

DATE: August 2, 2019

TO: NCI Bid Board

FROM: William Neal, Contracting Officer  
NCI/OA/SAB

SUBJECT: Statistical inference methods for bias corrected rate ratio

The National Cancer Institute (NCI), Statistical Research and Application Branch (SRAB), Surveillance Research Program (SRP), Division of Cancer Control and Population Sciences (DCCPSB), primary objective of this project is to develop close-form variance and confidence interval estimators of the ratio of age-adjusted rates. The new methods will incorporate sampling errors in the population denominators and will expand NCI's ability to accurately monitor disparities in cancer rates by risk factors.

These programs plan to procure access to representatives of the University of California-Davis (44731 Garden CT, El Macero, CA 95618). The primary objective of this project is to develop close-form estimators of point, variance and confidence intervals of the ratio of age-adjusted rates when population denominators involve sampling errors. The inference method for age-adjusted rates that considers sampling errors in the denominators have recently been developed by a Professor of Statistics of University of California-Davis with support from the National Cancer Institute's Surveillance Research Program. This project extends inference methods to ratios of age-adjusted rates. The results from this project will enhance NCI's ability to accurately monitor disparities in cancer burden.

If any interested party, especially a small business, believes they can meet the attached requirements, they may submit a proposal or quote. The response must be in writing and must contain information and material in sufficient detail to allow NCI to determine whether the party can fully meet this requirement. The response must be received in the NCI Office of Acquisition by Monday, August 12, 2019 at 3:00 PM EST. A determination by the Government not to compete this requirement based upon responses to this notice is solely within the discretion of the Government. Information received will be considered solely for determining whether to conduct a competitive procurement. Please reference [75N91019Q00123](#) on all correspondence.

#### **BACKGROUND / SOLE SOURCE:**

The Contractor Officer Technical Representative (COR), and staff within Division of Cancer Control and Population Sciences/Surveillance Research Program/Statistical Research and Applications Branch stay abreast of published literature in statistical inference of the ratio of age-adjusted rates and rate ratios and have routine interactions with experts in the field. No other source to conduct the work is known.

This contract builds on the achievements completed under a previous contract with the same professor (Contract number: HHSN 261201700679P) and extend the statistical methods to enable disparities analyses of cancer rates. Under the previous contract, the professor developed the statistical methods for estimating the variances and confidence intervals of age-adjusted rates when the denominator data is subject to sampling errors, a

situation when denominators are estimated from sample surveys. This new contract improves the accuracy of point and variance estimators of ratios of age-adjusted rates by retaining higher order terms of Taylor polynomials. This extension is imperative for correctly analyzing rate ratios when magnitudes of sampling errors in the denominators are modest or large. This extension will allow empirical studies of disparities on cancer rates at finer geographic levels.

A Professor of Statistics at the University of California at Davis is uniquely qualified to perform the services as outlined in the statement of work. The professor is a renowned scholar in statistics and has authored four books on areas that are fundamental to statistical inference. He has also published more than 60 journal articles on statistical theories and methods, and several articles on applying novel statistical methods to solving real-world problems. Supported by a prior contract with the National Cancer Institute (Contract Number: HHSN 261201700679P), this professor developed a bias-corrected estimator for age-adjusted rates when population denominators involve sampling errors. The project solicited in this contract is an extension of the results from this previous contract to enable comparisons of age-adjusted rates by computing rate ratios, an important health disparity measure commonly used in reporting cancer statistics by the National Cancer Institute. Prior work and unique skills in both statistical theories and experience in inferential methods of cancer rates make him uniquely qualified to perform the requirements as outlined in the statement of work and would assure that the work be completed in the required time.

**PERIOD OF PERFORMANCE:** Period of performance September 1, 2019 – August 31, 2020.

**ATTACHED DOCUMENTS:**

- SF-18
- Statement of Work
- FAR Clause 52.212-4 Contract Terms and Conditions—Commercial Items (JAN 2017) is applicable and available in full text upon request.

