N01)
- Chemoprevention Network (N01)
- CCSG P50 trials (NCI & Industry)
- R01/R21 trials
Mayo Clinic SPOREs

- Brain
- Breast
- Lymphoma (with U of Iowa)
- Myeloma (with Harvard)
- Pancreas
- Prostate
Integrated Cooperative Group Support

Operations
Stats & Data Management
Scientific Leadership
Administrative Support
Integrated Cooperative Group Support

Quality of Life

Scientific Leadership

Laboratory correlative studies

Therapeutic Interventions

Statistics

Epidemiology
Integrated Cooperative Group Support

Contracting & Legal Support

Accounting Support

Administrative Support

Communications & Publications

Budget

Grant Preparation & Management
Integrated Cooperative Group Support

- Safety Monitoring
- Data Analysis
- Abstract & Manuscript Preparation
- Data Collection, QA & QC
- Statistical Design
- Stats & Data Management
Scientific Quality Review

NCCTG Concept Review +/- NCI Concept Review

Protocol Development

CTEP
 Industry Sponsor(s)
   FDA

Community Oncologists
   Patient Advocates
   Disease Committee(s)
   Modality Committee(s)
   Mayo Clinic Cancer Research Committees
Quality Assurance
Data Monitoring

• Automated web-based remote data capture edits
• Automated protocol-specific query lists
• Data timeliness standards & on-line reports
• Principal investigator review of each case
• Data set internal consistency checks algorithms
• Automated real-time toxicity monitoring system*

Quality Assurance
On-site Audits

- NCCTG Clinical Research Associate and Physician Teams
- NCI and/or FDA observers
- Components reviewed
  - Case Report Forms
  - Images
  - Pharmacy
  - IRB
Imaging Quality Assurance

- Protocol-specified imaging technique and assessment criteria
- Central review of images
- On-site Audits
Pathology Quality Assurance

- Protocol-specific specimen submission kits
- Protocol-specified Pathology Review
  - Audit
  - Post-registration review
  - Pre-registration review
- Consensus review of problem cases
- Centralized laboratory confirmation of protein or gene targets
Ethical Integrity Measures

• Human Subjects Training

• Affirmation of Integrity signed statements

• Conflict of Interest Policy & Disclosures
  • Disclosures queried for each investigator
    - Protocol participation
    - Authorship

• Mayo Clinic Conflict of Interest Board Review*

Factors Affecting Protocol Development Timeliness

• Group internal system inefficiencies
• Extensive external review & inefficiency
  • Sequential not concurrent
  • Lack of standardization
• Industry issues
  • Internal decision-making
  • Contracts
  • Budgets
• IRB reviews
Factors Impacting Cost-Effectiveness

- Start-up inefficiencies
- Regulatory processes
  - Site and investigator credentialing
  - Adverse event reporting
    - Redundancy
    - Inconsistency across organizations
Potential Solutions

• Improve internal efficiencies

• External process standardization
  • IT infrastructure standards
  • Common data elements
  • Data collection standards
  • Data reporting standards

• Simplify and harmonize regulatory methods
  • E.g. Adverse event reporting
Protocol Development

• 50 to 150 pages
• Up to 72 weeks
• Some 150 weeks
• 2006-277 studies
• Anticipate future growth
Lean Process Concept

Traditional process improvement focuses on improving efficiency in the value-add activities:
- Work longer, harder, faster
- Add more people
- Add more equipment

Lean focuses on improving the value stream by systematically eliminating waste:
- Increase capacity & velocity of processes
- Work smarter / safer
Participants

- Mayo Clinic Quality Academy Six Sigma Blackbelt
- Protocol Development Unit Staff
- Legal Staff
- Budgeting Staff
Lean Process Improvement Focus

- Concept Approval to First Draft Protocol
- First Draft Protocol to Submission to NCI or IRB
- NCI or IRB Submission to Protocol Activation
Lean Project Goals

- To reduce timeframe from protocol receipt in Protocol Development Unit to submission to IRB or NCI
  - Internally authored: 10 weeks
  - Externally authored: 4 weeks
- Reduce rework on protocols from 100% to 0%.
- Standardize, streamline, and eliminate redundancy in the protocol development
- Develop a system that allows the capture of data for QA
Lean Project Process Mapping
Step 1
1 Week

- Review protocol
- Define study in NCCS
- Complete Correlative Research Information form
- Draft Consent and send to PI/Sponsor
- Start IRBe application
- Obtain CPT codes from sponsor (if applicable)
- Start regulatory
- Send out for Peer Review
- Add on to PRC/HRC agenda
- LCA-drug only, no funding

Step 2
1-2 Weeks

- PI/Sponsor Reviews Consent
- PIM Requested through MIRIS
- PRC/HRC approval obtained

Step 3
1 Week

- Conduct post peer review meeting to finalize protocol (and possibly forms)
- Complete IRB application and submit – OR- NCI submission
- Attend PIM (OSPA)
### 1st Protocol Draft to Initial IRB/NCI Submission
Internally Authored Trials—Preliminary Data

<table>
<thead>
<tr>
<th></th>
<th>Pre-Quality Project</th>
<th>Post-Quality Project</th>
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<tbody>
<tr>
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<tr>
<td>N</td>
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<tr>
<td>Std Dev (Weeks)</td>
<td>25.25</td>
<td>19.9</td>
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Good work,
But I think we need just a little more detail right here!
Summary

- Mayo Clinic and NCCTG represent one example of an established, successful academic-community partnership
- Integrated operational, system, and informatics support is feasible
- Cooperative Group data quality measures are substantial
- Multiple opportunities exist to improve system efficiencies within Cooperative Groups, government, and industry
- Process improvement strategies can work