



How to Prepare a Clinical Trial Budget

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Funded by a grant from the
National Institutes of Health



Definition of Trial Budget

- The estimated amount of money that you need to accomplish the goal of a clinical trial or study
- Study budgets are prepared overall and by each study year with costs linked to study tasks and patient recruitment.

What are the Major Cost Buckets in a Budget?

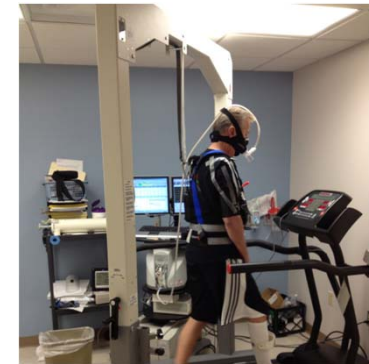
People who do trial work



Technology



Study-related care, including study intervention



Statistical Analysis and Data Management Support



Travel and Meetings



Two Types of Trial Budgets: Overall and Site

- Overall – you are the PI of a multicenter or single center trial and are responsible for all parts of the budget
- Site budget – you are the local site PI and are negotiating with industry, NIH, or other funding source regarding how much you get paid for start-up of trial/study, per patient enrollment, and study close-out.
 - In NIH StrokeNet and other NIH-sponsored projects, site budget is often fixed, including overhead, and not negotiated at site level (already some support for PI and coordinator as part of StrokeNet RCC award.)
 - In industry trials, there is often some negotiation room in some but not all areas. Indirect rate is institutional specific.

Overall Budget Reflects Scope of Work

- You need to know:
- **Goals / Methods of the study**
 - What is the clinical question to answer?
 - How many patients are needed to answer question?
 - How many sites are needed to recruit patients over what period of time?
 - What will be measured to determine safety and clinical outcomes?
- **Per patient costs**
 - What are the per patient costs in terms of technology (imaging, labs, etc.), treatments (drugs, devices), and personnel time to screen, enroll, measure outcomes, follow subjects, and data entry?
- **Personnel costs**
 - Who is running/coordinating the trial and what are their effort/costs/expenses?
 - Who providing statistical analysis and managing and monitoring data and what are their effort/costs/expenses?
 - What are the travel and communication costs to train trial staff and sites?
- **Additional Costs**
 - What additional costs of technologic measurements (image analysis, labs, etc.) are required?
 - Are you using consultants/advisors and how much do they cost?

Personnel Costs

- For Study Personnel – need “effort” estimates by time (mins/hrs/ per visit) and typical personnel and their estimated salary/benefits (MD Investigator, clinical study coordinator (RN), non RN trial coordinator, MA’s ...) for each item on the Schedule of Events (SOE). Use upper range of salaries since west and east coast institutions have higher costs of living.
- Don’t forget to include or consider budgeting time for subject screening activities, scheduling and phone contacts with subjects, the potential for unscheduled visits and data entry and site visits.
- subject reimbursement for travel and parking

Start-Up fixed costs vs. per subject costs

- Know your start-up costs – usually fixed costs but variable at each institution
- I create two budgets for each study: one for start-up costs which include IRB costs for the entire time of the study, Research Pharmacy if drug related study, AEs, research lab, etc.
- Reminder about F&A: e.g. 53% NIH / 28% industry or private
- Coordinator time: average salary divided by 2080 (hours/year) + fringe

What are the IRB and Other Institutional Costs?

- The fixed and upfront costs...Traditionally covered or budgeted as **start-up fees**- and should not exceed \$5000. per site max.
 - Include IRB or administrative fees
 - Pharmacy fees including close out and administration fees
 - Ancillary reviews (Radiology, clinical engineering, Nursing)
 - Institutional CMS analysis
- StrokeNet
 - Assumes IRB startup fee but needs to allow for institutional ancillary reviews etc...
 - Remember the “indirect” rate for SN is currently 42%.

