B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

1. Provide a numerical estimate of the potential respondent universe and describe any sampling or other respondent selection method to be used. Data on the number of entities (e.g., households or persons) in the universe and the corresponding sample are to be provided in tabular format for the universe as a whole and for each strata. Indicate expected response rates. If this has been conducted previously include actual response rates achieved.

A.(1) BACKGROUND: *Trainees*: Each year, we estimate that 120,000 trainees per year rotate through VA facilities. Trainees in accredited health professions education programs include students, interns, practicum participants, residents, and fellows. Trainees come from different professions, disciplines, specialties, and subspecialties, including medical students and MD and DO physician residents in medicine, medicine subspecialties, hospital-based medicine, other medicine, surgery, and psychiatry; and trainees from dentistry including dental students and residents, dental assistants and dental hygienists; and nursing students including nurse aide and assistant, certified registered nurse, clinical nurse specialist, licensed practical nurse, licensed vocational nurse, registered nurse and nurse administrator, educator and midwifery, and nurse practitioner; and trainees in associated health professions including audiology, blind rehabilitation, chaplaincy, chiropractic medicine, dietetics, medical imaging, laboratory sciences, licensed professional mental health counselor, marriage and family therapy, medical/surgical support technology, occupational therapy, optometry, orthotics and prosthetics, pharmacy, physical therapy, physician assistant, podiatry, psychology, radiation therapy, recreation and manual arts therapy, other rehabilitation, social work, speech pathology, and surgical technician and technology. These trainees come from over 1,600 education programs that have been properly accredited by the appropriate professional association and state licensing agencies to train health professionals for licensing and certification purposes. All education programs whose trainees rotate through VA medical centers have formal, signed, and current affiliation agreements with Veterans Health Administration (VHA) within the Department of Veterans Affairs (VA) to permit trainees to rotate through VA medical centers as part of an approved health professions education curriculum.

These large numbers of diverse trainees from multiple education programs have highly variable starting times, appointment durations, and clinical assignment locations. Manually processing their appointment requirements currently strains human resource systems and personnel capacity. To date, they are processed manually.

A.(2) BACKGROUND: *Registration Systems*: It is anticipated that the "Clinical Trainee Registration System of Records" (CTRSR) initiative would automate the registration and appointment processes for VHA's clinical trainees who rotate through VHA medical facilities. The project also supports a consistent system-wide process to implement Executive Order 10450, Security Requirements for Government Employment, for clinical trainees. The "Clinical Trainee Registration System of Records" is in the Business Requirements Development process, but has not yet been guaranteed funding.

In addition, the Office of Academic Affiliations (OAA) within VHA is charged with overseeing all health professions training affiliation agreements between VA and affiliated universities, colleges, schools and institutions with accredited (for licensing) health professions education programs. Over 99% of VA trainees come from these programs. (Less than 1% of trainees come from VA sponsored and accredited education programs). OAA is currently developing a clinical supervision reporting system, or Clinical Supervision Index (CSI), that will monitor supervision of all health professions trainees who are involved in patient care at a VA medical facility. The CSI includes a Clinician Survey that is automated on VHA electronic health record and computer system. CSI Clinician Survey will reach anyone who has an account on the Computerized Patient Record System (CPRS), including all clinical staff (comprising supervisors of trainees) and their clinical trainees who see patients. The survey will thus provide an accounting of all trainees in VA who, as part of the education program requirements will have a VA computer account in order to permit the trainee to enter patient progress notes as part of their required training. The CSI is currently administered at one hospital (VA Loma Linda Healthcare System) for testing purposes under a merit-reviewed grant from VHA's Office of Research and Development.

Until either CTRSR or CSI is fully implemented, our estimates of response rates must be based on approximations computed by OAA staff. These estimates are described below, and are computed annually for the academic year that begins July 1st in the prior calendar year and ends June 30th in the current calendar year.

