

## **Biomarker, Imaging, & Quality of Life Studies Funding Program (BIQSFP)**

### **Department of Health and Human Services**

#### **Participating Organizations**

National Institutes of Health (NIH) <http://www.nih.gov/>

#### **Components of Participating Organizations**

National Cancer Institute (NCI) <http://www.nci.nih.gov/>

#### **Website**

<http://www.cancer.gov/about-nci/organization/ccct/other-programs/biqsfp>

#### **Key Dates**

**Release Date:** December 15, 2008; revised 4/1/10, 4/1/11, 4/1/12, 5/1/13, 12/23/13, 3/2/15, 12/31/15

**Submission Date:** There is no specific date for parent Clinical Trial Concept and BIQSFP study proposal submission to the Cancer Therapy Evaluation Program (CTEP) or the Division of Cancer Prevention (DCP).

**Evaluation Process:** The appropriate NCI Scientific Steering Committee (SSC) or ad hoc evaluators via CTEP/DCP if there is no appropriate SSC, evaluate and recommend the parent Clinical Trial Concept along with the Biomarker, Imaging, and Quality of Life/Patient-Reported Outcomes (QOL/PRO) study proposal(s) and/or Cost-Effectiveness Analysis (CEA) endpoint, during scheduled SSC meetings for concept review.

Scientifically meritorious BIQSFP proposals that are recommended by NCI SSCs (or CTEP/DCP as applicable) are presented by NCI Program Staff to the Clinical and Translational Research Operations Committee (CTROC) for prioritization and approval at their bimonthly meetings. CTROC makes final funding recommendations. The Clinical Trials and Translational Research Advisory Committee (CTAC) periodically reviews the approved funding portfolio, providing strategic oversight and advice.

**Expiration Date:** December 31, 2016

In 2014, the NCI Cooperative Groups became the NCI National Clinical Trials Network (NCTN) groups and the Division of Cancer Prevention's (DCP) Community Clinical Oncology Program (CCOP), Minority-Based CCOPs (MB-CCOPs) and their Research Bases transitioned into the NCI Community Oncology Research Program (NCORP).

It is anticipated that the BIQSFP Announcement will be reissued in subsequent years.

### **I. Key Changes:**

- A.** Randomized symptom science/supportive care (QOL/PRO) clinical trials with efficacy endpoints are now eligible for BIQSFP funding (see section VII, pages 4-5 for QOL/PRO Studies).
- B.** CEA funding may also apply to Symptom Science/Supportive Care clinical trials (see section XIII., page 6).
- C.** INTEGRAL proposal(s) requesting BIQSFP support must be embedded into the parent concept document (see section X., page 7).
- D.** **INTEGRATED** and CEA studies must be submitted **after** parent concept approval but **prior to** protocol activation (see section X., page 7).

- E. Applicants are encouraged to submit a Standard Operating Procedure (SOP) as an appendix to the BIQSFP Checklist, supporting validation of the assay/test/tool/instrument(s) being proposed (see section X.B.-D., page 7-8).

## II. Overview and Summary

The Division of Cancer Treatment and Diagnosis (DCTD) and the Division of Cancer Prevention (DCP), National Cancer Institute (NCI), invite funded NCTN groups and funded NCORP Research Bases to apply for funding to support biomarker, imaging, and QOL/PRO studies as well as CEA proposals, all of which are associated with NCI clinical trial concepts.

## III. Purpose

As part of its Prioritization and Scientific Quality Initiatives, the NCI Clinical Trials Working Group (CTWG) recommended establishing a funding mechanism and prioritization process for correlative studies and QOL/PRO studies that are incorporated into the fundamental design of a clinical trial and are not currently supported by the U10 funding mechanism. The purpose of the BIQSFP is to ensure that the most important, scientifically meritorious biomarker, imaging, QOL/PRO, or CEA studies can be initiated in a timely manner in association with appropriate clinical trials.

Targeted biological studies, imaging, and quality of life studies embedded in clinical trials should have the potential to modify standard of practice. The assays/tests/instruments must be reliable and provide interpretable answers that are of benefit to patients leading to validation of targets, reduction of morbidity, prediction of treatment effectiveness, enhanced clinical trial design, identification of populations that may better benefit from treatment, and improvements in clinical trial accrual and retention.

## IV. Mechanism of Support

BIQSFP is managed through the Coordinating Center for Clinical Trials (CCCT) in the NCI Office of the Director (OD). For the FY 2016 BIQSFP Announcement, the number of anticipated awards is contingent upon the availability of funds and the number of meritorious proposals submitted. NCI committed \$10M to BIQSFP funding in FY 2016. Applicants may submit more than one trial concept with biomarker, imaging, QOL/PRO, or CEA studies, provided they are scientifically distinct. However, both the scientific merit of the parent clinical trial concept and the merit of the biomarker, imaging, QOL/PRO, or CEA study must be approved by the appropriate review entity (NCI SSC, CTEP or DCP) in order to be eligible for the BIQSFP funding.

## V. Requirements and Definitions

### A. Eligible trial types for BIQSFP funding are:

- Trials conducted by NCTN groups and NCORPs.
- Phase 2 ( $\geq 100$  patients) and 3 treatment trials with integral or integrated biomarker or imaging studies.
- Phase 3 cancer prevention clinical trials with integral or integrated biomarker or imaging studies.
- Randomized symptom science/supportive care clinical trials with efficacy endpoints.
- For CEA, the parent concept must be a randomized phase 3 treatment or prevention clinical trial with a comparator arm or a symptom science/supportive care clinical trial with a comparator arm.