<b>REQUEST FOR QUOTATION (THIS IS NOT AN ORDER)</b>			THIS RFQ <input type="checkbox"/> IS <input type="checkbox"/> IS NOT A SMALL BUSINESS SET-ASIDE		PAGE OF PAGES 1 OF 1
1. REQUEST NO. 75N91019Q00123	2. DATE ISSUED 08/02/2019	3. REQUISITION/PURCHASE REQUEST NO 5389501	4. CERT. FOR NAT. DEF UNDER BDSA REG. 2 AND/OR DMS REG. 1		RATING
5a. ISSUED BY NIH/NCI-OA 9609 Medical Center Drive, Room 1E128, Rockville, MD 20850			6. DELIVER BY (Date)		
5b. FOR INFORMATION CALL (NO COLLECT CALLS)			7. DELIVERY <input type="checkbox"/> FOB DESTINATION <input type="checkbox"/> OTHER (See Schedule)		
NAME William Neal, Contracting Officer		TELEPHONE NUMBER AREA CODE NUMBER 240 276-5433		9. DESTINATION	
8. TO:			a. NAME OF CONSIGNEE		
a. NAME		b. COMPANY		b. STREET ADDRESS	
c. STREET ADDRESS			c. CITY Rockville		
d. CITY		e. STATE	f. ZIP CODE		d. STATE e. ZIP CODE MD 20850
10. PLEASE FURNISH QUOTATIONS TO THE ISSUING OFFICE IN BLOCK 5a ON OR BEFORE CLOSE OF BUSINESS (Date)		IMPORTANT: This is a request for information, and quotations furnished are not offers. If you are unable to quote, please indicate on this form and return it to the address in Block 5a. This request does not commit the Government to pay any costs incurred in the preparation of the submission of this quotation or to contract for supplies or services. Supplies are of domestic origin unless otherwise indicated by quoter. Any representations and/or certifications attached to this Request for Quotations must be completed by the quoter.			
08/12/2019 / 3:00 PM EST					

**11. SCHEDULE (Include applicable Federal, State and local taxes)**

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	
001				\$ _____	\$ _____	
12. DISCOUNT FOR PROMPT PAYMENT		a. 10 CALENDAR DAYS (%)	b. 20 CALENDAR DAYS (%)	c. 30 CALENDAR DAYS (%)	d. CALENDAR DAYS NUMBER PERCENTAGE	

NOTE: Additional provisions and representations are are not attached.

13. NAME AND ADDRESS OF QUOTER			14. SIGNATURE OF PERSON AUTHORIZED TO SIGN QUOTATION		15. DATE OF QUOTATION	
a. NAME OF QUOTER			16. SIGNER		b. TELEPHONE	
b. STREET ADDRESS					AREA CODE	
c. COUNTY			a. NAME (Type or print)		NUMBER	
d. CITY		e. STATE	f. ZIP CODE		c. TITLE (Type or print)	

## STATEMENT OF WORK (SOW)

### 1.0 TITLE

Statistical inference methods for bias corrected rate ratio

### 2.0 BACKGROUND

This contract builds on the achievements completed under a previous contract with University of California-Davis professor (Contract number: HHSN 261201700679P) and extend the statistical methods to enable disparities analyses of cancer rates. Under the previous contract, the same professor developed the statistical methods for estimating the variances and confidence intervals of age-adjusted rates when the denominator data is subject to sampling errors, a situation when denominators are estimated from sample surveys. This new contract improves the accuracy of point and variance estimators of ratios of age-adjusted rates by retaining higher order terms of Taylor polynomials. This extension is imperative for correctly analyzing rate ratios when magnitudes of sampling errors in the denominators are modest or large. This extension will allow empirical studies of disparities on cancer rates at finer geographic levels.

### 2.1 OBJECTIVE

The primary objective of this project is to develop close-form variance and confidence interval estimators of the ratio of age-adjusted rates. The new methods will incorporate sampling errors in the population denominators and will expand NCI's ability to accurately monitor disparities in cancer rates by risk factors.