A.(3) BACKGROUND: *OAA's National Evaluation Workgroup*: The OAA's National Evaluation Workgroup is made up entirely of VA employees, with and without compensation, and is made up of OAA's Directors of Medical and Dental Education, Associated Health Education, Nursing Education, Special Fellows Program, and Data Management and Support Center and Evaluation Units, and includes selected Associated Chiefs of Staff for Education and Designated Learning and Education Officers at local VA medical centers and VA health care systems, plus invited VHA health professions education leaders, scholars and evaluation investigators. This group meets by scheduled conference call every Friday for 49 weeks a year. The Workgroup discusses, makes recommendations to OAA pertaining to the LPS survey questions, LPS administration to trainees, solicitation of potential respondents to take the LPS on line, data processing and storage, process operations to ensure data security, data integrity, and maintenance of respondent confidentiality, data analyses to create findings, interpretation of those findings, and translating those interpretations into program evaluations, performance assessments, and policy recommendations.

A.(4) BACKGROUND: *Solicitation of Respondents*: Without the benefit of CTRSR or fully implemented CSI, potential eligible respondents to the survey are solicited to take the survey through posters located in designated areas throughout the VA medical center where the trainee was assigned, by face-to-face contacts with their VA education directors, and through emails to a list of trainees that OAA sends out through the Chief and/or Deputy Chief Officer for OAA requesting that trainees take the LPS survey, stressing its importance to improve the quality of VA clinical learning environments and affiliate education programs, and providing appropriate links to the survey. OAA will coordinate these national efforts by sending emails to program directors of affiliate institutions and to the Associate Chiefs of Staff for Education and Designated Learning

and Education Officers emphasizing the importance of the survey, and providing reporting statistics (numbers completed) so that local administrators will be able to gage their success in recruiting subjects to complete the survey. In addition, the process to take the survey is simplified by asking respondents to enter designated websites or portals by clicking onto appropriate links.

A.(5) BACKGROUND: *Dissemination of Results*:   Results, including findings, interpretation, and policy analyses, are disseminated to OAA, VHA, and VA leadership, as well as the Congress, Inspector General, and local health professions education leadership and program directors at individual VA medical centers and health care systems. Dissemination consists primarily of Current and Special Reports. Current Reports are produced annually by means of a secure VA intranet website through a data cube. The data cube permits appropriate users to query the LPS data and produce graphs and tables showing LPS survey findings. Special Reports are produced on request and include information for health professions program accreditation, certification, performance progress, and program evaluation. Special Reports are also produced for presentations at local and national professional meetings sponsored by VHA and health professions education associations and societies. Special Reports are also run for purposes of producing seminars for local practitioners, publications in peer reviewed scientific journals, program evaluation of specific education programs, and national presentations at education and scientific meetings for the broader health professions education practice and research communities. A partial list of peer-reviewed presentations, reports, and publications are listed below:

1. Keitz, S., Holland, G.J., Melander, E.H., Bosworth, H., and Pincus, S.H. for the Learners' Perceptions Working Group (Gilman, S.C., Mickey, D.D., Singh, D., et al). The Veterans Affairs Learners' Perceptions Survey: The Foundation for Educational Quality Improvement. *Academic Medicine* 78(9):910-917, 2003.

2. Singh, D.K., Holland, G.J., Melander, E.H., Mickey, D.D., Pincus, S.H.: VA's Role in U.S. Health Professions Workforce Planning. *Proceedings of the 13th Federal Forecasters Conference of 2003*:127-133, 2004.

3. Singh, D. K., Golterman, L., Holland, G. J., Johnson, L.D., and Melander, E. H., Proposed Forecasting Methodology for Pharmacy Residency Training, *Proceedings of the 15th Federal Forecasters Conference of 2005*: 39-42, 2005.

4. Chang, Barbara K.; Kashner, T. Michael; and Holland, Gloria J. "Evidence-based Expansion and Realignment of Physician Resident Positions." Presented at the 3rd Annual Association of American Medical Colleges Physician Workforce Research Conference. Bethesda MD, May 2-4, 2007.

5. Chang, B.K.; Holland, G.J.; Kashner, T.M.; Flynn, T.C.; Gilman, S.C.; Sanders, K.M.; and Cox, M. "Graduate Medical Education Enhancement in the VA." Presented at the Association of American Medical Colleges Group on Resident Affairs Professional Development Meeting, Small Group Facilitated Discussion. Memphis TN, April 22-25, 2007.