**B. Treatment Trials** test the effectiveness of new treatments or new ways of using current treatments in people who have cancer. The treatments tested may include new drugs or new combinations of currently used drugs, new surgery or radiation therapy techniques, and vaccines or other treatments that stimulate a person's immune system to fight cancer. Combinations of different treatment types may also be tested in these trials.

- C. Cancer Prevention Trials** test new interventions that may lower the risk of developing certain types of cancer. Most cancer prevention trials involve healthy people who have not had cancer; however, they often only include people who have a higher than average risk of developing a specific type of cancer. Some cancer prevention trials involve people who have had cancer in the past; these trials test interventions that may help prevent the return (recurrence) of the original cancer or reduce the chance of developing a new type of cancer.
- D. Symptom Science/Supportive Care Trials** focus on the comfort and quality of life of cancer patients and cancer survivors. New ways to decrease the number or severity of side effects of cancer or its treatment are often studied in these trials. How a specific type of cancer or its treatment affects a person's everyday life may also be studied.

Further details on the preceding four definitions can be found at:

<http://www.cancer.gov/about-cancer/treatment/clinical-trials/what-are-trials/types>.

Treatment trials are submitted to CTEP for evaluation by the appropriate NCI Disease-Specific Scientific Steering Committee.

Cancer prevention and symptom science/supportive care clinical trials are submitted to DCP for evaluation.

## VI. **Biomarker and Imaging Studies**

Two types of biomarker and imaging studies are eligible for consideration – **integral** and **integrated**.

- A. Integral Studies** - Defined as assays/tests that must be performed in order for the trial to proceed. Integral studies are inherent to the design of the trial from the onset and must be performed in real time for the conduct of the trial. Integral biomarkers require a CLIA-certified lab.

**Integral studies have the highest funding priority.**

Eligible categories of integral studies and examples are as follows:

- Tests to establish eligibility – e.g., ERCC-1 to determine protocol eligibility for patients with gastric cancer or imaging assessment of hypoxia for trials of drugs effective in hypoxic tissues such as tirapazamine
- Tests for patient stratification – e.g., measurement of 18qLOH and MSI for assignment of risk in stage 2 colon cancer
- Tests to assign patients to a treatment arm of a trial, including surrogate endpoints for assignment of treatment during a trial – e.g., FLT3/ITD ratio for assignment of pediatric AML patients to a study arm; eradication of the bcr-abl clone in CML to determine whether to continue treatment; FDG-PET scan after initial course of therapy to assess early response to determine whether to continue treatment where third-party payers would not cover the cost
- **Non-reimbursable** imaging tests to measure a primary endpoint or to stratify patients based on imaging response – e.g., PET scans for non-Hodgkin's lymphoma response to chemotherapy

- B. Integrated Studies** – Defined as assays/tests that are clearly identified as part of the clinical trial from the beginning and are intended to identify or validate assays or markers and imaging tests that are planned for use in future trials. Integrated studies in general should be designed to test a hypothesis, **not simply to generate hypotheses**. The number of integrated assays/tests performed should be sufficient to obtain scientifically valid outcomes during the trial and include

complete plans for specimen collection, laboratory measurements, proposed cutpoints, and statistical analysis. One example would be predictive biomarker assays that are measured either *in vitro* or *in vivo* where the assay result is not used for eligibility, treatment assignment, or treatment management in the current trial; a second example would be the use of an imaging test to detect biologic modification of the target but where the image is not used as a primary study endpoint.

### C. Criteria for Review of Biomarker and Imaging Studies

Prioritization and evaluation criteria include:

- The strength of the preliminary data for both test utility and performance characteristics including cutpoints.
- The potential of the test to change practice and have high impact on patient care (e.g., the impact of the test itself or the change of therapy indicated by the results of the trial).
- The ability of the test to yield well-defined and validated interpretations that will guide decision-making.
- The extent of standardization of the tests as to be transferable to the non-research setting.
- The adequacy of the process for specimen collection or image acquisition including feasibility data.
- A description of potential cost-sharing approaches that can be developed with entities that would eventually commercialize the test.

Clinical assays that are used to assign or significantly modify a patient's treatment in the proposed clinical trial must have undergone rigorous analytic validation and sufficient clinical validation to warrant inclusion in a clinical trial. Such assays will ordinarily be performed in CLIA-accredited laboratories and will need FDA review as well.

It is not intended that any priority or particular level of merit is assigned to one criterion over another but rather the proposals are evaluated based on the totality of the information and strength of the data.

Applications for Biomarker studies will include a completed Biomarker Study Checklist, Budget, and Budget Justification. Applications for Imaging studies will include a completed Imaging Study Checklist, Budget, and Budget Justification.

## VII. QOL/PRO Studies

**QOL/PRO studies can be integral or integrated** assays, tests, and/or instruments. Assays may include biomarkers, imaging tests, or PROs. They must be part of the clinical trial design from the beginning (assessments conducted while the trial is open). They are intended to inform on treatment options and side effects by validating biological and functional clinical correlates.

Currently, DCP funds QOL/PRO components in disease treatment trials that obtain information for use in patient-physician decision making that help the patient prepare for and interpret the treatment experience. Examples of this DCP support may include studies where differences between treatments in survival or other disease-related endpoints are expected to be minimal or when treatment arms represent very different treatment scenarios. Assessments may include, but are not limited to, qualitative data, toxicity impact, convenience, psychosocial outcomes and function.

**Integrated** QOL/PRO study applications must be submitted after parent concept approval but prior to protocol activation. Subsequent NCI prioritization and approval for funding will be

decided by CTROC after evaluation of the QOL/PRO study by DCP and the respective NCI Steering Committee (SC), if applicable.

