Data Analysis Plan
Career Epidemiology Field Officer (CEFO) Stakeholder Survey

Analysis Plan

Sampling Frame

The eligible participants for this stakeholder survey include 62 Directors of state, local and territorial Public Health Emergency Preparedness (PHEP) Programs and 59 state, local and territorial epidemiologists. The survey will be made accessible via the internet and each eligible participant has an equal probability of being a respondent in this evaluation. A response rate of at least 60 percent is expected. Disproportionate non-response is expected between PHEP directors and epidemiologists and will be accounted for in the analysis phase.

Calculation of Sampling Weights

Case weights will be assigned in order to adjust for disproportionate sampling and for non-response bias. This is necessary in order to obtain unbiased estimates of the survey measures. The weight assigned to each respondent (the case weight) will be the product of the reciprocal of the individuals' probability of selection (referred to as the disproportionate sampling or base weight) and an adjustment for non-response.

It is anticipated that approximately 40 percent of the eligible participants will not respond and that there will be differential non-response between the responders (currently employ a CEFO, employed a CEFO in the past, have never employed a CEFO). Non-response bias will be addressed through the construction of weighting class adjustments. The variables that are the best candidates for the formation of weighting classes are those variables that are: (1) available for respondents as well as non-respondents; (2) highly correlated with the survey variables; and (3) highly correlated with the likelihood of non-response. Variables available for the non-response analysis will be limited to variables available through the sampling frame database (e.g. occupational category, health department status of employing a CEFO, regional location). The non-response weight assigned to each respondent will be the product of the reciprocal of the

response rate in the sample-group multiplied by the reciprocal of the response rate in variables identified through non-response analysis.

The final weights for estimation will be calculated by multiplying the base weight of each respondent by the non-response weight and dividing by the average weight. These weights will be applied in all analyses described below.

Data Analysis

The CEFO stakeholder survey data will be analyzed using standard univariate and bivariate descriptive statistics (e.g. means, frequencies, crosstabs). Univariate distributions and descriptive statistics will first be obtained for all variables in the survey. Weighted total and percentage distributions will be generated for categorical variables. The following analyses will be conducted as appropriate and needed:

- o Regression analysis
- o Qualitative data analysis
- o Quantitative data analysis
- o Stratified analysis
- o Multivariate analysis
- o Appropriate tests for statistical significance
- o Statistical result interpretation
- o Cluster design and analysis

Main study outcomes

Inferential statistical methods will be used to evaluate the following three main outcomes: (1) the contributions of the CEFO program field assignees, (2) the ability of the CEFO program headquarters' staff and field assignees to support, enhance, and augment PHEP epidemiologic capabilities of key partners, specifically the PHEP directors and epidemiologists in state and local health departments, and (3) health department would request a CEFO assignee in the future.

The models will take the following form:

$$logit(p) = \ln\left(\frac{p}{1-p}\right) = u + respondent\ cohort\ i + length\ of\ time\ CEFO\ assigned\ j + (respondent\ cohort * length$$

Weighted for non-response, where;

p=(1) greater than 50% of the activity, knowledge or resources that define CEFO contributions are met ; or the probability that greater than 50% of the activity, knowledge or resources that define CEFO contributions are met given a specific combination of respondent group, length of time CEFO assigned to area, responsible role with CEFO, and other factors.

p=(2) greater than 50% of the activity, knowledge or resources that define CEFO headquarters' contributions are met; or the probability that greater than 50% of the activity, knowledge or resources that define CEFO Headquarters' contributions are met given a specific combination of respondent group, awareness of program, knowledge or program, responsible role with CEFO, and other factors.

P= (3) expectations of CEFO and CEFO Headquarters have been met; Expectations of CEFO and CEFO Headquarters have been met given a specific combination of respondent group, funding availability and mechanism, and other factors.

Sample Group i = One of the three respondent groups of interest (Currently employ a CEFO, do not currently employ a CEFO, but did in the past, has never employed a CEFO).

Time point j= One of the six specific time categories of interest for how long a CEFO has been assigned to the health department.

Sample Group * Time point= Interaction term between respondent cohort and time point.

Other Factors k= factors such as:

Respondent social demographic characteristics—years in current primary role, regional location, and professional affiliation with CEFO.

Awareness of CEFO Program— Status of respondent's awareness of CEFO program prior to receiving the survey.

Barriers to employing a CEFO—the reasons for discontinuing a CEFO assignment or barriers to requesting a CEFO.

Using this model, the following hypotheses can be tested by examining the significance of the estimated parameters associated with these terms or combinations of these terms: (1) at least 50% or more of the expected contributions of the CEFO assignee have been met; (2) the ability of the CEFO to contribute is significantly related to the length of time the CEFO has been assigned, role of respondent in evaluating CEFO contributions; (3) the ability of the CEFO Headquarters' staff to support CEFO stakeholders is significantly related to respondent group; and other factors, (4) and that the decision to request a CEFO assignee in the future is dependent on funding and other factors.