6. Chang, B. K.; Kashner, T.M.; Holland, G.J. "Allocation Methods to Enhance Graduate Medical Education." Presented at the International Medical Workforce Collaborative. Vancouver B.C., Canada, March 21-24 2007.

7. Cannon, Grant W.; Keitz, Sheri A.; Holland, Gloria J.; Chang, Barbara K.; Byrne, John M.; Tomolo, Anne; Aron, David C.; Wicker, Annie B.; and Kashner, T. Michael. "Factors Determining Medical Students' and Residents' Satisfaction during VA-Based Training: Findings from the VA Learners' Perceptions Survey." Academic Medicine. vol. 83, no. 6 (June 2008), pp. 611-620.

8. Chang, Barbara K.; Cox, Malcolm; Sanders, Karen M.; Kashner, T. Michael; and Holland, Gloria J. Expanding and Redirecting Physician Resident Position by the US Department of Veterans Affairs." Presented at the 11th International Medical Workforce Collaborative, Royal College of Surgeons of Edinburgh, Edinburgh UK, September 17, 2008.

9. Golden, Richard M.; Henley, Steven S.; White Jr., Halbert L.; and Kashner, T. Michael. "Correct Statistical Inferences using Misspecified Models with Missing Data with Application to the Learners' Perceptions Survey." Presented at the *Joint Annual Convention of the 42nd Annual Meeting of the Society for Mathematical Psychology and the 40th Annual Conference of the European Mathematical Psychology Group*, Amsterdam, Netherlands, August 1-4, 2009.

10. Kashner, T. Michael; Henley, Steven S.; Golden, Richard M.; Byrne, John M.; Keitz, Sheri A.; Cannon, Grant W.; Chang, Barbara K.; Holland, Gloria J.; Aron, David C.; Muchmore, Elaine A.; Wicker, Annie; and White Jr., Halbert L. "Studying the Effects of ACGME Duty Hours Limits on Resident Satisfaction: Results from VA Learners' Perceptions Survey." Academic Medicine. vol. 85, no. 7 (July, 2010), pp. 1130-1139.

11. Golden, Richard M.; Henley, Steven S.; White Jr., Halbert L.; and Kashner, T. Michael. "Application of a Robust Differencing Variable (RDV) Technique to the Department of Veterans Affairs Learners' Perceptions Survey." Presented at the *43rd Annual Meeting of the Society for Mathematical Psychology*, Portland, OR, August 7-10, 2010.

12. Kaminetzky, Catherine P.; Keitz, Sheri A.; Kashner, Michael; Aron, David C.; Byrne, John M.; Chang, Barbara K. ; Clarke, Christopher; Gilman, Stuart C.; Holland, Gloria J.; Wicker, Annie; and Cannon, Grant W. "Training Satisfaction for Subspecialty Fellows in Internal Medicine: Findings from the Veterans Affairs (VA) Learners' Perceptions Survey." BMC Medical Education. vol. 11, no. 21 (2011), pp. 1-9 (http://www.biomedcentral.com/1472-6920/11/21).

13. Kashner, T. Michael; and Chang, Barbara K. "VA Residents Improve Access and Financial Value." Presented at the Annual Meeting of the Association of American Medical Colleges, Denver, CO, November 4-9, 2011.

14. Lam, Hwai-Tai C.; O'Toole, Terry G.; Arola, Patricia E.; Kashner, T. Michael; and Chang, Barbara K. "Factors Associated with the Satisfaction of Millennial Generation Dental Residents." Journal of Dental Education, vol. 76, no. 11 (November, 2012), pp. 1416-1426.

15. Byrne, John M.; Chang, Barbara K.; Gilman, Stuart; Keitz, Sheri A.; Kaminetzky, Cathy; Aron, David; Baz, Sam; Cannon, Grant; Zeiss, Robert A.; and Kashner, T. Michael. "The Primary Care-Learners' Perceptions Survey: Assessing Resident Perceptions of Internal Medicine Continuity Clinics and Patient-Centered Care." Journal of Graduate Medical Education, vol. 5, no. 4 (December, 2013), pp. 587-593.

16. Chang, Barbara; Muchmore, Elaine; and Kashner, T. Michael. "Taking the Pulse of Your GME Training Programs." Presented at the 2014 (AAMC) Group on Resident Affairs Spring Meeting, Phoenix, AZ, May 4-7, 2014.