**A. Eligible categories of QOL/PRO studies and examples include:**

- Studies that are adequately-powered and test specific biological and translational hypotheses.
- Studies that assess complex biological and physiological variables utilizing state-of-the-art measures to assess endpoints.
- Studies to obtain additional information for use in patient–physician decision making or to help the patient prepare for and interpret the treatment experience when the collection of data requires resources beyond the usual cancer control credits or per case reimbursement.
- Studies that validate measures previously tested in smaller studies. QOL/PRO/symptom science/supportive care measures that have been piloted in smaller studies and are supported by preliminary data require full validation in larger, more definitive randomized clinical trials.

There is growing interest in the role of objective measures including biomarkers, imaging studies, and measures of activity such as pedometers and actigraphs that can further inform the endpoints, QOL/PRO assessments, and selected measures that validate PRO data including:

- Studies that provide “objective” correlates to self-report measures that are not easily supported through funding for clinical trials. Concurrent collection of an “objective” test along with a performance measure provides stronger data when following patients on a symptom science/supportive care or disease treatment trial. Examples of studies in this category may include: enhancing measures that validate patient self-report of fatigue or physical function with objective actigraphy; neuropsychological testing in studies of cognitive effects from therapy, or in following patients with brain tumors or metastases.
- Studies that are “predictive” measures with testable hypothesis(es) and a high likelihood to give validated interpretations, and correlative measures to predict morbidity, safety, pathophysiologic mechanisms of symptom expression, and/or treatment efficacy and genetic determinates of symptom expression, quality of life endpoints and treatment efficacy. Examples of these study measurements may include: cytochrome P450 metabolism; cytokine analyses; pharmacokinetic studies for drug interactions; neuroendocrine studies, and fMRI for cognitive changes.

**B. Criteria for Review of QOL/PRO Studies**

Prioritization and evaluation criteria include:

- The potential to impact patient morbidity and quality of life with clinically meaningful benefit.
- The potential to move science forward in cancer related symptom science/supportive care by adding critical knowledge.
- The strength of the preliminary data supporting the hypothesis(es) to be tested and methods proposed.
- A clearly defined process for data and specimen collection.
- A statistical plan with adequate power for testing the QOL/PRO correlative study hypothesis(es).
- Measures that are reliable, valid, and appropriate to the population of interest.
- Feasibility of the proposal such that completion can be accomplished efficiently and in a reasonable time frame.

**VIII. Cost-Effectiveness Analysis (CEA) Studies**

Cost-Effectiveness Analysis (CEA) provides useful information to help health care payers manage the use of costly medical technologies in order to maximize the health of their patient populations

when facing constrained budgets, and to clinicians and patients to help guide treatment decisions based on CEA’s unique endpoints, perspectives (e.g., societal, clinical, or third-party), and time horizon (e.g., within trial or long-term survivorship). To be most useful to decision-makers, CEA of new cancer therapies must have maximal feasibility, be timely, and have high internal validity. CEA funding may also apply to Symptom Science/Supportive Care clinical trials.

Conducting a CEA alongside a clinical trial can achieve these goals and also offers the benefit of efficiency by utilizing the existing structure of clinical trials to collect additional data for the economic analysis. It is not required that a CEA proposal be included with each clinical trial concept submitted. However, in some instances the addition of CEA may be recommended during evaluation review of the clinical trial concept

The CEA evaluation criteria are intended to help guide the selection of cancer clinical trials that warrant additional funds for a CEA. The CEA study should be a secondary endpoint of the parent concept. NCI SSCs evaluate CEA proposals paired with clinical trial concepts through their concept evaluation and prioritization process. NCI SSCs will make use of an ad hoc CEA expert(s), including resources available at the NCI, to evaluate CEA proposals included in clinical trial concepts.

### **Criteria for Review of CEA Proposals**

Researchers should consider pairing a CEA proposal to phase 3 treatment or prevention clinical trials, or symptom science/supportive care clinical trials when the following conditions are met:

- The results of the clinical trial are expected to substantially influence clinical practice.
- The cost-effectiveness study would be of high impact judged by substantial budget implications for health care systems, either in terms of overall cost savings or added costs to the system.
- It is feasible to conduct a high quality CEA as part of the clinical trial. Specific issues to consider include:
  - The comparator arm should be relevant to current clinical practice.
  - The trial should be of sufficient duration, with respect to follow-up of patient outcomes, that consequences of interest to economic evaluation can be captured either directly or through modeling.
  - There is reasonable statistical power for the key cost-effectiveness analysis.
- Because of high cost of the experimental treatment, there is a reasonable degree of uncertainty regarding the outcome of the CEA even if the clinical outcome favors the experimental treatment.

Modeling is a pivotal part of the CEA proposal. CEA proposals should describe the general type of model that will be used. If a model is to be developed, the expertise of the model developer, timeline for model development, calibration, and validation (if relevant) must be included in the proposal. This may include but not be limited to all model inputs that are needed and sources for these inputs, what provisions need to be made to document model structure, assumptions, data inputs, parameter estimation, intermediate and final outputs so that replication of the CEA would be possible by an external analyst.

CEA proposals included in clinical trial concepts should be developed by NCTN/NCORPs. When NCTN/NCORPs choose to submit a CEA proposal, it must be submitted after parent concept approval but prior to protocol activation.

### **IX. Studies Ineligible for BIQSFP Funding**

- Studies that do not meet the definitions for eligible trials (e.g., phase 1 concepts, phase 2 concepts with <100 patients, and all non-randomized concepts).