### 3.0 SCOPE

With this contract, the contractor shall write a technical report to provide an overview of the statistical problems and to describe approaches to estimating the point and variance of the ratio of age-standardized rates. The contractor shall also evaluate the proposed methods using simulation studies and report evaluation results.

### 4.0 CONTRACT REQUIREMENTS/ AND PERSONNEL QUALIFICATIONS

The Contractor shall perform the following tasks:

- 4.1 Develop variance and interval estimators of ratio of two age-adjusted rates when population denominators involve errors;
- 4.2 Evaluate the newly developed estimators using simulation studies;

### 5.0 TYPE OF ORDER

This is a firm fixed price purchase order.

## STATEMENT OF WORK (SOW)

### 6.0 PERIOD OF PERFORMANCE

Base Period: September 1, 2019 thru August 31, 2020

Option Year 1: September 1, 2020 thru August 31, 2021

### 7.0 PLACE OF PERFORMANCE

44731 Garden CT., El Macero, CA 95618

### 8.0 REPORT(S)/DELIVERABLES AND DELIVERY SCHEDULE

All reports shall be submitted via e-mail in Microsoft compatible format, in accordance with the table below, to the NCI/ DCCPS/SRP Contracting Officer's Representative (COR) for review, comment and approval.

DELIVERABLE	DELIVERABLE DESCRIPTION	DUE DATE
1	A report describing the approaches to deriving the variance and interval estimators of ratios of age-adjusted rates when population denominators involve sampling errors	6 Months after award
2	A final report describing the performance of the proposed estimators.	12 months after award

### 9.0 PAYMENT

Payment shall be made twice with equal amount after the receipt of each deliverable. Payment authorization requires submission and approval of invoices to the COR and NIH OFM, in accordance with the attached payment provisions listed below:

The following clause is applicable to all Purchase Orders, Task or Delivery Orders, and Blanket Purchase Agreement (BPA) Calls: PROMPT PAYMENT (JUL 2013) FAR 52.232-25.

Highlights of this clause and NIH implementation requirements follow:

#### I INVOICE REQUIREMENTS

- A. An invoice is the Contractor's bill or written request for payment under the contract for supplies delivered or services performed. A proper invoice is an "Original" which must include the items listed in subdivisions 1 through 12, below, in addition to the requirements of FAR 32.9. If the invoice does not comply with these requirements, the Contractor will be notified of the defect within 7 days after the date the designated billing office received the invoice (3 days for meat, meat food products, or fish, and 5 days for perishable agricultural commodities, dairy products, edible fats or oils) with a statement of the reasons why it is not a proper invoice. (See exceptions under II., below.) Untimely notification will be taken into account in the computation of any interest penalty owed the Contractor.

## STATEMENT OF WORK (SOW)

1. Vendor/Contractor: Name, Address, Point of Contact for the invoice (Name, title, telephone number, e-mail and mailing address of point of contact).
2. Remit-to address (Name and complete mailing address to send payment).
3. Remittance name must match exactly with name on original order/contract. If the Remittance name differs from the Legal Business Name, then both names must appear on the invoice.
4. Invoice date.
5. Unique invoice #s for all invoices per vendor regardless of site.
6. NBS document number formats must be included for awards created in the NBS: Contract Number; Purchase Order Number; Task or Delivery Order Number and Source Award Number (e.g., Indefinite Delivery Contract number; General Services Administration number); or, BPA Call Number and BPA Parent Award Number.
7. Data Universal Numbering System (DUNS) or DUNS + 4 as registered in the Central Contractor Registration (CCR).
8. Federal Taxpayer Identification Number (TIN). In those exceptional cases where a contractor does not have a DUNS number or TIN, a Vendor Identification Number (VIN) must be referenced on the invoice. The VIN is the number that appears after the contractor's name on the face page of the award document.
9. Identify that payment is to be made using a three-way match.
10. Description of supplies/services that match the description on the award, by line billed.\*
11. Freight or delivery charge must be billed as shown on the award. If it is included in the item price do not bill it separately. If identified in the award as a separate line item, it must be billed separately.
12. Quantity, Unit of Measure, Unit Price, Extended Price of supplies delivered or services performed, as applicable, and that match the line items specified in the award.\*

\* NOTE: If your invoice must differ from the line items on the award, please contact the Contracting Officer before submitting the invoice. A modification to the order or contract may be needed before the invoice can be submitted and paid.