Start-Up fixed costs vs. per subject costs

Administrative Costs for:

UW "A Multi-Center, Randomized, Placebo Controlled, Double-Blinded, Trial of

[REDACTED]

PI: [REDACTED]

Start-up charges (includes 28% overhead)

UW IRB: Initial Application review	\$3000
Pharmaceutical Research Center (PRC) –one time start up	\$2893

Change of protocols, continuing reviews and IDB's

IRB change of Protocols and submission fee	\$640 per change
IRB continuing review and submission fee	\$640
IDB prep and submission (if applicable)	\$1000

Maintenance fees:

PRC Quarterly fee (begin mo 4)	\$461
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Other Events:

Study closure fee(IRB)	\$1450
Final reconciliation:	\$320

Additional invoiceables: (28% Overhead to be applied as applicable)

*Any research charge will be invoiced to sponsor if exceeds negotiated budget

Schedule of Events (SOE) Drives Per Patient Budget

Study Visits	Screening	Enrollment and Randomization	Baseline Visit	Visit 2	Visit 3	Final Visit
Informed Consent	X					
Medical History	X					
Physical Exam	X					
NIHSSS		X		X	X	X
Vital Signs		X		X	X	X
Laboratory assessment -Serum Chemistry /hematology	X					X
Study drug or device Administration			X			
Adverse events			X	X	X	X

Example- Per subject Budget

Per subject reimbursement detail; n=1754							
Assessment	Performed by:	Baseline*	1 year f/u	2 year f/u	3 year f/u	4 year f/u	Total
Written Informed Consent:	PI	\$ 75.00					\$ 75.00
Inclusion/Exclusion Criteria:	PI	\$ 75.00					\$ 75.00
Randomization:	PI	\$ 75.00					\$ 75.00
Documentation of UIA (radiology, symptoms)	PI	\$ 75.00					\$ 75.00
Medical History/demographics/VS:	NC	\$ 37.50					\$ 37.50
Weight	NC	\$ 12.00					\$ 12.00
Height	NC	\$ 12.00					\$ 12.00
Physical exam	PI	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 375.00
Neuro exam	PI	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 375.00
Concomitant Medication Review	NC		\$ 37.50	\$ 37.50	\$ 37.50	\$ 37.50	\$ 150.00
Adverse Event review	PI		\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 300.00
Questionnaires	NC		\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 300.00
MRA (\$396) w/o GAD or CTSA (\$422)		\$ 422.00		\$ 422.00		\$ 422.00	\$ 1,266.00
Serum myeloperoxidase blood draw	NC	\$ 37.50		\$ 37.50		\$ 37.50	\$ 112.50
Reporting events (\$315k total from PPI) (~2.5 hrs)	NC	\$ 183.57					\$ 183.57
Sample shipping preparation	NC	\$ 37.50		\$ 37.50		\$ 37.50	\$ 112.50
Patient travel for follow up			\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 300.00
TOTAL DIRECT COSTS PER SUBJECT							\$ 3,836.07
StrokeNet F&A on applicable elements							\$ 1,490.40
TOTAL PER SUBJECT							\$ 5,326.46
TOTAL SUBJECT REIMBURSEMENT BUDGET REQUEST							\$ 9,342,616

Hidden Costs in a budget

Hidden costs in a study budget and where can I add coordinator time:

- Time to obtain informed consent (30min increment)
- Medical history
- Adverse Events/ Serious Adverse Events – I count them every day during acute phase and then at every FU visit
- Travel/phone calls – scheduling FUs visits
- Concomitants meds
- Audits/monitoring
- Data entry / documenting
- Screening (remember it takes time for screening, consenting, enrolling and randomization)
- After hours if enrolling 24/7
- Shipping – add these costs to the budget – also who can ship at your site – training in place
- Publication costs