- Studies that are still within the discovery phase or pre-clinical development stage focusing on assay development.
- Studies that can be conducted in the future on stored specimens (retrospective studies), except if the results are critical to the stated primary or secondary objectives of the trial.
- Studies eligible for DCP Cancer Credits or other DCP funding.
- Cohort studies or longitudinal observational studies.
- Studies that include assays, tests, or instruments that are standard of care and normally reimbursed by third-party payers.
- Integrated studies submitted once the protocol has been opened.

## X. BQSFP Proposal Package & Submission

**INTEGRAL** studies must be embedded into the parent concept and the BQSFP Proposal Package must be submitted at the time of parent concept. **INTEGRATED** and CEA studies must be submitted after parent concept approval but prior to protocol activation.

### A. BQSFP Proposal Package

#### What is required?

- A cover letter signed by the NCTN/NCORP Chair indicating submission of a biomarker, imaging, quality of life, and/or CEA study in response to the BQSFP announcement. **The cover letter should include:**
  - The title(s) of the BQSFP project(s).
  - Brief description of the project(s) indicating whether the study(s) is integral or integrated.
  - Type of study(s) proposed (biomarker, imaging, QOL/PRO and/or CEA).
  - Total budget figure requested for each project (biomarker, imaging, QOL/PRO CEA).
  - Duration of the study.
- Detailed budget as described in the **Budget Preparation** section (below).
  - The parent clinical trial concept with the biomarker, imaging, QOL/PRO, and/or CEA study embedded (for evaluation by NCI SSCs or where appropriate, CTEP or DCP).

- B. Biomarker:** A separate document is required describing the characteristics and performance of each biomarker assay test proposed for funding, and its role in the trial. Applicants should refer to the *Study Checklist for Clinical Trials with Biomarker Assays for Treatment/Symptom Science/Supportive Care Studies* (see attached) for instructions on what information is needed. This section is not to exceed five (5) pages for each assay. Applicants are encouraged to submit a laboratory SOP(s) as an appendix, to support validation of the assay(s) being proposed.

Integral and integrated studies require a separate BQSFP Proposal Package as indicated above.

For additional explanations and definitions, investigators are also encouraged to visit **Performance Standards Reporting Requirements for Assays in Clinical Trials** at: [http://cdp.cancer.gov/scientific\\_programs/pacct/PACCT\\_Assay\\_Standards\\_Document.pdf](http://cdp.cancer.gov/scientific_programs/pacct/PACCT_Assay_Standards_Document.pdf)

Additional information regarding validation of integral biomarkers can be found at NCI's Cancer Diagnosis Program (CDP) website: <http://www.cancerdiagnosis.nci.nih.gov/diagnostics/templates.htm>

- C. Imaging:** A separate document is required describing the characteristics and performance of each imaging test proposed for funding, and its role in the trial. Applicants should refer to the *Study Checklist for Clinical Trials with Imaging Assays for Treatment/Symptom Science/Supportive Care Studies* (see attached) for instructions on what information is needed. This

section is not to exceed five (5) pages for each imaging test. If both integral and integrated studies are proposed within the same concept being submitted, each study will require a separate BIQSFP Proposal Package as indicated above. Applicants are encouraged to submit an imaging SOP(s) as an appendix, to support validation of the test(s) being proposed.

- D. QOL/PRO:** A separate document is required describing the characteristics and performance of each measure that validates a QOL/PRO assessment and/or an instrument proposed for funding, and its role in the trial. Applicants should refer to the *Study Checklist for Clinical Trials with QOL/PRO Components* (see attached) for instructions on what information is needed. This section is not to exceed five (5) pages for each assay or test. If both integral and integrated studies are proposed within the same concept being submitted, each will require a separate BIQSFP Proposal Package as indicated above. Applicants are encouraged to submit a symptom science/QOL/PRO SOP(s) as an appendix, to support validation of the test/tool/instrument(s) being proposed.
- E. Cost-Effectiveness Analysis:** A separate document is required describing the rationale and justification of the CEA proposal for funding. The CEA proposal should be a secondary endpoint of the parent study. Applicants should refer to the *Study Checklist for Randomized Clinical Trials with a Comparator Arm and Cost-Effectiveness Analysis (CEA) Component(s)* (see attached) for instructions on what information is needed. This section is not to exceed eight (8) pages. The CEA budget justification should include:
- Evidence of institutional capacity and/or experience in health economic analysis;
  - Evidence of training, expertise and/or experience in health economic analysis and related expertise (e.g., instrument development, medical abstraction, administrative coding, cost analysis, etc.) by the proposed investigator(s) and/or staff;
  - An activity analysis for each year of the proposed study, (e.g., how much and what kind of resources/personnel will be required for relevant phases of the study in each year, model development, data abstraction, data acquisition, analysis, etc.);
  - Evidence that the timeframe of the proposed CEA study is consistent with the timeframe of the parent study. For example, will data abstraction instruments needed for the CEA be developed and validated in time for data acquisition in the parent trial? Will results from the parent trial on health outcomes that are necessary inputs to the CEA be available when needed? If there is a delay in the availability of trial outcomes beyond the timeframe of the proposed CEA study, what provisions will be made to ensure that the CEA will be completed?
- F. Budget Preparation**
- All BIQSFP study proposals must include a budget at the time of submission that clearly details the costs (Direct and Indirect) for each of the biomarker, imaging, QOL/PRO and/or CEA study proposal submitted.
  - A total composite budget must be provided for the entire cost of the BIQSFP project. The budgets for the project should use the Form PHS 398 along with a narrative justifying each requested cost (<http://grants.nih.gov/grants/funding/phs398/phs398.html>).
  - Covered BIQSFP costs may include but not be limited to procurement of and completion of research assays on blood or tissue, central pathology or image reading, and shipping.
  - Costs associated with QOL/PRO assessments that are conducted as part of CEA may be included.
  - Costs for the PI of the clinical trial concept/study and/or NCTN group/NCORP leadership are not covered under the BIQSFP program.
  - The Budget packet must include a completed NIH biosketch form for each study PI. Form SF424 can be found at: <http://grants.nih.gov/grants/funding/424/index.htm#format>. Additional information on the new biosketch requirements can be found at: <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-024.html>.

