Cooperative Group Financial, Organizational and Management Analysis

Clinical Trials and Translational Research
Advisory Committee
September 21, 2010

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Project Goals

• Gain a comprehensive functional understanding of the financial, organizational and management structure of the Clinical Trials Cooperative Groups

• Identify organizational and funding strategies to improve operational efficiency and cost effectiveness

• Identify improved practices for shared strategic management of a complex goal-oriented research enterprise
Clinical Trials Cooperative Group Program

- Clinical trial infrastructure support grants to a nationwide network of 10 Clinical Trials Cooperative Groups
  - Four adult multi-disease, multi-modality Groups
  - Six disease, modality or population focused Groups

- Late phase efficacy trials
  - 100 trials, 20,000 patients

- Early phase exploratory trials
  - 200 trials, 4,000 patients

- Patients enrolled at Cancer Centers, other academic medical centers and community oncology practices

- Awardee institutions range from major universities to specifically created not-for-profit organizations
Cooperative Group Financial Structure

• Infrastructure support for designing and managing trials
  – Operational functions (administration, regulatory, protocol development/management, audits, QA, training, etc.)
  – Data management and statistical analysis
  – Scientific leadership
  – Specimen banks, reference laboratories and clinical reviews

• Reimbursement to sites for enrolling and managing patients on trials
  – Member Institutional U10 awards
  – Member site infrastructure subawards
  – Per case reimbursement
Project Scope

• Internal Group Organizational Structures
• Cross-Group Financial/Organizational Comparison
• Financial Structure
  – Unit Costs
  – Institutional Cost Sharing/Pro Bono Time
  – Non-NCI Funding
  – Indirect Cost burden
• Accrual Patterns and Funding Models
• Common Services and Tools
• Application and Review Processes
• System Governance
Analysis Methodology

• Mapped requested direct cost grant application budgets to a functionally-based Common Budget Outline framework

• Site visits with individual Groups
  – Assumptions underlying budget requests
  – Activities conducted under each budget category
  – Rationale for budget allocations and reallocations
  – Institutional cost sharing and pro-bono investigator time
  – Non-NCI funding – sources, amounts and uses
  – Group organizational and membership structure
  – Impact of common services and tools
  – Application and review processes

• Interviews with NCI and CTSU staff

• NCI trial, accrual, membership and award data
Key Data and Findings

- High-Level Cross-Group Budget Allocation
- Unit Costs
- Institutional Cost Sharing/Pro Bono Time
- Non-NCI Funding
- Accrual Patterns
High Level Cross-Group Budget Allocation Analysis
# High Level Functional Cost Categories

<table>
<thead>
<tr>
<th><strong>Infrastructure Costs</strong></th>
<th><strong>Accrual Costs</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Leadership</td>
<td>Member Site U10</td>
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<tr>
<td>Group Administration</td>
<td>Non-U10 Member</td>
</tr>
<tr>
<td>Trial Operations</td>
<td>Per-Case Reimbursement</td>
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<tr>
<td>Special Funds</td>
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<tr>
<td>Statistics/Data Management</td>
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<tr>
<td>Scientific Leadership</td>
<td></td>
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<tr>
<td>Scientific Services</td>
<td></td>
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<tr>
<td>Travel</td>
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</tbody>
</table>
Grant Application Analysis

- Mapping based on detailed analysis of budget forms, budget justifications and position descriptions
  - 1000’s of pages
  - 1-20 funded institutions
  - 100-500 funded individuals
  - Budgets organized by institution not by function

- Mapped two applications per Group
  - Most recent competitive renewal
  - 2007 non-competitive renewal (2008 for NCCTG)

- Performed Cross-Group analysis based on percent allocation to various budget categories in non-competitive year
Infrastructure versus Accrual Costs

• Eight Groups allocate 50-60% to infrastructure costs
  – Budgets range from $15-30M

• Two Groups allocate ~75% to infrastructure costs
  – Low accrual costs due to low accrual volume

• Groups with small number of trials and low accrual volume inherently less cost-effective due to fixed infrastructure costs
Infrastructure Cost Allocation

