made for a 12-month budget period within a project period of 3 to 5 years. Funding estimates may vary and are subject to change.

Continuation awards within the project period will be made on the basis of satisfactory progress and the availability of funds.

Purpose

The purpose of this cooperative agreement is to conduct a program of applied research in the prevention of CBD among individuals who have been occupationally exposed to beryllium and/or beryllium compounds. The National Institute of Occupational Safety and Health (NIOSH) has conducted studies of or is aware of a number of such cohorts which are listed in the attached appendix. These cohorts, as well as other beryllium- exposed cohorts not included in this list, may be identified in the research proposal.

Within the past ten years, an in vitro test for identifying sensitization to beryllium was developed. Currently, the blood lymphocyte proliferation test (LPT also known as the lymphocyte transformation test or LTT) to beryllium salts is available from a limited number of laboratories in the U.S. The sensitivity, specificity, positive predictive value, and negative predictive value of this test with respect to CBD have been estimated based on its application in a few occupational cohorts. However, these estimates need to be confirmed in other groups of beryllium-exposed workers. Also, it is not known whether interventions (e.g. removal from exposure or early treatment with corticosteroids) impede the progression from sensitization to clinical disease.

Although sensitization can occur after short-term exposure to beryllium, the risk of sensitization appears to increase with more exposure. These findings suggest that both individual susceptibility and exposure conditions are important in the onset of CBD. To improve the prevention of beryllium disease, several research areas need exploration.

These include:

- 1. The characterization of the natural history of CBD;
- 2. Identification of specific beryllium compounds associated with CBD; and
- 3. Evaluation of a possible doseresponse relationship between CBD and exposure to beryllium (with beryllium exposures characterized in different manners, e.g., levels, duration, methods of handling, etc.).

In many of the published studies, the small number of sensitized individuals and CBD cases has limited the power to discern process-related risks and temporal patterns. In addition, past studies have suffered from a lack of detailed exposure data. Larger sample sizes and improved exposure data are needed to address these data gaps.

This program will identify applied research needs, formulate a plan to respond to those needs, evaluate the effectiveness of the program interventions, and disseminate research results. Specifically, this cooperative agreement is intended to greatly improve prevention efforts for CBD, including primary and or secondary prevention activities.

Program Requirements

In conducting activities to achieve the purpose of this program, the recipient will be responsible for the activities under A. (Recipient Activities), and CDC/NIOSH will be responsible for conducting activities under B. (CDC/ NIOSH Activities).

A. Recipient Activities

1. Identify research needs relative to the prevention of CBD among people who have been occupationally exposed to beryllium and/or beryllium compounds.

2. Develop a research protocol that reviews the pertinent CBD literature and describes the study methodology, the data to be collected and the proposed analysis of the data. Present the protocol to a panel of peer reviewers and revise the protocol as required for final approval by CDC.

3. Conduct all required medical and laboratory tests on workers participating in the study; collect necessary exposure and identifying data on workers; analyze data.

4. Prepare a final report summarizing the study methodology, results obtained, conclusions reached and recommendations for preventing CBD, and additional research needs.

5. Where appropriate, collaborate with CDC/NIOSH scientists who are working in complementary research areas.

6. Report research results to the scientific community via presentations at professional conferences and articles in peer-reviewed medical journals.

B. CDC/NIOSH Activities

1. Provide scientific, epidemiologic, engineering, environmental, industrial hygiene, and clinical technical assistance.

2. Identify reviews and/or clearances that must be fulfilled by the recipient, and identify and convene Peer Review Panel to review draft study protocol. 3. Assist in formulating the study design, the analysis of the data collected, interpretation of the results, and preparation of the written reports.

4. Engage in scientific collaboration in research areas of mutual interest and investigation.

5. Assist in the reporting of research results to the scientific community via presentations at professional conferences and articles in peerreviewed medical journals.

Evaluation Criteria

The application will be reviewed and evaluated according to the following criteria:

1. Understanding of the Problem (25%)

Responsiveness to the objective of the cooperative agreement including: (a) applicant's understanding of the research needed to prevent CBD and the objective of the proposed cooperative agreement, and (b) relevance of the proposal to the objective.

2. Study Design and Project Planning (35%)

Steps proposed in planning and implementing this project, and the respective responsibilities of the applicant for carrying out those steps the proposed approach to the study and the outline of the study protocol. The applicant's schedule proposed for accomplishing the activities to be carried out in this project and for evaluating the accomplishments.

3. Program Personnel (30%)

Qualification and time allocation of the professional staff to be assigned to this project and applicant's ability to provide knowledgeable staff required to perform the applicant's responsibilities in this project, and the approach to be used in carrying out those responsibilities.

4. Facilities and Resources (10%)

The adequacy of the applicant's facilities, equipment, and other resources available for performance of this project.

5. Budget Justification (not scored)

The budget will be evaluated to the extent that it is reasonable, clearly justified, and consistent with the intended use of funds.

Executive Order 12372 Review

Applications are not subject to the review requirements of Executive Order 12372, Intergovernmental Review of Federal Programs.