17. Byrne, John M.; Kashner, T. Michael; Gilman, Stuart C.; Wicker, Annie B.; Bernett, David S.; Aron, David C.; Brannen, Judy L.; Cannon, Grant W.; Chang, Barbara K.; Hettler, Debbie L.; Kaminetzky, Catherine P.; Keitz, Sheri A.; Zeiss, Robert A.; Golden, Richard M.; Paik, Dae-Hyun; and Henley, Steven S. "Do Patient Aligned Medical Team Models of Care Impact VA's Clinical Learning Environments." Presented at the 2015 Health Services Research and Development / Quality Enhancement Research Initiative (HSR&D/QUERI) National Conference, Philadelphia, PA, July 8-10, 2015.

18. Perez, Elena V.; Byrne, John M.; Durkin, Rob; Wicker, Annie B.; Henley, Steven S.; Golden, Richard M.; Hoffman, Keith A.; Hinson, Robert S.; Aron, David C.; Baz, Samuel; Loo, Lawrence K.; Velasco, Erwin D.; McKay, Tracy; and Kashner, T. Michael. "Clinical Supervision Index: Measuring Supervision of Physician Residents in VA Medical Centers." Presented at the 2015 Health Services Research and Development / Quality Enhancement Research Initiative (HSR&D/QUERI) National Conference, Philadelphia, PA, July 8-10, 2015.

19. Kashner, T. Michael; Hettler, Debbie L.; Zeiss, Robert A.; with Aron, David C.; Brannen, Judy L.; Byrne, John M.; Cannon, Grant W.; Chang, Barbara K.; Dougherty, Mary B.; Gilman, Stuart C.; Holland, Gloria J.; Kaminetzky, Catherine P.; Wicker, Annie B.; Bernett, David S.; and Keitz, Sheri A. "Has Interprofessional Education Changed Learning Preferences? A National Perspective," invited resubmission to <u>Health Services Research</u>.

B. RESPONSE RATE: We approximate the response rate at 51%, based on 16,000 unique respondents who entered the LPS link to take the survey and 45,000 unique recipients to an email campaign (up to 3 emails per addressee) of existing and former trainees that is conducted for three months during the Spring of each academic year, of whom 70% are believed to be unique and eligible to complete the LPS by being near the end of a VA rotation as part of a required curriculum from an accredited health professions education program and by having access to a VA intranet computer to take surveys at the time of the email.

C.(1) JUSTIFICATION: *Response rate estimate*: Until administration of the CSI or CTRSR [§1.A(2)], and based on the complexity and diversity of trainees who rotate through VHA medical facilities [§1.A(1)], under the guidance and direction of OAA's National Evaluation Workgroup [§1.A(3)], we used the email solicitation [§1.A(4)] as a means of estimating our response rate based on those trainees that OAA could reach by email in order to compute a response rate [§1.B]. The strategy is appropriate based on our intended use and having been confirmed by reporting the methodology and LPS methods and findings in peer-reviewed scientific journals [§1.A(5)].

C.(2) JUSTIFICATION: *Census Sample*: At present, using a sampling methodology is not possible in the absence of an automated trainee registration system [§1.A(2)]. To reduce respondent burden, we intend to make the survey available to trainees at VA training medical facilities throughout the academic year so they can take the survey as part of their out-processing. Responses captured via the census approach provide an adequate sample for the intended purpose of this survey; i.e., to accurately and substantially evaluate VA performance at the facility and individual program levels while minimizing respondent burden.