- NCTN/NCORP investigators are encouraged, where applicable, to explore options for reducing the cost of assays and tests to be supported by BIQSFP funding. These cost sharing options might include billing third party payers or partial funding from commercial partners, or choosing between academic vs. commercial labs. Investigators' use of commercially available laboratory tests may aid in reducing budgetary requirements. Cost sharing with other funders will have a positive impact on the evaluation.
- For all BIQSFP applications, the signature of the institutional business official is not required at the time of initial submission of the total composite budgets. Institutional approval and sign-off is required once the final funding has been approved by the NCI.

**G.** A complete **Proposal Package**, including attachments, must be emailed via pdf attachment to the relevant Program office.

**NCORP non-treatment clinical trial proposals must be e-mailed to:**

NCI DCP Protocol Information Office - [ncidcppio2@mail.nih.gov](mailto:ncidcppio2@mail.nih.gov)  
**cc:** Wortá McCaskill-Stevens, MD, MS - [wm57h@nih.gov](mailto:wm57h@nih.gov)  
 Ann O'Mara, Ph.D. - [omaraa@mail.nih.gov](mailto:omaraa@mail.nih.gov)

**NCTN/NCORP treatment clinical trial proposals must be e-mailed to:**

NCI CTEP Protocol Information Office - [PIO@ctep.nci.nih.gov](mailto:PIO@ctep.nci.nih.gov)  
**cc:** Margaret Mooney, M.D. - [mooneym@ctep.nci.nih.gov](mailto:mooneym@ctep.nci.nih.gov)

E-mail submissions must reference "**BIQSFP**" in the Subject line.

**XI. Terms and Conditions for Funding**

BIQSFP Administrative Supplements are provided annually via the parent U10 Cooperative Agreement for the study and will be administered by CCCT in conjunction with the appropriate NCI program (e.g., CTEP or DCP). All the terms and conditions of the of the parent U10 award apply to this funding. BIQSFP Administrative Supplement recipients will be required to provide an annual progress report to CCCT.

Funding is restricted for the purpose of the approved project. Similarly, any carryover requests for this award are limited to the approved project unless written approval is obtained in advance by the relevant NCI program official. Funding is dependent on continuance of the clinical trial protocol and adequate progress.

**XII. Publication of BIQSFP-Funded Studies**

Upon completion of BIQSFP-funded studies, publications should acknowledge the funding source as follows:

*"This clinical study was supported in whole or in part by funding from the Biomarker, Imaging, & QOL Studies Funding Program (BIQSFP) awarded by the National Cancer Institute".*

**XIII. Inquiries**

Questions regarding responsiveness of the proposed studies to the BIQSFP should be directed to the one of the following NCI Program Staff:

**For CTEP:**

Margaret M. Mooney, MD  
 Chief, Clinical Investigations Branch  
 National Cancer Institute  
 9609 Medical Center Drive

Room 5W-412  
Bethesda, MD 20892-9737  
For non-USPS mail (FedEx, UPS, etc.)  
Rockville, MD 20850-9737  
Phone: 240-276-6560  
Email: [mooneym@ctep.nci.nih.gov](mailto:mooneym@ctep.nci.nih.gov)

**For DCP:**

Worta J. McCaskill-Stevens, MD, MS  
Chief, Community Oncology and Prevention Trials Research Group  
Head, Breast Cancer Prevention  
Division of Cancer Prevention  
National Cancer Institute  
9609 Medical Center Drive  
Room 5E-446  
Bethesda, MD 20892-9744  
For non-USPS mail (FedEx, UPS, etc.)  
Rockville, MD 20850-9744  
Phone: 240-276-7075  
Email: [wm57h@nih.gov](mailto:wm57h@nih.gov)

Ann M. O'Mara, PhD, RN  
Head, Palliative Care Research  
Community Oncology and Prevention Trials Research Group  
National Cancer Institute  
9609 Medical Center Drive  
Room 5E-444  
Bethesda, MD 20892  
For non-USPS mail (FedEx, UPS, etc.)  
Rockville, MD 20850-9744  
Phone: 240-276-7050  
Email: [omaraa@mail.nih.gov](mailto:omaraa@mail.nih.gov)

**Questions regarding cancer imaging studies:**

Lalitha K. Shankar, MD, PhD  
Chief, Clinical Trials Branch  
Cancer Imaging Program  
Division of Cancer Treatment and Diagnosis  
National Cancer Institute  
9609 Medical Center Drive  
Room 4W-346  
Bethesda, MD 20892-9729  
For non-USPS mail (FedEx, UPS, etc.)  
Rockville, MD 20852-4910  
Phone: 240-276-6510  
Email: [shankarl@mail.nih.gov](mailto:shankarl@mail.nih.gov)

**Questions regarding the prioritization, evaluation, and Administrative Supplements funding processes should be directed to:**