Need to Know What is Standard of Care vs. Research

- Consider not all Standard of Care (SOC) is national and therefore maybe locally or institutionally driven. What will be this trial's SOC items?
- Subjects or their “payers” should *never* be expected to bear the “cost” of research related procedures –CMS especially objects. If you pay for *some* procedures for *some* subjects Medicare feels you should pay for them *all*.
- How will sites address the potential subject that is uninsured. (case by case basis)
- Does this trial meet the criteria for CMS reimbursement for SOC?
- For Procedures - Pre-negotiated Federal Rate- SN used the Average National Medicare Rate in calculations
 - Need the CPT or Procedure code for each test determined to be research related

Principle: Every Task and Data Point Costs Money

- Less is more – minimizing data points makes trial easier and decreases budget. Carefully consider what is truly needed.
- Imaging is expensive – choose imaging that is part of standard of care (SOC) unless critical to clinical question that is being asked

Principle: Never underestimate Time and Sites to Recruit

- If you underestimate, you will greatly exceed budgeted infrastructure costs (coordinating center, trial leadership, data management/statistical support) which are usually based on FTE even though your per patient costs remain the same: e.g. 7 years to do planned 5 year study.
- If you need more sites later, won't have budgeted start-up costs for sites.
- NIH trial awards are now milestone-based and study will be stopped if recruitment doesn't meet targets

Principle: Pay for Time to Do a Task rather than FTE, If Possible

- Example: If you pay for 1.0 FTE coordinator and you recruit 2/3 of what you expect in 5 years, you will have no monies in subsequent years to pay for coordinator work if you are to complete trial and stay within budget
- Example: If you pay for 0.5 FTE for image analysis but have 2/3 the images expected after 5 years, you will have nothing left to pay for image analysis in subsequent years.
- Exception: Leadership of trial (e.g. PI, key personnel, study manager, data manager and statistical analysis) is generally in FTE

Principle: Talk to Experienced PIs, Coordinators

- Coordinators can give you good estimates of time for specific tasks. If you do overestimate time, do so with coordinator effort since they are the backbone of the site success. Also, paying for a greater effort for coordinators is less costly since their salaries are generally lower
- Experienced PIs can help with effort estimates, per patient budget, and timing of different budgetary items.

Working with NIH

- < \$500,000 in direct cost per year: don't need approval by NINDS to submit but always should talk to program officer.
- >\$500,000 in direct cost per year: need prior NINDS approval to submit.
- For StrokeNet multi-center stroke trials, you will need to prepare a concept proposal and preliminary budget.
- Once concept proposal is deemed feasible and approved for submission, need to have final budget. It needs to be as accurate as possible since if you do need to resubmit, you can only have up to 10% budget increase.
- Maximum institutional salary that NIH can support on grant - \$187,000. Greater salaries have to be cost-shared by institution.

Placebos can be More Expensive than Study Drugs

- For budgeting you need the cost of active drug (or placebo) or device *by subject* not by dose (*e.g. – may need two vials for a big person*)
 - Kits are easiest to manage by most clinical performance sites
 - How many kits are needed per site and what is the cost per kit?
 - Consider waste or overage in final estimate. Remember, drugs can expire! Another reason why keeping to recruitment goal is important.
- Consider cost for meeting Standards for Investigational product (IP) -
 - Must consider the cost of demonstrating product stability for compounded agents and expiration of all study provided investigational product
 - Must consider additional cost of “blinded” packaging
- Shipping costs of IP –
 - Can it be shipped ambient and/or does it need temperature monitoring?
 - Is weight a factor?
 - How often does it need to be replaced (off the shelf) due to IP expiration or site use or waste?

StrokeNet additional costs

- NCC costs/fees
 - Central Pharmacy time
 - Program manager time
 - CIRB non StrokeNet sites
 - Reliance agreements and Protocol trial agreement time for NON network sites
- NDMC costs/fees
 - Statisticians (unblinded and/or blinded)
 - Data Manager
 - Programming for Database development
 - Data monitoring (maybe remote)

Site Monitoring is a Big Cost

- What is risk based monitoring?
 - Basing the actual source data verification (SDV) on ongoing data review or a planned review of a sampling or percentage of actual data (based on risk)
 - Can replace traditional 100% SDV