B. Shipping costs will be reimbursed only if authorized by the Contract/Purchase Order. If authorized, shipping costs must be itemized. Where shipping costs exceed \$100, the invoice must be supported by a bill of lading or a paid carrier's receipt.

C. Mail an original and 1 copy of the itemized invoice to:

National Institutes of Health  
Office of Financial Management, Commercial Accounts  
2115 East Jefferson Street, Room 4B-432, MSC 8500  
Bethesda, MD 20892-8500

For inquiries regarding payment call: (301) 496-6088

## STATEMENT OF WORK (SOW)

In order to facilitate the prompt payment of invoices, it is recommended that the vendor submit a photocopy of the invoice to the "Consignee" designated for the acquisition in blocks 6A – 6E of the face page of the Order/Award document.

### II. INVOICE PAYMENT

- A. Except as indicated in paragraph B., below, the due date for making invoice payments by the designated payment office shall be the later of the following two events:
  - 1. The 30th day after the designated billing office has received a proper invoice.
  - 2. The 30th day after Government acceptance of supplies delivered or services performed.
- B. The due date for making invoice payments for meat and meat food products, perishable agricultural commodities, dairy products, and edible fats or oils, shall be in accordance with the Prompt Payment Act, as amended.

### III. INTEREST PENALTIES

- A. An interest penalty shall be paid automatically, if payment is not made by the due date and the conditions listed below are met, if applicable.
  - 1. A proper invoice was received by the designated billing office.
  - 2. A receiving report or other Government documentation authorizing payment was processed and there was no disagreement over quantity, quality, or contractor compliance with a term or condition.
  - 3. In the case of a final invoice for any balance of funds due the contractor for supplies delivered or services performed, the amount was not subject to further settlement actions between the Government and the Contractor.
- B. Determination of interest and penalties due will be made in accordance with the provisions of the Prompt Payment Act, as amended, the Contract Disputes Act, and regulations issued by the Office of Management and Budget.

### IV. PROVIDING ACCELERATED PAYMENT TO SMALL BUSINESS SUBCONTRACTORS, FAR 52.232-40 (DEC 2013)

- a) Upon receipt of accelerated payments from the Government, the Contractor shall make accelerated payments to its small business subcontractors under this contract, to the maximum extent practicable and prior to when such payment is otherwise required under the applicable contract or subcontract, after receipt of a proper invoice and all other required documentation from the small business subcontractor.
- b) The acceleration of payments under this clause does not provide any new rights under the prompt Payment Act.

Include the substance of this clause, include this paragraph c, in all subcontracts with small business concerns, including subcontracts with small business concerns for the acquisition of commercial items.

## STATEMENT OF WORK (SOW)

### **V. FAR 52.217-8 OPTION TO EXTEND SERVICES (Nov 1999)**

The Government may require continued performance of any services within the limits and at the rates specified in the contract. These rates may be adjusted only as a result of revisions to prevailing labor rates provided by the Secretary of Labor. The option provision may be exercised more than once, but the total extension of performance hereunder shall not exceed 6 months. The Contracting Officer may exercise the option by written notice to the Contractor within 30 days.

### **VI. FAR 52.217-9(a) - OPTION TO EXTEND THE TERM OF THE CONTRACT (MAR 2000)**

The Government may extend the term of this contract by written notice to the Contractor within 60 days; provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least 30 days before the contract expires. The preliminary notice does not commit the Government to an extension.