Raymond A. Petryshyn, PhD  
Program Director  
Coordinating Center for Clinical Trials  
National Cancer Institute  
9609 Medical Center Drive  
Room 6W-608  
Bethesda, MD 20892-9744  
Phone: 240-276-6160  
Fax: 240-276-7868  
Email: [petryshr@mail.nih.gov](mailto:petryshr@mail.nih.gov)

**Questions regarding Cost-Effectiveness Analysis should be directed to:**

O. Wolf Lindwasser, PhD  
Program Director  
Coordinating Center for Clinical Trials  
National Cancer Institute  
9609 Medical Center Drive  
Room 6W-620  
Bethesda, MD 20892-9744  
Phone: 240-276-6160  
Fax: 240-276-7868  
Email: [wolf.lindwasser@nih.gov](mailto:wolf.lindwasser@nih.gov)

***Biomarker, Imaging, & QOL Studies Funding Program (BIQSFP)***

**'16 Study Checklist for Clinical Trials with BIOMARKER ASSAYS for Treatment/Symptom Science/Supportive Care Studies**

**INSTRUCTIONS:** For **INTEGRAL** assay, respond to Items 1-6, 8.  
For **INTEGRATED** assay, respond to Items 1, 2, 4-8.

Please submit a response to each of the criteria below and complete one Study Checklist for **each** biomarker endpoint. The Proposal Package must also include a budget at the time of submission that clearly details the Direct and Indirect costs of the requested funding. The budget for the project should use the standard PHS 398 budget form (<http://grants.nih.gov/grants/funding/phs398/phs398.html>) along with a narrative justifying each requested cost. The Budget packet must include a completed NIH biosketch form for each study PI. Form SF424 can be found at: <http://grants.nih.gov/grants/funding/424/index.htm#format>. Additional information on the new biosketch requirements can be found at: <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-024.html>.

**NOTE: INTEGRATED** biomarker study applications must be submitted after parent concept approval but prior to protocol activation. Subsequent NCI prioritization and approval for funding will be decided by CTROC after evaluation of the INTEGRATED study(s) by the respective NCI Steering Committee (SSC).

1. For an integral or integrated assay, indicate the role(s) of the biomarker assay in the trial:
  - A. Eligibility criterion
  - B. Assignment to treatment
  - C. Stratification variable
  - D. Risk classifier or score
  - E. Other (describe in detail)
  
2. Identify the specific individual(s) and laboratory(ies) who are being considered for conducting the assay(s) for the trial.
  
3. Integral laboratory assays used for clinical decision-making must be performed in a CLIA-certified facility. Provide the lab's CLIA number that is performing the integral biomarker study(ies) and the expiration date of the certificate.
  
4. Describe the assay:
  - A. Specify the analyte(s), technical platform, and sources of assay components (e.g., reagents, chips, and calibrators).
  - B. Describe the specimens, and anticipated methods for specimen acquisition, fixation or stabilization and processing.
  - C. Describe the scoring procedures and type of data to be acquired
    - quantitative/ continuously distributed
    - semi-quantitative/ordered categorical
    - qualitative/non-ordered categorical
  
5. Provide data on the clinical utility of the integral/integrated assay as it will be used in the trial:
  - A. Provide background information that justifies the use of this assay result as a marker for this trial. For example, if the integral marker will be used as a stratification or treatment-determining

variable, data supporting its prognostic or predictive association with a main trial endpoint should be described or referenced.

**Note:** If the trial objectives include an evaluation of the association of the integral marker with a new clinical endpoint or factor not previously studied, the statistical section of the concept should explain how the magnitude of the association or effect will be measured and provide power calculations for any statistical tests that are planned.

- B. Describe the expected distribution of the biomarker in the study population.
  - C. If cutpoints will be used, specify the cutpoint(s) and describe how these will be used in the trial). Provide the rationale for the cutpoint(s) selected. What proportion of subjects is expected to have values above and below the proposed assay value cutpoints? What magnitude of effect (e.g., treatment benefit) or outcome (e.g., prognosis) is expected for patients with assay results above and below the proposed cutpoint(s)?
  - D. Describe under what conditions treating physicians and or patients will be able to access the biomarker assay results.
6. Provide data on the analytical performance of the assay.
- A. For *in vitro* tests, describe the current status of studies defining the accuracy, precision, reportable range, reference ranges/intervals (normal values), and failure rate of the assay as it is to be performed in the trial (e.g., performance of test on specimens intended to be used in the clinical trial). Describe the use of positive and negative controls, calibrators, and reference standards for clinical assays. Describe any critical preanalytic variables. For guidance on regulatory requirements for laboratory assays please visit: [http://www.cms.gov/CLIA/05\\_CLIA\\_Brochures.asp](http://www.cms.gov/CLIA/05_CLIA_Brochures.asp). Applicants are encouraged to submit a laboratory Standard Operating Procedure (SOP) as an appendix, to support validation of the assay(s) being proposed.
  - B. If the assay will be performed at more than one site, describe how inter-laboratory variability in the measurements listed in 5A above will be assessed. Describe how these sources of variation will be minimized to maintain performance at all sites within acceptable limits and to prevent drift or bias in assay.
  - C. Provide turn-around-time for reporting assay results to the clinical PI (for INTEGRAL studies).
7. For an **INTEGRATED** study, provide justification for the assay to be completed in real time (if applicable).
8. The Budget Justification should include a description of potential cost-sharing approaches for the assay (e.g., billing to third-party payers, partial funding from commercial partners, choosing between academic vs. commercial labs, etc.) along with justification for the costs of academic vs. commercial laboratories.