• Percentage allocation to various cost categories remarkably consistent across the Groups
  – Wide range of budgets, institutional settings, nature of trials, accrual
  – Budgets constructed with percent time for 100-500 individuals
• Statistics and data management largest category at 37%
• Core services averages 21% but highly variable
• Scientific leadership 5-10% with two outliers
• Administration, trial operations, travel each 8-10% on average
• Group leadership 3.5% on average
• Special funds 2-7% if requested

No evidence for major differential cost efficiency or inefficiency across the Groups
Unit Cost Analysis
Correlation of Infrastructure Cost with Trial Activity

- Strong correlation of infrastructure costs with number of Phase III trials led by the Group
- Weaker correlation with total trials led by Group or total Lead Group accrual
- Phase II trial activity does not substantially impact overall infrastructure costs
Regression model predicts
- $1.5M fixed cost to establish and operate a Group
- $450K variable cost per trial
Predicted Infrastructure Cost per Trial from Regression Model

- Seven Groups cluster in $500-600K range
- Two high outliers at $680K and $775K due to small trial volume
Predicted versus Actual Infrastructure Cost per Trial

- Actual 2007 costs allocated by assuming that Phase III trial costs 10 times that of a Phase II
- Actual cost per trial within 10% of that predicted for six Groups
- One high outlier at $866K actual cost per trial, 42% above that predicted
- Two low outliers at ~$400K actual cost per trial, 23% and 31% below that predicted
Infrastructure costs allocated by assuming that Phase III trial costs 10 times that of a Phase II
Per accrual cost highly variable
On average, each Phase III and Phase II accrual represents ~$3000 in infrastructure costs
Analysis of Institutional Cost Sharing and Pro-Bono Time
Scientific Leadership Time Commitment
Estimated by Groups

• Scientific Committees
  – Chairs 20% time
  – Vice-Chairs 5-10% time

• CRA/Nursing Committees
  – Chairs 15% time

• Administrative Committees
  – Chairs 5-10% time

• Committee Members
  – 1% time commitment from each active member

• Protocol Chairs
  – 10% time for Phase III trial
  – 5% time for Phase II trial
Cost Sharing/Pro-Bono Time Calculation Methodology

• Committee Leadership
  – Calculated total FTEs based on estimated time and number of committee Chairs/Vice-Chairs
  – Subtracted FTEs supported with U10 funds
  – Multiplied non-supported FTEs by $190,000

• Committee Members
  – Determined median number of members per committee across Groups – 24 members/committee
  – Calculated total FTEs per Group based on 1% time
  – Multiplied total FTEs by $175,000

• Protocol Chairs
  – Calculated total FTEs based on estimated time and average number of trials open per year in 2006-2008
  – Subtracted FTEs supported with U10 funds
  – Multiplied non-supported FTEs by $190,000
Scientific Leadership
Cost Sharing and Pro-Bono Time

• 77% of the time required for Scientific and Administrative Committees and Protocol Chairs provided pro-bono by investigators or covered by their home institutions

• Individual Groups range from 50-98% cost shared/pro-bono time

• Translates into $27.7M of “donated dollars” including fringe and indirect costs

• 17% of the annual total cost NCI Cooperative Group budget
Accrual Institutional Cost Sharing

- Analysis of four accrual funding categories
  - Institutional U10 awards supporting accrual
  - Group U10 sub-awards to sites to support accrual
  - Per case reimbursements
  - CCOP accruals

- Total funding supplied to sites by these four approaches was calculated and compared to the estimated real cost at $6000 per accrual

- Difference represents the dollar value of the institutional cost sharing in support of accrual
### Total Accrual Cost Sharing

<table>
<thead>
<tr>
<th>Accrual Type</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional U10 Funded Accrual(^1)</td>
<td>$ 5,431,043</td>
</tr>
<tr>
<td>U10 Sub-Award Funded Accrual(^1)</td>
<td>$ 11,769,316</td>
</tr>
<tr>
<td>Per Case Reimbursement Accrual(^2)</td>
<td>$ 51,836,000</td>
</tr>
<tr>
<td>CCOP Accrual</td>
<td>$ 19,120,000</td>
</tr>
<tr>
<td><strong>Total Cost Sharing</strong></td>
<td><strong>$ 88,156,359</strong></td>
</tr>
<tr>
<td>Total Accrual Cost(^3)</td>
<td><strong>$143,256,000</strong></td>
</tr>
</tbody>
</table>