- How often will a monitor need to visit a site?
 - Minimum is once a year (monitor cost includes actual monitor salary, travel and expenses, report and paperwork generation time)

Summary – How to Prepare a Budget

- Start early
- Talk to knowledgeable investigators and coordinators.
- Talk early to coordinating and data management centers
- Knowing the number of patients and number of sites needed to recruit them is fundamental
- Add technology only when critically needed
- Tend to overestimate than underestimate budget to accomplish goal but realize that sticker shock can leave a study undone.
- The study most likely to be approved by any organization is one which answers a critical question, has a straightforward, simple design, and has a reasonable and clear budget

Sample of R01 Budget

PERSONNEL COSTS:				Salary + Fringe Benefits										
Name	Role	Base Salary	Effort	Yr 3 effort	FB Rate	Year 1	Year 2	Year 3	Year 4	Year 5				
	PI	\$ 185,100.00	15.0%		40%	\$ 38,871	\$ 38,871	\$ 38,871	\$ 38,871	\$ 38,871				
	CO-I	\$ 161,574.74	5.0%		40%	\$ 11,310	\$ 11,310	\$ 11,310	\$ 11,310	\$ 11,310				
	CO-I	\$ 173,904.66	5.0%		40%	\$ 12,173	\$ 12,173	\$ 12,173	\$ 12,173	\$ 12,173				
	CO-I	\$ 144,294.00	5.0%		40%	\$ 10,101	\$ 10,101	\$ 10,101	\$ 10,101	\$ 10,101				
	CO-I	\$ 95,400.00	5.0%		40%	\$ 6,678	\$ 6,678	\$ 6,678	\$ 6,678	\$ 6,678				
	Coordinator	\$ 35,000.00	100.0%		40%	\$ 49,000	\$ 49,000	\$ 49,000	\$ 49,000	\$ 49,000				
TBN	Postdoc Fellow	\$ 48,192.00	50.0%		25%	\$ 30,120	\$ 30,120	\$ 30,120	\$ 30,120	\$ 30,120				
		\$ 115,638.00	5.0%	7.5%	40%	\$ 8,095	\$ 8,095	\$ 12,142	\$ 8,095	\$ 8,095				
		\$ 185,100.00	2.5%	5.0%	40%	\$ 6,479	\$ 6,479	\$ 12,957	\$ 6,479	\$ 6,479				
		\$ 46,644.24	75.0%		40%	\$ 48,976	\$ 48,976	\$ 48,976	\$ 48,976	\$ 48,976				
		\$ 26,500.00	100.0%		24%	\$ 32,860	\$ 32,860	\$ 32,860	\$ 32,860	\$ 32,860				
		\$ 41,172.63	25.0%		40%	\$ 14,410	\$ 14,410	\$ 14,410	\$ 14,410	\$ 14,410				
		\$ 149,220.44	5.0%		40%	\$ -	\$ -	\$ -	\$ -	\$ 10,445				
		TOTAL Personnel Costs:					\$ 269,073	\$ 269,073	\$ 279,599	\$ 269,073	\$ 279,519	\$ 1,366,337	TOTAL	
\$0 Collaborators														
	OSC		0%		40%	\$ -	\$ -	\$ -	\$ -	\$ -				
	OSC/Collaborator		0%		40%	\$ -	\$ -	\$ -	\$ -	\$ -				
						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	TOTAL		
EQUIPMENT:														
Data Server						\$ 6,000	\$ -	\$ -	\$ -	\$ -				
Transducer						\$ 12,750	\$ -	\$ -	\$ -	\$ -				
						\$ -	\$ 9,336	\$ -	\$ -	\$ -				
						\$ -	\$ 3,999	\$ -	\$ -	\$ -				
						\$ 18,750	\$ 13,335	\$ -	\$ -	\$ -	\$ 32,085	TOTAL		
SUPPLIES														
Sonographer/Service	Sonographer					\$ 27,237	\$ 27,237	\$ 54,474	\$ 27,237	\$ 27,237				
Consumables - Ultrasound/TCD						\$ 500	\$ 500	\$ 1,000	\$ 500	\$ 500				
Computing Fees - BioStats						\$ -	\$ -	\$ -	\$ -	\$ 500				
Consumables - Cognition			528			\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000				
Service Contract TCD Machine for 5 years						\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000				
MRI Scanning - Extended			88			\$ 14,080	\$ 14,080	\$ 7,040	\$ -	\$ -				
MRI Scanning - 2 time points			352			\$ 38,720	\$ 38,720	\$ 38,720	\$ 38,720	\$ 38,720				
						\$ 86,537	\$ 86,537	\$ 107,234	\$ 72,457	\$ 72,957	\$ 425,722	TOTAL		
TRAVEL														
Travel for PI's Co-Is etc						\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500				
Student Travel/Registration for conference						\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000				
						\$ 4,500	\$ 4,500	\$ 4,500	\$ 4,500	\$ 4,500	\$ 22,500	TOTAL		
Other Expenses:														
Tuition Remission						\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000				
						\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 60,000	TOTAL		