C.(2)(i) *Process limitations*. The LPS is available starting in September in order to capture non-academic year associated health trainees. We increase our efforts in April through intensified marketing to increase the population of trainees at VA medical facilities who take the LPS. The VA will continue to accept responses from trainees up to three months following March 31. This approach addresses concerns that: (1) only a small number of trainees may be enrolled at each VA program level; (2) every VA medical center and program must be evaluated as part of their performance assessment; and (3) trainees are offered an opportunity to provide feedback to faculty preceptors, mentors, and supervising attending physicians. This approach is actually preferred to any type of probability sampling within each program as such sampling would pose risks to the confidential format that is essential to getting accurate and unbiased responses from trainees. For example, we provide aggregated results only to reporting units (a given facility for trainees in a designated specialty and in an academic year) of no fewer than 8 respondents to minimize re-identification risk that would expose the responding trainees to loss of confidentiality. In addition, the use of specified elements and summary questions (described below) are in lieu of open-ended questions which we have found are: (i) unreliable, (ii) difficult to analyze with current resources in the absence of unstructured text analyses technology; (iii) are time

consuming for the respondent thus often remain unanswered, and (iv) do not lend themselves to computing scores that permit comparisons across facilities and over time.

C.(2)(ii) *Scope and Question Content.* The LPS survey is designed to provide information at the program level for each VA facility, by profession discipline, specialty, and subspecialty, and by academic level. The usefulness of this information to each medical center depends on having an adequate number of respondents to take the survey from each training program. The information collected focuses on assessing the VA's performance in providing a productive and effective learning, working, and clinical environments with sufficient details to enable program directors and VHA clinical and education leadership to know how to improve performance at the facility and professional education program level.

(A) *Facility-wide* summary is constructed from individual questions asking whether the respondent will use the program again, is recruitable to work for VA as a future employer, and patient care quality.

(B) *Environment-level satisfaction domains.* There are nine satisfaction domains that describe a trainee's clinical learning experiences, broken down into learning, working, and clinical experiences. Learning experiences are broken down into 15 element questions and a domain summary question where respondents rated their satisfaction with the clinical learning environment, and 13 element questions and a domain summary question for the preceptors and faculty domain. Working experiences are broken down into 9 elements and a summary question where respondents rated their satisfaction with the working environment, 8 elements and a summary question for physical environment, and 7 elements and a summary question for personal experience. Clinical experiences are broken down into 7 element questions and a summary question where respondents rated their satisfaction with the clinical environment, 13 elements and a summary question rating the availability of support staff, 6 elements and a summary question rating the quality of support staff given availability, and 6 elements and a summary question rating the systems and processes of handling medical errors.

(C) Fact-*based domains.* Fact-based domains include 2 element questions where respondent described the psychological safety of their clinical learning experience; 17 element questions plus fact-based summary and satisfaction-based summary questions where respondents rated their VA experience in terms of patient and family-centered care, and interprofessional team care; and 9 element questions plus fact-based summary and satisfaction-based summary questions where respondents rated their VA experience in terms of interprofessional team care.

(D) Response *categories.* Respondents rate satisfaction on a 5-item Likert scale for satisfaction-based questions ("very satisfied," "somewhat satisfied," "neither satisfied nor dissatisfied," "somewhat dissatisfied," or "very dissatisfied") and for fact-based questions ("strongly agree," "agree," "neither agree nor disagree," "disagree," or "strongly disagree").

(E) Scoring. Both satisfaction and fact-based domains are scored using the following methods.

For elements, (a*i*) *binary element p-scores* are calculated by assigning the value of one to "very satisfied" and "somewhat satisfied" responses and the value of zero to "neither satisfied nor dissatisfied," "somewhat dissatisfied," or "very dissatisfied" responses to satisfaction-based questions, and the value of one to "strongly agree" and "agree" responses and the value of zero to "neither agree nor disagree," "disagree," or "strongly disagree" responses. (a*ii*) *Ordinal element o-scores* are calculated by assigning integer values to response categories. For satisfaction-based questions, the value of five is assigned to "very satisfied," four to "somewhat satisfied," three to "neither satisfied nor dissatisfied," two to "somewhat dissatisfied," and one to "very dissatisfied". For satisfaction-based questions, the value of five is assigned to "strongly agree" four to "agree," three to "neither agree nor disagree," two to "disagree," and one to "strongly disagree" responses.