8/08,3/09,3/10,3/11,3/12,4/13,11/13,12/14,12/15

***Biomarker, Imaging, & QOL Studies Funding Program (BIQSFP)***

**'16 Study Checklist for Clinical Trials with  
IMAGING TESTS for Treatment/Symptom Science /Supportive Care Studies**

**INSTRUCTIONS:** Please submit a response to each of the criteria below and complete one Study Checklist for each imaging endpoint. The Proposal Package must also include a budget at the time of submission that clearly details the Direct and Indirect costs of the requested funding. The budget for the project should use the standard PHS 398 budget form (<http://grants.nih.gov/grants/funding/phs398/phs398.html>) along with a narrative justifying each requested cost. The Budget packet must include a completed NIH biosketch form for each study PI. Form SF424 can be found at: <http://grants.nih.gov/grants/funding/424/index.htm#format>. Additional information on the new biosketch requirements can be found at: <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-024.html>.

**NOTE: INTEGRATED** imaging study applications must be submitted after parent concept approval but prior to protocol activation. Subsequent NCI prioritization and approval for funding will be decided by CTROC after evaluation of the INTEGRATED study(s) by the respective NCI Steering Committee (SSC).

1. Indicate the role of the imaging test in the trial and whether it is INTEGRAL or INTEGRATED:
  - A. Eligibility criterion
  - B. Assignment to treatment
  - C. Stratification variable
  - D. Risk classifier or predictive and prognostic markers
  - E. Response assessment
  - F. Other (describe in detail):
  
2. Identify the specific individual(s) or imaging departments/sites that are being considered for conducting the imaging test for the trial.
  
3. Describe the imaging test:
  - A. Specify the imaging devices or imaging agents.
  - B. Describe any patient preparation procedures, as well as the procedures for imaging, analysis, and interpretation of the results.
  - C. Describe the scoring procedures and type of data to be acquired
    - quantitative/ continuously distributed
    - semi-quantitative/ordered categorical
    - qualitative/non-ordered categorical
  
4. Provide data on the clinical utility of the integral/integrated imaging test as it will be used in the trial:
  - A. Provide background information that justifies the use of this imaging test result as a part for this trial. For example, if the integral imaging test will be used as a stratification or treatment-determining variable, data supporting its prognostic or predictive association with a main trial endpoint should be described or referenced.
 

**Note:** If the trial objectives include an evaluation of the association of the integral marker with a new clinical endpoint or factor not previously studied, the statistical section of the concept should explain how the magnitude of the association or effect will be measured and provide power calculations for any statistical tests that are planned.
  - B. Describe the expected distribution of the imaging study results in the study population.

- C. If cutpoints will be used, specify the cutpoint(s) and describe how these will be used in the trial). Provide the rationale for the cutpoint(s) selected. What proportion of subjects is expected to have values above and below the proposed imaging cutpoints? What magnitude of effect (e.g., treatment benefit) or outcome (e.g., prognosis) is expected for patients with imaging results above and below the proposed cutpoint(s)?
  - D. Describe under what conditions treating physicians and or patients will be able to access the imaging test results.
5. Provide data on the analytical performance of the imaging test.
    - A. Describe the known performance characteristics of the imaging test. State and justify the limits of acceptable performance. Describe the use of positive and negative controls, calibrators, and reference standards for the imaging test.
    - B. If the imaging test will be performed at more than one site, describe how inter-facility variability in the measurements will be assessed. Describe how these sources of variation will be minimized to maintain performance at all sites within acceptable limits and to prevent drift or bias in imaging test results.
    - C. Provide turn-around-time for reporting test results to the clinical PI (for INTEGRAL studies).
    - D. Applicants are encouraged to submit an imaging Standard Operating Procedure (SOP) as an appendix, to support validation of the test(s) being proposed.
  6. Provide the type and number of scans. Indicate if the scan is standard of care (SOC) or investigational: e.g., 300 MRIs (SOC): 100 patients x 3 per patient; 200 FDG PET/CTs (investigational for the proposed indication/time point): 100 patients x 2 per patient; 100 F-MISO PET/CTs (investigational): 100 patients x 1 per patient.
  7. For an **INTEGRATED** study, provide justification for the test to be completed in real time (if applicable).
  8. The Budget Justification should include:
    - A. Site/scanner qualification costs (usually done prior to patient enrollment in multi-center trials).
    - B. Technical costs for each type of scan (including facility use, scanner time costs, etc.).
    - C. Professional costs for each type of scan (*including cost for local radiologists / nuclear medicine physicians to interpret the images*).
    - D. Image transfer costs (*includes network costs, shipping/mailing costs if physical media is used for transport*).
    - E. Central imaging review costs (*if central review is performed*) for each type of scan.
    - F. Real time image review costs (*if applicable*) for each type of scan.
    - G. Image quality assurance costs (*additional data QA costs on top of basic interpretation or central review costs*).
    - H. Imaging agent and contrast material costs, for each type of scan: (*if imaging agent costs can be further broken down into categories such as agent manufacturing, transport, or storage costs, please provide those*).
    - I. Image storage costs (*includes costs for long term storage of imaging data, archiving, back-up systems, etc.*).
    - J. Statistical support costs (*can include costs for services such as a contracted statistical center*).
    - K. Salary support costs (*e.g., investigators, imaging technologists, research coordinators, study nurses, research assistants, etc.*).