Sample R01 Budget - continued

		YR 1	YR 2	YR 3	YR 4	YR 5	TOTAL	CHECK				
DIRECT		\$ 390,860	\$ 385,445	\$ 403,333	\$ 358,030	\$ 368,976	\$ 1,906,644	TRUE				
INDIRECT	0.53	\$ 190,858	\$ 190,858	\$ 207,407	\$ 183,396	\$ 189,197	\$ 961,717	TRUE				
TOTAL		\$ 581,719	\$ 576,303	\$ 610,740	\$ 541,426	\$ 558,173	\$ 2,868,361	TRUE				

Test	# OF PATIENTS	# OF TESTS	TOTAL TESTS			TESTS	COST/TEST	5 YR COST	/YR COST			
Ultrasound/TCD/Echo	176	2	352	4 groups	2 hours	Ultrasound	352	<i>Per Estimate</i>	<i>Per Estimate</i>	<i>Per Estimate</i>		
Neurocognitive	176	3	528	4 groups	1 exam	Neurocognitive	528	\$ 8.35	\$ 8,346.00	\$ 1,669.20	\$3000/Yr	Tests must be bought in packs of 500 - total pack costs 4173
MRI	176	2	352	4 groups	1 hour	MRI (sterling)	352	\$ 550.00	\$ 193,600.00	\$ 38,720.00		
Extended MRI	88	1	88	2 groups	30 mins	MRI (turski)	88	\$ 400.00	\$ 35,200.00	\$ 35,200.00		

	# OF SUBJECTS	Ultrasound/TC D/Echo	Neurocognitive	MRI	Extended MRI	CHECK	YR 1	YR 2	YR 3	YR 4	YR 5		
GROUP 1	44	YR 1 & 3	YR 1, 2, 3	YR 1, 3			\$ 390,860.24	\$385,444.97	\$403,333.14	\$ 358,030.24	\$ 368,975.67		
GROUP 2	44	YR 1 & 3	YR 1, 2, 3	YR 1, 3	YR 1		\$ 190,858.43	\$190,858.43	\$207,406.56	\$ 183,396.03	\$ 189,197.11		
GROUP 3	44	YR 1 & 3	YR 1, 2, 3	YR 1, 3	YR 1		\$ 581,718.67	\$576,303.40	\$610,739.70	\$ 541,426.27	\$ 558,172.77		
GROUP 4	44	YR 1 & 3	YR 1, 2, 3	YR 1, 3									
TOTAL	176	352	528	352	88								
CHECK		TRUE	TRUE	TRUE	TRUE								

END

StrokeNet Trial Development Process (simplified)

Applicant submits and discusses initial concept with NINDS

Applicant discusses concept with Working Group and submits Concept Proposal and preliminary budget

NINDS ESC Approval

Feasibility review and development of final budget

Submission for Scientific Peer Review

Council Review

Final Protocol development with Network

cIRB approval

GO!!