For domains, (b*i*) *binary summary p-scores* are calculated by assigning the value of one to "very satisfied" and "somewhat satisfied" responses and the value of zero to "neither satisfied nor dissatisfied," "somewhat dissatisfied," or "very dissatisfied" responses to satisfaction-based responses, and the value of one to "strongly agree" and "agree" responses and the value of zero to "neither agree nor disagree," "disagree," or "strongly disagree" for fact-based responses. (b*ii*) *Ordinal summary o-scores* are computed by assigning integer values to response categories to summary domain questions. For satisfaction-based summary domain questions, the value of five is assigned to "very satisfied," four to "somewhat satisfied" three to "neither satisfied nor dissatisfied," two to "somewhat dissatisfied," and one to "very dissatisfied". For fact-based summary domain questions, the value of five is assigned to "strongly agree" four to "agree," three to "neither agree nor disagree," two to "disagree," and one to "strongly disagree" responses. (b*iii*) *Mean element domain, or m-scores*, are computed for each domain by taking the mean of o-scores across element questions comprising a given domain. This is allowed statistically since the second highest Eigen value among principal components comprising element responses for a domain is less than one. Psychometrically, this means that m-scores behave as Rasch models and thus may be interpreted as a sufficient statistic to represent the latent domain-wide score. (*iv*) Mean *element z-scores* are computed by subtracting the respondent's m-score by the mean of m-scores across respondents, and dividing the difference by the standard deviation of m-scores across respondents. (*v*) Mean *element p-scores* are computed for each domain by assigning the value of one to an m-score of greater than three, and a value of zero if the m-score is three or smaller.

(E) Analyses. Analyses of binary, ordinal, and interval domain scores are described in terms of frequencies and non-parametric statistics, and analyzed respectively using binomial logistic regression, generalized linear model with cumulative logit linking function and multinomial distributions, and generalized linear model with identity linking functions and normal or gamma distributions which ever displays the best fit. More details are provided below to describe adjusted scores used in making cross-facility and over-time comparisons that controls for response biases and variation in factors that are outside the locus of control of local VA medical center medical staff and education administrators and program directors of VA affiliate health professions education universities, schools, colleges, and institutions [§3.2].

2. **Describe the procedures for the collection of information, including:**

a. **Statistical methodology for stratification and sample selection**

The VA will take a census of all trainees present in VA teaching facilities participating in the survey during the academic year.

b. **Estimation procedure**

We propose to survey an all-inclusive population and hence there is no estimation procedure for sampling. The VA will take a simple means and frequencies of each element and domain using binary, ordinal, p-score, and m-score values and computed by health professions, academic level, facility-wide, by VISN, and for all VA, by year and across years. Scoring is described above at [§1.C(2)(ii)(E)].

c. **Degree of accuracy needed**

In order to increase the response rate to better represent the population, reminder e-mails are sent to the Associate Chief of Staff for Education or equivalent to increase the response rate. Facility-specific response numbers will accompany these e-mails. This is also described in [§1.A(4)].

d. **Unusual problems requiring specialized sampling procedures**

There are no unusual problems associated with the selection of the time period for collection. The census sample obtained from our administration procedures yields statistically valid and usable results.

e. **Any use of less frequent than monthly data collection to reduce burden**

Not applicable. This survey is collected annually. In having the survey available for most of the academic year the overall response burden is reduced by (a) spreading out data collections, (b) the convenience of being available when trainees are available and (c) available when trainees out-process from their clinical training rotations.

3. **Describe methods to maximize response rate and to deal with issues of non-response. The accuracy and reliability of information collected must be shown to be adequate for intended uses. For collections based on sampling, a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.**

3.1 Response Rate

A. *Overview*: A response rate will be computed by determining the percent of trainees who responded to the survey based upon the number of trainees who were contacted to respond to the survey by email assembled from local and national contact lists. To maximize the number of respondents, the Office of Academic Affiliations will send reminder e-mails to the Associate Chief of Staff for Education or equivalent Designated Learning and Education Officers, as appropriate. Facility-specific response numbers will accompany these e-mails. See also [§1.A(4)].

The response rate bias will be computed by comparing characteristics among trainees who completed the survey from registrants who did not complete the survey. We will know the program characteristics of those respondents who did not complete the survey

from information supplied by when trainees first login to take the survey but fail to complete. Further, respondent characteristics will be derived and normalized against similar characteristics in the trainee population as a whole and against trainees completing the survey over the last 5 years.