**Cost Sharing Percentage** 61.54%

\(^1\) Main Members only
\(^2\) Main Member and Affiliates
\(^3\) Total accrual at $6000/case.
## Total Institutional Cost Sharing and Pro-Bono Time

<table>
<thead>
<tr>
<th>Component Activity</th>
<th>Total Costs¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Leadership</td>
<td>$ 787,312</td>
</tr>
<tr>
<td>Committee Leadership</td>
<td>$ 7,279,875</td>
</tr>
<tr>
<td>Committee Members</td>
<td>$ 14,148,750</td>
</tr>
<tr>
<td>Protocol Chairs</td>
<td>$ 6,229,461</td>
</tr>
<tr>
<td>Statistics/Data Management</td>
<td>$ 1,500,000</td>
</tr>
<tr>
<td>Accrual</td>
<td>$ 88,156,359</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$118,101,757</strong></td>
</tr>
</tbody>
</table>

¹Labor costs include 25% fringe and 50% indirect
Non-NCI Funding Analysis
System Wide Non-NCI Funding

- $56M annually in non-NCI funding for Cooperative Group trials
  - $41M from industry
  - $6M from philanthropy
  - $9M from parent institutions, state funds, etc.

- 25% of annual Cooperative Group cash expenditures from non-NCI sources

- Groups highly variable, generating from 0% to 50% of their funding from non-NCI sources
## Overall Cooperative Group Funding Structure

<table>
<thead>
<tr>
<th>Funding Component</th>
<th>Total Costs¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperative Group Awards</td>
<td>$161 M (45%)</td>
</tr>
<tr>
<td>CCOP Accrual Support</td>
<td>$10 M (3%)</td>
</tr>
<tr>
<td>CTSU Contract</td>
<td>$18 M (5%)</td>
</tr>
<tr>
<td>Accrual Cost Sharing</td>
<td>$88 M (24%)</td>
</tr>
<tr>
<td>Pro-Bono Investigator Time</td>
<td>$28 M (8%)</td>
</tr>
<tr>
<td>Industry Support</td>
<td>$41 M (11%)</td>
</tr>
<tr>
<td>Philanthropic Support</td>
<td>$6 M (1.5%)</td>
</tr>
<tr>
<td>Other Support</td>
<td>$9 M (2.5%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$361 M</strong></td>
</tr>
</tbody>
</table>

¹Direct and indirect costs
Accrual Analysis
Accrual Distribution Analysis

- Main Members and their affiliates provide 75% of accrual
- Cancer Centers and their affiliates provide 40% of accrual
- Main Members with infrastructure funding contribute 3-4 times more accrual
- 60% of Main Member/CCOP networks contribute 90% of accrual
  - Low-accruing sites represent ~50% of sites (primarily affiliates and CCOP components)
  - Financial and operational burden of maintaining low accruing sites is minimal
Cross-Group Membership

- Institutions rarely members of only a single Group
- Large institutions generally Main Members of CALGB, ECOG or SWOG and one or more specialty Groups
- ~60% of Cancer Centers are Main Members of four or more Groups, all but two are Main Members of more than one Group
- High accruing CCOPs are members of at least one large adult medical oncology Group and one or more of the specialty Groups
Cross-Group Accrual

• “Within Group” accrual is often “cross-Group” accrual from the site’s perspective due to cross-Group membership

• Concept of cross-Group accrual only truly relevant to three large adult medical oncology Groups

• ~50% of CALGB, ECOG and SWOG accrual is to trials led by other Groups (2006-2008)
Focus of Major Recommendations

- Internal Group Organizational Model
- Accrual Funding Model
- Subcommittee H Review Criteria
- System Governance

Currently under analysis by NCI management

Potential involvement of Clinical Trials Advisory Committee Working Group