***Biomarker, Imaging, & QOL Studies Funding Program (BIQSFP)***

**'16 Study Checklist for Clinical Trials with QOL/PRO Components**

**INSTRUCTIONS:** Please submit a response to each of the criteria below and complete one Study Checklist for each QOL/PRO endpoint. The Proposal Package must also include a budget at the time of submission that clearly details the Direct and Indirect costs of the requested funding. The budget for the project should use the standard PHS 398 budget form (<http://grants.nih.gov/grants/funding/phs398/phs398.html>) along with a narrative justifying each requested cost. The Budget packet must include a completed NIH biosketch form for each study PI. Form SF424 can be found at: <http://grants.nih.gov/grants/funding/424/index.htm#format>. Additional information on the new biosketch requirements can be found at: <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-024.html>.

**NOTE:** Integrated QOL/PRO study applications must be submitted after parent concept approval but prior to protocol activation. Subsequent NCI prioritization and approval for funding will be decided by CTROC after evaluation of the QOL/PRO study by DCP and the respective NCI Steering Committee (SC), if applicable.

1. State the symptom science/QOL/PRO hypothesis(es) and its scientific foundation. Specify the study endpoint(s).
2. Identify the QOL/PRO instrument(s) to be used to test each hypothesis, the basis for choosing each instrument, and the timing of the assessments.
3. For each instrument, document its validity, reliability, and responsiveness in the selected patient population. Specify the minimum important difference (MID) or metric for clinically-significant change. Applicants are encouraged to submit a symptom science/QOL/PRO Standard Operating Procedure (SOP) as an appendix, to support validation of the test/tool/instrument(s) being proposed.
4. For each instrument, identify whether it is INTEGRAL or INTEGRATED.
5. Describe any included *objective* correlates that enhance the patient-reported outcomes data (e.g. actigraphy, imaging, pulse ox, etc).
6. Identify any *biomarker or imaging* correlates of the patient-reported outcome measure(s) that will be collected (e.g., molecular, protein, other assays or tests).
7. Explain how patient non-compliance, missing data and/or early death may impact the analysis.
8. How will visually-challenged, non-English speaking patients be accommodated when completing the instrument(s)?
9. Describe the procedures for data collection and data monitoring including the training of data collection personnel.
10. Provide turn-around-time for reporting instrument results to clinical PI (for INTEGRAL studies).

3/09,3/10,3/11,3/12,11/13,12/14,12/15

***Biomarker, Imaging, & QOL Studies Funding Program (BIQSFP)***

**'16 Study Checklist for Randomized Clinical Trials with a Comparator Arm and Cost-Effectiveness Analysis (CEA) Component**

**INSTRUCTIONS:** Please submit a response to each of the criteria below and complete one Study Checklist for each biomarker endpoint. The Proposal Package must also include a budget at the time of submission that clearly details the Direct and Indirect costs of the requested funding. The budget for the project should use the standard PHS 398 budget form (<http://grants.nih.gov/grants/funding/phs398/phs398.html>) along with a narrative justifying each requested cost. The Budget packet must include a completed NIH biosketch form for each study PI. Form SF424 can be found at: <http://grants.nih.gov/grants/funding/424/index.htm#format>. Additional information on the new biosketch requirements can be found at: <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-024.html>.

**NOTE:** CEA study applications must be submitted after parent concept approval but prior to protocol activation. Subsequent NCI prioritization and approval for funding will be decided by CTROC after evaluation of the study(s) by the respective NCI Steering Committee (SSC).

1. Explain why it is necessary to conduct this CEA alongside the parent clinical trial. For example, explain why an independent modeling study conducted during or after the clinical trial is completed is not feasible and/or why it would be of lesser value in informing clinical practice and/or policy compared to a CEA conducted alongside the parent clinical trial.
2. Describe and justify the perspective of the CEA.
3. Explain the situations in which the outcomes of the clinical trial could substantially change clinical practice.
4. Describe the potential implication(s) of different outcomes of the trial on overall costs to the health care system, in terms of costs saved or costs added.
5. Briefly describe and justify the CEA study in terms of:
  - A. Trial population (in relationship to treatment population in community practice)
  - B. Intervention(s) and control therapy selected for the CEA
  - C. Question or hypothesis posed
  - D. Measure(s) of outcome for the CEA
  - E. Method of estimating costs
  - F. Modeling approach proposed (if appropriate; e.g., decision tree, Markov, micro-simulation, etc. Provide sources of documentation if using an existing model. If a model is to be developed, the expertise of model developer, timeline for model development, calibration, and validation (if relevant) must be included in the proposal. This may include but not be limited to all model inputs that are needed and sources for these inputs, what provisions need to be made to document model structure, assumptions, data inputs, parameter estimation, intermediate and final outputs so that replication of the CEA would be possible by an external analyst.)
  - G. Approach to characterizing uncertainty analysis
  - H. The time horizon and discount rates of the CEA. If the time horizon of the CEA exceeds that of the trial, describe the extrapolation or modeling approach that will be used.
6. Describe all data elements that will be collected for the CEA. This description should include:

- A. A description of data elements that will already be collected as part of the protocol of the parent study and which additional data elements will need to be collected.
  - B. A description of the data instrument development and validation process for new data elements.
  - C. A description of resources and personnel required for data collection and how the added data collection is consistent with the intended protocol of the parent study, (e.g., is it logistically feasible and will not create an unreasonable additional burden).
  - D. A description of any sources of data elements external to the parent protocol (e.g., linked or unlinked administrative data). If relevant describe external data sources and methods for obtaining estimates of unit cost. Provide information supporting whether unit cost estimates are relevant, consistent and valid.
7. Provide a power analysis to indicate that the sample sizes for health outcomes and economic data elements are sufficient to result in confidence intervals around the cost effectiveness ratio that render the results of the CEA useful to decision makers.
  8. Describe any threats to the external validity of the study in relation to community practice.

3/10,3/11,3/12,1/13,11/13,12/14,12/15