In prior years, we have reported findings that physician resident respondents have similar academic level and specialty distributions as all trainees in non-Pediatric and non-OB-GYN residency training programs in an Accreditation Council for Graduate Medical Education (ACGME) approved residency training program in the U.S. when OB-GYN and Pediatric residency programs are not included [§1.A(5) references #10, #19].

B. *Adjusted Scores*: We compute adjusted p-, o-, m-, and z-scores for each satisfaction and fact-based domain in order to account for response biases when ranking facilities or comparing how well a facility has done over time, or comparing trainees by academic level or health professions education program.

Adjusted scores are computed to reflect differences in the distribution of all trainees, including both respondents and non-responders. Scores are adjusted based on generalized estimating equations and generalized linear models where trainee and facility-level characteristics serve as independent variables. Trainee characteristics include training program, specialty and subspecialty, trainee's academic level, facility complexity level based on a five-item ordinal score provided by VA, and the mix of patients that the trainee sees including percent of their patients seen who are age 65 and over, female gender, with a chronic medical illness, with a chronic mental health illness, with multiple medical illnesses, with alcohol or substance dependence, low income or socioeconomic status, and without social or family support. These will be entered as median and mean centered values, where medians and means are computed for all trainees. In addition, we enter a response bias index computed as follows as an additional independent predictor adjusting final scores.

C. *Response Bias Index*: Respondents are asked to describe their satisfaction with an element or domain by selecting from among five response choices ("very satisfied," "somewhat satisfied," "neither satisfied nor dissatisfied," "somewhat dissatisfied," "very dissatisfied"). In so doing, respondents must define each category and mentally compute cut points to translate the intensity of their satisfaction or dissatisfaction into a specific choice from among the five response options. Respondents may vary in how they define those cut values. For example, a rater who is not highly satisfied may report "very satisfied" while another respondent feeling the same intensity of satisfaction may choose to report "somewhat satisfied" on the survey.

This response bias phenomenon can cause problems with low response rates where selection biases can confound these response biases. However, the LPS survey includes questions that can be used to measure directly a response bias. The bases for computing a response bias index comes from our observations that different trainees report satisfaction differently for essentially the same, or common, experience. Such common experiences include interactions with VA's computer system, facility-level parking, or the convenience of the facility's location for among trainees who report on the same facility for the same time period. Here, variability of responses across responders would reflect, in part, differences in how respondents chose a response option when describing the intensity of their satisfaction.

To account for these responder biases, we developed a response bias index, nicknamed responder "grumpiness." The theory behind response bias indexes is that all respondents who report on the same experience should, at least theoretically, be expected to assign the same rating. Thus a response bias index could be computed by comparing a respondent's actual satisfaction rating with the average among other trainees who reported on the same experience.

The response bias index computed as a mean centered m-score from three existing element questions taken from two domains. These "common" elements describe experiences that may vary across facilities, but do not vary between trainees reporting on the same facility and time period. These common element questions ask respondents to rate their satisfaction with the facility's "Computerized Patient Record System (CPRS)" as a Working Domain element, and the "convenience of facility location" and "parking" as elements of the Physical Environment Domain. Responses are recorded on five-point, ordered, Likert scales. The responses were recoded so that "very satisfied" is assigned to a value of five, "somewhat satisfied" to a value of four, "neither satisfied nor dissatisfied" to three, "somewhat dissatisfied" to two, and "very dissatisfied" to one. The mean of these recoded responses over the three elements are calculated for each respondent. That is, the response bias index equals the m-score for the three common elements minus the mean of corresponding m-scores across all respondents at the same facility and time period. To ensure that all trainees were reporting about the same experience, facilities are defined in terms of a 6-digit facility code.

The facility's trainees include those who took the LPS in either the same academic year, or an earlier or later academic year. To account for small changes that may have occurred in computers, convenience, and parking over time, trainee ratings were weighted to reflect differences in time that lapsed between when the given respondent completed the LPS, and when each facility trainee completed the LPS. Scores taken from trainees who responded to the LPS in the reporting year were given a weight of one (1=1/(1+0)). Scores taken from trainees who responded to the LPS either one year later, or one year earlier from the reporting year were assigned to a weight of 0.50 (computed as: 1/(1+1)=0.50). Scores that are two years apart were weighted by 0.33 (computed as: 1/(1+2)=0.33). This continues so that scores up to 10 years out were assigned a weight of 0.09 (computed as: 1/(1+10)=0.09). The weighted average is computed by first multiplying the trainee rate (mean of the three element rates) by the corresponding weight (based on when the trainee took the LPS), summing the weighted rates over all of the facility's trainees, and dividing the weighted sum by the sum of

weights over all of the facility's trainees. Note that for a given year, information to compute the response bias index to correct for responder biases is taken from both years prior, and year's post, to the year the responder completed the LPS survey of interest.

D. *Response rate bias*: The response rate bias is computed by taking the difference between adjusted and unadjusted scores as a percent of the adjusted score. Statistical significance and confidence intervals will be determined by bootstrapping 10,000 samples. We also compute a robust estimate of the response rate bias by taking the mean response rate bias across all bootstrapped samples. Adjusted scores will not be corrected for facility nesting since we wish to know how the distribution of non-responses across facilities impact national performance estimates. The robust estimate of the response rate bias measures potential damage of assessing national performance estimates when registrants fail to respond to the survey.

We also plan to present results that controls for response biases. This will enable us to compare results across facilities, across disciplines, and within a facility over time. Such comparisons are necessary to evaluate progress VA is making to achieve their clinical professional education mission. This will be accomplished with a differencing variable technique derived from difference-in-differences analyses that is designed to control for both observed and unobserved differences between responding sample and population. Estimates for each domain will be computed by estimating the following regression:

$$y_{ijk} = \beta_0 + \beta_1\left(X_i - \overline{X}\right) + \beta_2 t_k + \beta_3 F_i^{(j)} + \beta_4^{(j)} t_k F_i^{(j)} + u_i + v_{ij} + z_{ijk} \qquad \text{Eq. 1}$$

$$y_{ij} = w_0 + w_1 y_{ij1} + w_2 y_{ij2} + ... + w_k y_{ijk} + ... + w_K y_{ijK} + u_{ij}^0 \qquad \text{Eq. 2}$$

where y_{ijk} is the kth element score (for the domain) of respondent i in VA facility j, y_{ij} is the summary domain score (summarizing all k=1, …, K elements within the domain). X_i is characteristics of respondent i and X-bar is the mean characteristics of the reference respondent sample. t_k is the continuous differencing variable that ranges from zero to one for the "k^{th}" element of the domain, where t=0 indicates the element should be "common" to all VA (e.g., accessing patient records where little variation in respondent VA experiences is expected with a nation-wide uniform electronic medical record system), and t=1 indicates the response should be very specific to the respondent's particular VA experiences (e.g., interaction with preceptor or clinical supervisor). $F_i^{(j)}$ is equal to one if respondent i is located in facility j, and zero otherwise. The "w's" are coefficients, normalized so that w_1+…+w_K equals one, describing how much each element factor loads onto domain summary scores. The w's are used to weight records by facility and respondent for each domain when estimating the parameters to the model in equation 1. $u, v, z,$ and u^0 are random variates assumed to by independent and identically normally distributed. We thus can compute an adjusted score for the given domain for facility (j) by $\beta_4^{(j)}$, the interaction term to the given hospital j and the reference group of facilities used to standardize the scores. The reference facilities and reference respondents are taken from the prior year. We will then compute β_4 for each facility by year, permitting us to compare progress within facility but over time for the past three years. Similar strategy is proposed to compute overall hospital score.

Response bias, computed as a percent difference, may be approximated by

$$\frac{\bar{y}_j - \bar{y}}{\bar{y}} - \frac{\beta_4^{(j)} - \bar{\beta}_4}{\bar{\beta}_4} \qquad\qquad \text{Eq. 3}$$

Finally, we intend to bootstrap samples (10,000 with replacement) to compute confidence intervals of estimated performance outcome.

4. Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions of 10 or more individuals.

Not applicable. The survey instrument has been previously fielded and extensively tested, with findings published in scientific journals [§1.A(5)]. Questions are essentially the same as has been approved previously by OMB, with corrections, updated discipline and professional categories to reflect changes in education program designations and discipline classifications, and eliminating questions shown in subsequent analyses to not provide additional information from responses provided in remaining questions.

5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

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